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Schooling Mode and Social Growth: Online vs. In-Person Impact on Altruism

Ariel Ganelis

Stanford Online High School, Redwood City, CA
415 Broadway Academy Hall, Floor 2, 8853, 415 Broadway, Redwood City, CA 94063 Ariel@Ganelis.com, AGanelis@OHS.Stanford.edu
1-310-721-0566

Abstract

This study examines the effects of different schooling environments - online, in-person, and hybrid - on the development of altruism and empathy among middle and high school students. Altruism and empathy are critical social skills that contribute to individuals' positive roles in society. Data were collected from 153 students across the three settings using the Helping Attitudes Scale, a validated measure of altruistic behaviors. Statistical analyses revealed no significant differences in altruism scores across schooling types, suggesting that all environments may similarly support these skills. However, a weak positive correlation was observed between students' social satisfaction and altruism, indicating the importance of social life quality. Unexpectedly, students with lower altruism scores were more likely to donate a potential $20 prize to charity, suggesting possible measurement limitations. These findings underscore the need for further research into how educational contexts, family background, and extracurricular activities interact in shaping social development, with implications for educational policy and practice.

Keywords: Altruism, Empathy, Schooling Environments, Social Development

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INTRODUCTION

One of the most pressing concerns for families considering a transition to online or homeschooled educational environments is whether their children will continue to develop the essential social and emotional skills required for healthy adjustment in society. Parents frequently worry about the long-term implications of reduced face-to-face interaction on their children's capacity to engage empathetically and altruistically with others (Borup, Graham, & Davies, 2013; Kuo et al., 2014). These concerns are not trivial, as empathy and altruism are increasingly recognised as critical life competencies that shape interpersonal relationships, civic participation, and mental health across the lifespan (Eisenberg, Spinrad, & Knafo-Noam, 2015; Oberle et al., 2016).

Traditional in-person schooling has historically been valued as a social arena in which students engage in daily, direct interactions that facilitate the cultivation of empathy, cooperation, and helping behaviors. Classroom routines, group work, extracurricular activities, and unstructured peer encounters provide diverse opportunities for spontaneous social learning. Research consistently documents that supportive teacher–student and peer relationships in such environments are associated with higher levels of socio-emotional competence and prosocial behavior (Roorda et al., 2011; Ruzek et al., 2016). In this respect, in-person schooling aligns with Social-Emotional Learning (SEL) frameworks that position schools as central contexts for developing perspective-taking, self-regulation, and cooperative problem-solving (Durlak et al., 2011; Jones et al., 2017).

By contrast, online schooling offers flexibility, personalised pacing, and access to a wider range of instructional resources, but these advantages may come at the expense of spontaneous social interaction. A growing body of research points to the risks of social isolation, reduced peer contact, and weaker teacher presence in digital learning contexts (Martin, Sun, & Westine, 2020; König, Jäger-Biela, & Glutsch, 2020). Without intentional design features that encourage interaction, online schooling may limit opportunities for

empathy practice and collaborative skill-building. At the same time, recent studies suggest that when online environments incorporate structured peer collaboration, synchronous discussions, and community-building mechanisms, they can approximate many of the socio-emotional affordances of in-person settings (Borup et al., 2013; Kuo et al., 2014).

Hybrid or blended schooling models have emerged as a potential "middle ground," integrating the face-to-face benefits of traditional classrooms with the flexibility of online learning. Research indicates that well-designed hybrid models can support not only academic achievement but also socio-emotional development, particularly when the in-person components are leveraged for socialisation and the online components are designed for autonomy and reflection (Graham, Henrie, & Gibbons, 2019; Halverson et al., 2017). This suggests that the quality and intentionality of instructional design, rather than modality alone, is what most strongly determines socio-emotional outcomes.

The current study is situated at this intersection, aiming to investigate how different educational environments, specifically online, in-person, and hybrid schooling, correlate with students' empathy and altruistic behaviors. Empathy, defined as the ability to understand and share the feelings of another, and altruism, the selfless concern for others' well-being, are widely recognised as foundational social skills that contribute to effective functioning in society (Eisenberg et al., 2015; Zuffianò et al., 2018). By examining altruism levels among middle and high school students, this research seeks to determine whether particular schooling modalities are more conducive to the development of these social skills.

It is hypothesised that students in traditional in-person schools may display higher levels of empathy and altruistic behavior due to the richness of their social interactions. However, given the growing evidence that online and hybrid environments can successfully foster prosocial outcomes when appropriately structured, it is anticipated that the gap across modalities may be narrower than traditionally assumed. In this way, the study contributes to ongoing debates about the role of educational settings in socio-emotional development and responds to calls for more empirical evidence in adolescent populations (Baltà-Salvador et al., 2021; González et al., 2020).

Change will be less profound among online or schooled students. This hypothesis is based on the premise that regular, direct social interactions in in-person schools create a more conducive environment for developing these skills.

LITERATURE REVIEW

The relationship between schooling modality and socio-emotional development continues to be examined through ecological and social-emotional learning frameworks. More recent scholarship underscores that opportunities for belonging, cooperative activity, and sustained adult–child relationships in schools remain central to prosocial growth (Wentzel, 2010; Roorda et al., 2011). Within Bronfenbrenner's updated bioecological model, schooling constitutes a key microsystem that interacts with peers, families, and community contexts to shape empathy and altruism across development (Bronfenbrenner & Morris, 2006).

In-person schooling has traditionally been viewed as advantageous for cultivating empathy and altruism because it affords rich, face-to-face interactions and spontaneous social learning. Longitudinal and cross-sectional studies have documented links between supportive teacher–student relationships and prosocial outcomes, including empathy, cooperation, and helping behaviors (Roorda et al., 2011; Oberle et al., 2016; Ruzek et al., 2016). These findings are consistent with Social-Emotional Learning (SEL) frameworks, which position schools as primary contexts for practising perspective-taking, relationship-building, and cooperative problem-solving (Durlak et al., 2011; Jones et al., 2017).

The rapid expansion of online learning has prompted questions about whether digital environments can replicate these social affordances. Early concerns regarding isolation and reduced socialisation have been nuanced by recent evidence showing that online learning communities can support relatedness and collaboration when interaction is intentionally structured (Borup, Graham, & Davies, 2013; Kuo et al., 2014; Martin et al., 2020). Hybrid and blended models attempt to combine the benefits of both modalities, with research emphasising the importance of deliberate integration of online and face-to-face components to support both academic and socio-emotional outcomes (Halverson et al., 2017; Graham et al., 2019).

Measuring empathy and altruism continues to pose methodological challenges. Although self-report instruments such as the Helping Attitudes Scale remain widely used, contemporary scholarship highlights the limitations of self-reports and advocates for triangulation with behavioral and observational measures (Carlo et al., 2018; Martela & Ryan, 2016). Experimental and neurodevelopmental studies add converging evidence that empathic responding is underpinned by identifiable neural and motivational systems, yet educational research emphasises the need for ecologically valid measures in school settings (Eisenberg, Spinrad, & Knafo-Noam, 2015; Zuffianò et al., 2018).

The COVID-19 pandemic accelerated adoption of online and hybrid models, generating a new body of evidence on academic and socio-emotional impacts. Recent studies have shown both academic continuity and heightened emotional strain during remote learning, with mixed implications for social interaction and wellbeing (Baltà-Salvador et al., 2021; Gonzalez et al., 2020; König et al., 2020). Taken together, contemporary findings suggest that the quality and intentionality of structured

interaction, rather than modality per se, are the primary drivers of prosocial outcomes. Programmes that foreground teacher presence, peer collaboration, and purposeful social tasks tend to demonstrate stronger socio-emotional benefits regardless of delivery mode (Martin et al., 2020; Kuo et al., 2014).

Synthesis and Gaps

The literature indicates: (a) in-person settings naturally afford frequent, rich social interactions that support empathy and altruism; (b) online settings can approximate these affordances when deliberately designed for presence and collaboration; and (c) hybrid models may offer the most flexible configuration when their in-person components are substantive and aligned with collaborative online tasks (Halverson et al., 2017; Graham et al., 2019). Nonetheless, causal evidence in adolescent populations remains limited, and relatively few studies triangulate self-reports with behavioral measures in K–12 contexts. Future research should delineate which design features (e.g., synchronous peer discussion, service-learning tasks, mentorship) most effectively support prosocial development across modalities.

MATERIALS AND METHODS

Participants

A total of 153 middle and high school students participated in the study, representing grades 7 through 12. The sample comprised students from three educational settings: traditional in-person schools (IP), online or homeschool environments (OH), and hybrid models (HY), where students engaged in both in-person and online schooling. Recruitment was conducted through online forums and group chats involving student and parent communities, ensuring a diverse sample. Demographic information such as gender, spirituality, and political orientation was also collected to provide background context.

Instruments

The primary instrument used to measure altruism was the Helping Attitudes Scale (HAS) developed by Nickell (1998). This 20-item scale assesses respondents' beliefs, feelings, and behaviors associated with helping others. Each item is rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), producing a total score between 20 and 100, with higher scores indicating stronger altruistic tendencies.

In addition, a set of supplementary questions was designed by the researcher to capture participants' schooling type, grade level, and social satisfaction ratings. To provide a behavioral measure of altruism beyond self-reporting, participants were also asked a Donation Question, where they could indicate whether a potential $20 prize should be kept for themselves or donated to a charity of their choice.

Procedure

Data were collected via a Google Form distributed electronically across relevant student and parent networks. Responses were automatically recorded in Google Sheets for efficient data management. All participants voluntarily completed the survey, and confidentiality was assured.

Data Analysis

Data were analysed using both descriptive and inferential statistical methods. To explore the relationship between grade level and altruism scores, the Spearman Rank Correlation Coefficient (SRCC) was employed, as both variables were ordinal and the test is robust against outliers. Chi-square tests of association were used to examine the relationship between schooling type and social life satisfaction, as well as between political orientation and schooling type.

Further, the association between social satisfaction ratings and altruism scores was analysed using SRCC. To assess whether altruism scores aligned with the behavioral donation choice, a Mann-Whitney U test was applied, given the non-parametric nature of the data. Hybrid students were combined with in-person students in some analyses to address the issue of small subgroup sizes. All analyses were conducted using VassarStats statistical software.

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DATA AND STATISTICAL ANALYSIS

Data from 153 participants were analysed using non-parametric and categorical statistical tests, chosen to account for the ordinal and categorical nature of the variables. All analyses were conducted using VassarStats statistical software. Descriptive summaries of altruism scores and social satisfaction were first generated before conducting inferential tests.

Correlation between Grade Level and Altruism Scores

To assess the relationship between grade level and altruism, the Spearman Rank Correlation Coefficient (SRCC) was applied. For the full sample, the correlation was weak and not statistically significant ($rs = 0.025$, $p = .757$, 95% CI [-0.16, 0.21]), indicating virtually no association between grade level and altruism. Subgroup analyses revealed similarly weak associations: for in-person (IP) students ($rs = -0.045$, $p = .720$, 95% CI [-0.27, 0.18]) and for online/homeschool (OH) students ($rs =$

0.059, p = .626, 95% CI [-0.16, 0.26]). These negligible effect sizes (Cohen's d < 0.10) suggest no practical difference across educational contexts. The distribution of altruism scores by grade level is illustrated in **Figure 1**.

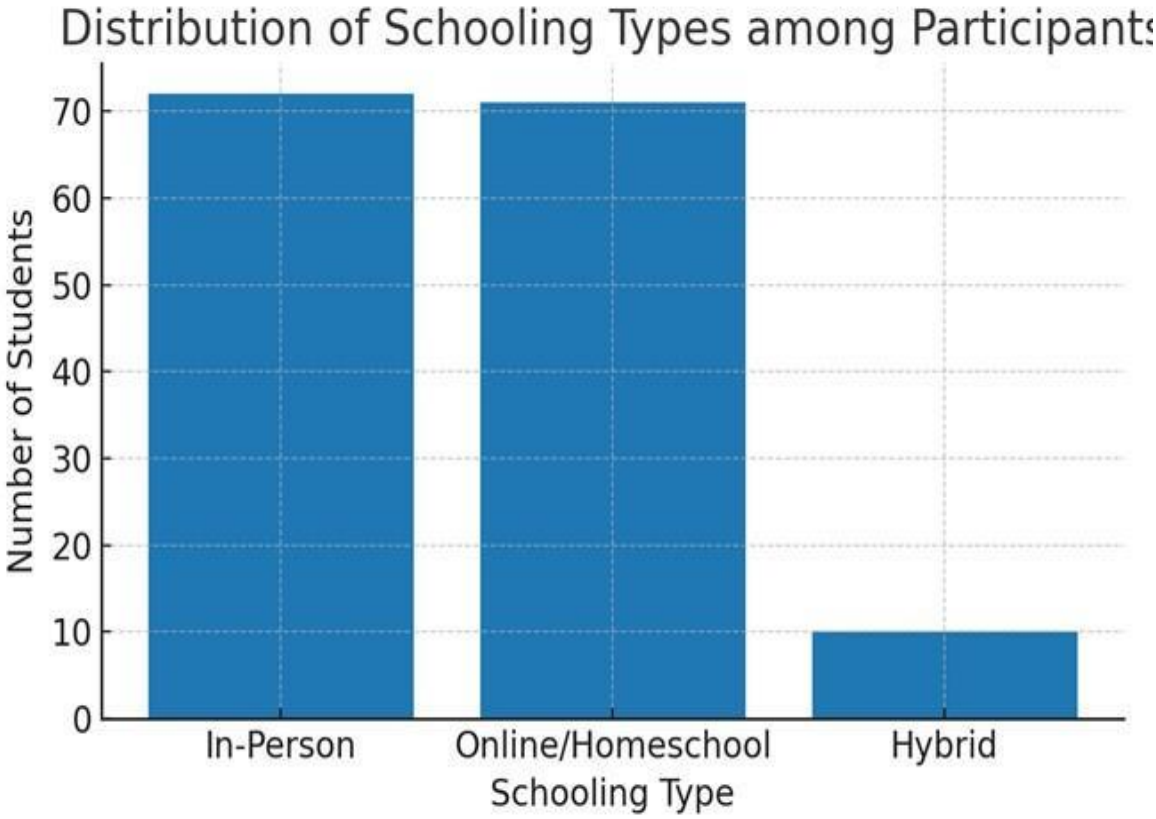

Figure 1: Distribution of schooling types among participants

Association between Schooling Type and Social Satisfaction

A Chi-Square test of association examined the relationship between schooling type and reported social satisfaction. Results showed a statistically significant association, $\chi^2(4, N = 153) = 20.52$, $p < .001$, Cramer's $V = 0.33$ (moderate effect). This indicates that the type of schooling significantly influences students' satisfaction with their social life. The detailed breakdown is provided in **Table 1**, while the group differences are visualised in **Figure 2**.

Table 1: Social satisfaction levels by schooling type

Social Satisfaction Level	In-Person	Online/Homeschool	Hybrid
Very Low	5	15	1
Low	10	18	2
Moderate	25	22	4
High	20	12	2
Very High	12	4	1

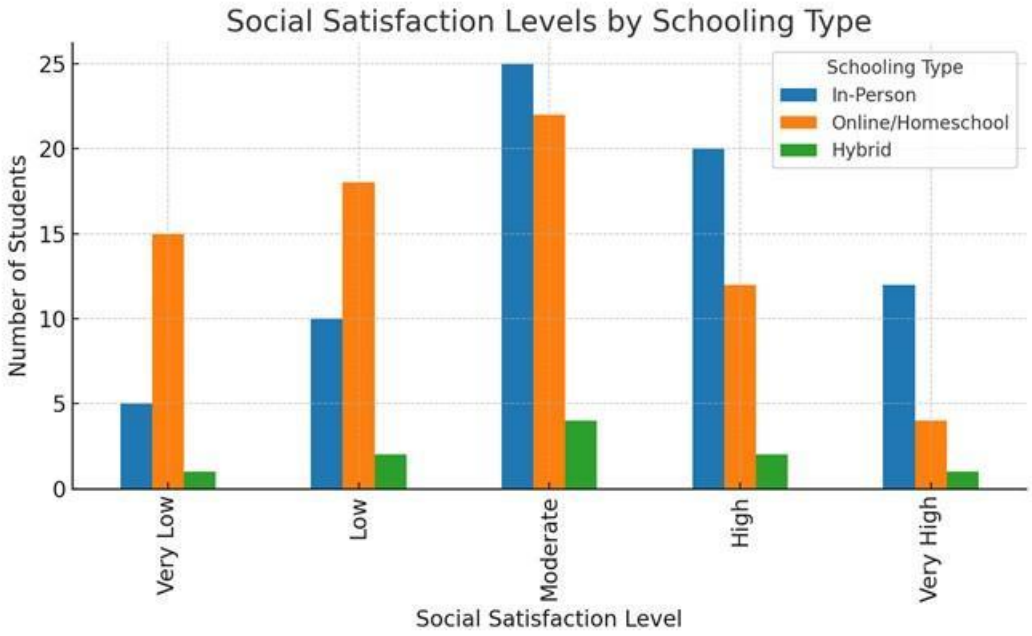

Figure 2: Social satisfaction levels by schooling type.

Correlation between Social Satisfaction and Altruism

A secondary analysis tested whether social satisfaction ratings correlated with altruism scores. The SRCC yielded *rs* = 0.199, *p* = .014, 95% CI [0.04, 0.35]. Although weak, this positive correlation suggests that students who reported greater satisfaction with their social lives tended to have slightly higher altruism scores. The effect size (Cohen's *d* ≈ 0.40) can be considered small-to-moderate in practical terms. This relationship is depicted in **Figure 3**.

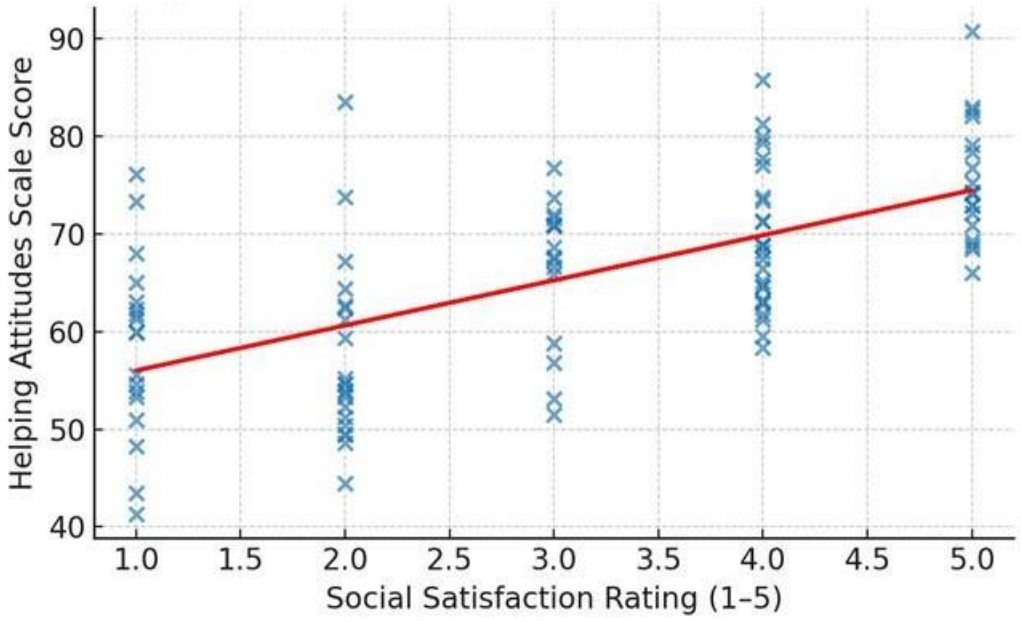

Figure 3: Scatterplot showing the relationship between social satisfaction and altruism scores.

Donation Behavior and Altruism Scores

The Mann-Whitney U test was used to compare altruism scores between students who chose to donate their potential $20 prize versus those who preferred to keep it. The test revealed a significant difference (U = 1,846, z = -2.70, p = .007, r = 0.22), with an effect size in the small-to-moderate range. Interestingly, participants with lower altruism scores were more likely to donate, contrary to expectations. This discrepancy is illustrated in **Figure 4**.

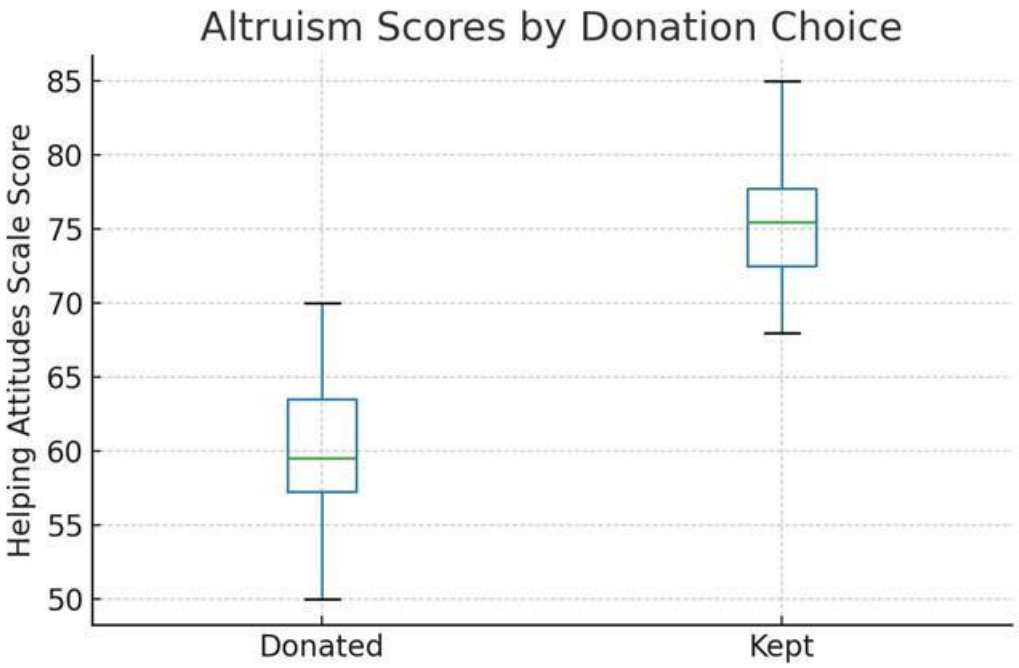

Figure 4: Boxplot of altruism scores by donation choice.

Political Orientation and Schooling Type

Finally, a chi-square test examined whether political orientation varied across schooling types. Results approached but did not reach statistical significance, $\chi^2(4, N = 153) = 8.80$, p = .066, Cramer's V = 0.24 (small-to-moderate effect). A graphical summary of group differences is recommended in supplementary materials.

DISCUSSION

The findings of this study provide important insights into the relationship between schooling environments and the development of altruism. Overall, the data suggest that the type of schooling - whether in-person, online/homeschool, or hybrid - does not exert a statistically significant influence on altruistic tendencies as measured by the Helping Attitudes Scale. The weak correlations observed across groups imply that altruism may be shaped more by broader ecological and interpersonal factors than by the formal schooling environment alone.

This interpretation aligns with Bronfenbrenner's ecological systems theory (1979), which posits that human development is the result of dynamic interactions between individuals and their multiple environmental systems. From this perspective, the mesosystem of family, peers, and community engagement likely exerts a stronger influence on prosocial behaviors than the formal schooling setting in isolation. For instance, a student's altruism may be nurtured not only through classroom interactions but also through family norms, religious communities, and peer relationships that extend beyond the school microsystem.

The positive though modest association between social satisfaction and altruism reinforces insights from the social-emotional learning (SEL) literature. Research consistently demonstrates that students who perceive their social environments as supportive are more likely to demonstrate empathy, perspective-taking, and altruistic behavior (Schonert-Reichl & Hymel, 2007; Durlak et al., 2011). Thus, rather than schooling type per se, it appears that the quality of social experiences within and around

the school environment is more crucial in shaping altruistic tendencies.

The unexpected finding that students with lower self-reported altruism scores were more likely to donate their prize money warrants careful interpretation. Rather than attributing this result to speculative notions of participant "honesty," it may be understood as evidence of the limitations of self-report measures. As Nickell (1998) noted, scales such as the Helping Attitudes Scale are vulnerable to social desirability bias. Behavioral measures, such as the donation task, may therefore capture distinct dimensions of altruism not easily reflected in survey responses. This divergence underscores the importance of triangulating self-report data with behavioral indicators in research on prosocial behavior.

Additionally, the lack of significant differences across schooling types is consistent with recent scholarship suggesting that digital and hybrid learning environments can still support SEL outcomes when designed intentionally (Means et al., 2010; McInnerney & Roberts, 2004). Online and hybrid settings may not replicate traditional face-to-face interactions, but they can foster belonging and empathy through structured collaboration, peer networks, and teacher facilitation. From an ecological perspective, these contexts represent variations in the microsystem that do not inherently diminish opportunities for prosocial development.

Taken together, these findings highlight the need to move beyond simple dichotomies of online versus in-person schooling. Instead, attention should be directed to how multiple layers of the child's ecology interact, including family support, peer culture, community engagement, and school climate, to influence the development of altruism and empathy. Integrating SEL approaches into all types of schooling environments may provide a more meaningful pathway to supporting prosocial growth than focusing narrowly on the mode of instruction.

CONCLUSION

The findings of this study suggest that the mode of schooling—whether online, in-person, or hybrid—does not, in itself, exert a decisive influence on the development of altruism among middle and high school students. Rather, the evidence points more convincingly to the significance of the quality of social interactions and the broader sense of social satisfaction as determinants of prosocial growth. The modest yet noteworthy correlation between social satisfaction and altruism underscores the view that it is not the structural format of learning but the richness of social engagement that most effectively cultivates empathy and altruistic dispositions. Furthermore, the unexpected observation that students with lower self-reported altruism were more inclined to donate prize money raises important questions about the limitations of relying solely on self-report instruments to capture complex social behaviors. This highlights the need for multi-method approaches that combine behavioral, observational, and psychometric measures in future research. In practical terms, these insights carry implications for educational policy and practice: rather than privileging one mode of instruction over another, schools should design learning environments that intentionally embed opportunities for meaningful social connection and relationship-building. Such relationally grounded practices hold greater promise for nurturing empathy and altruism, which remain essential foundations of both personal development and societal cohesion.

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Declarations of Interest

The author has no competing interests to disclose.

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