



Grade-Level Differences in Adolescent Anthropomorphism Toward Conversational AI

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Abstract

Adolescent interaction with conversational artificial intelligence (CAIs), most notably large language model (LLM) based systems, has led to critical questions about anthropomorphic interaction and its consequences to human-computer interaction and education. Learning, comforting, sharing, talking to LLMs may create a sense of connection. In this research, high school students were surveyed to investigate five anthropomorphic dimensions viz roleplay, courtesy, emotionality, reinforcement, and companionship. The interaction of these anthropomorphic dimensions with perceived functionality of the CAIs was studied with respect to gender and grade level on a sample of 109 adolescents. Findings showed that there were no significant gender differences in dimensions of anthropomorphism or perceived functionality. However, the differences in grades levels were significant, underclassmen (Grades 9-10) reported an increase in all dimensions and perceived functionality, with large effect sizes. Selective effects were observed in interaction time with CAI, and these differences were significantly observed in roleplay. Correlational and regression analysis indicated that some of the anthropomorphic dimensions, especially courtesy, were positively related to and predictive of the perceived functionality but the relationship between them varied by grade levels. Altogether, the current results indicate that anthropomorphic interaction with CAIs is not uniform across adolescence and is associated with how students evaluate the functional effectiveness of these systems. The study is among the first to examine adolescents across all five anthropomorphic dimensions, and its findings may inform the development of guardrails for educational technologies as well as age-sensitive AI literacy frameworks.

Keywords: *Anthropomorphism, Artificial Intelligence, Perceived Functionality, Companionship, Emotionality, Human-Computer Interaction, Educational Technology*

1. INTRODUCTION

Artificial Intelligence (AI), broadly defined as computational systems capable of performing tasks traditionally associated with human cognition (Russell & Norvig, 2021), has proliferated from a niche

research discipline into an everyday technological infrastructure. As AI systems have become more powerful, accessible, and embedded in daily routines, the tendency for users to attribute human-like qualities to these systems has increased in parallel (Epley et al., 2007, Glikson et al. 2020). This attribution reflects a long-standing psychological phenomenon in which humans interpret non-human agents through an anthropological lens, particularly when those agents exhibit behavioral cues that resemble social interaction (Groom & Nass, 2007). Consequently, anthropomorphism “the attribution of emotions, intentions, or cognition to non-human systems” plays a central role in shaping how users engage with AI tools (Waytz et al., 2010). While these anthropomorphic design cues can make human-computer interactions more socially fluent, they also raise important ethical and epistemological concerns. Scholars such as Salles et al. (2020) have highlighted that anthropomorphic interfaces can blur the distinction between mechanistic systems and human social agents, particularly when the system employs natural language patterns or emotional expressions. Without adequate ethical guidelines, including those articulated in the European Union’s High-Level Expert Group (HLEG) Guidelines for Trustworthy Artificial Intelligence (European Commission, 2019), the human-like framing of AI risks fostering misleading expectations, emotional dependency, and inaccurate mental models of AI capabilities. Prior research further suggests that anthropomorphic cues can enhance users’ perceptions of a product’s functionality. For instance, Troshani et al. (2020) demonstrate that, within service-industry contexts, the incorporation of anthropomorphic design elements fosters greater cognitive trust and facilitates adoption, in part by enabling users to more clearly differentiate AI-driven applications from conventional forms of automation. Similarly, Merrill et al. (2022) find that AI companions personified through human-like facial features, vocal tone, or gestures—significantly increase perceived usefulness, particularly among individuals experiencing social isolation.

Casheekar et. al. defined Conversational Artificial Intelligence (CAI) as outlined here: “Conversational agents driven by Artificial Intelligence (AI) are software programmes or virtual assistants created to emulate human-like dialogues, engaging in interactive and lifelike conversations with users” (Casheekar et. al. 2024). The concurrent expansion of Conversational Agents (CAs), such as OpenAI’s ChatGPT, has further intensified these dynamics by normalizing conversational interaction patterns that resemble human dialogue. Thus, as AI becomes both ubiquitous and socially expressive, the motivations, consequences, and behavioral patterns of anthropomorphism require systematic analysis.

1.1 Anthropomorphism

Anthropomorphism refers to the attribution of human-like characteristics, behaviors, or mental states to non-human entities, including objects, animals, brands, and technological systems (Epley et al., 2007, Li et al, 2022, Xiao et. al. 2025, Waytz et. al. 2014). These attributions may concern physical cues (e.g., facial features), cognitive states (e.g., reasoning or intention), or emotional experiences (e.g., empathy or bonding). Importantly, anthropomorphism can be figurative as well as literal, such as when symbolic or narrative elements encourage users to interpret technological agents as social partners (Zlotowski et al., 2015).

Psychological theories provide a structured explanation for why humans anthropomorphize. The Three-Factor Theory of Anthropomorphism (Epley et al., 2007) posits that humans anthropomorphize when (1) they rely on familiar human models to interpret ambiguous agents, (2) they seek to predict or control their environment, and (3) they desire social connection. Similarly, Social Response Theory (Nass & Moon, 2000) argues that humans automatically apply social scripts to any entity exhibiting social cues, even when they rationally know the entity is non-human.

Although anthropomorphic interpretations are widespread, they do not require users to genuinely believe that non-human systems possess human-like emotional or cognitive experiences. A user may experience a shared moment with a dog, toy, or CA without assuming identical internal states. This distinction is crucial for safeguarding discussions of sentience, intelligence, and consciousness from

inaccurate projections. Popular culture and media representations of AI frequently portray systems as possessing human-like consciousness, which can amplify public misunderstanding and produce unrealistic expectations about what AI can and cannot do (Bryson, 2019). Weak scientific communication further compounds this issue by presenting AI achievements in ways that emphasize anthropomorphic potential rather than computational limitations.

1.2 Anthropomorphism in Artificial Intelligence (AI)

Despite substantial scholarly attention, there remains a need for systematic comparative analyses examining how distinct forms of anthropomorphic behavior contribute simultaneously to functional utility and emotional connection in AI systems. Existing work often examines these behaviors in isolation rather than through an integrated framework. The present research focuses on five specific anthropomorphic facets: courtesy, reinforcement, roleplay, companionship, and emotionality. Each represents a unique pathway through which users interpret AI as socially or cognitively human-like. There are foundational publications on various degrees of anthropomorphism such as courtesy, reinforcement, roleplay, companionship (Gibbons et al., 2023). Courtesy, including politeness markers, apologies, or social niceties, leverages norms of human conversational etiquette and is known to reduce friction during human–machine exchanges (Nass et al., 1999). Reinforcement behaviors where the AI provides feedback, encouragement, or reward signals draw on principles of behavioral psychology, particularly operant conditioning, mimicking teaching or coaching styles familiar to human learners (Skinner, 1953). Roleplay (where AI adopts a persona, character, or narrative structure) draws from established theories of narrative engagement and parasocial interaction, potentially enhancing task adherence, recall, and emotional investment (Giles, 2010). Companionship behaviors, such as empathetic prompts or supportive dialogue, activate social bonding mechanisms that may encourage users to perceive AI as a relational entity rather than a transactional tool (Mori et al., 2020). Although not clearly defined, one more degree of anthropomorphism is alluded to in previous works which is emotionality- a deeper degree of AI-anthropomorphism companionship which is the closest feeling to real-human connection (Li, et. al. 2026) These facets jointly shape users’ mental models of AI competence, intentionality, and relational closeness. Yet academic research has lacked a consolidated approach to examining how different anthropomorphic cues interact with demographic factors, such as age or gender, to influence perceived functionality. The present study aims to address this gap by analyzing how high-school students interpret these cues and how such interpretations shape their evaluations of AI systems.

1.3 Teenagers as a Vulnerable Target Audience

Adolescents represent a developmentally sensitive population whose cognitive, emotional, and social identities are still forming. Developmental psychology indicates that adolescence is marked by heightened sensitivity to social validation, increased exploration of identity, and greater susceptibility to persuasive or emotionally reinforcing feedback loops (Steinberg, 2017). These characteristics make teenagers especially responsive to anthropomorphic features that appear attentive, empathetic, or supportive. Research in adolescent human–computer interaction shows that teenagers may struggle to maintain clear boundaries between technological tools and perceived social partners (Kim & Sundar, 2012). The novelty of a personalized and continuously available conversational agent can amplify this effect. When CAs express warmth, humor, attentiveness, or moral reasoning, they may fulfill perceived emotional or social needs, leading adolescents to interpret them as confidants or companions rather than computer interfaces. This dynamic is further strengthened by the increasing sophistication of LLM-based dialogue, which can simulate the aforementioned social reciprocity. As a result, adolescents may form deeper parasocial relationships with AI systems than adults typically do, experiencing blurred distinctions between functional assistance and perceived friendship (Coyne et al., 2021). These dynamics underscore the importance of studying adolescent responses to anthropomorphic cues, as their interpretations may have implications for emotional development, digital

literacy, and long-term technology dependence. The present paper aims to examine group differences and predictive relationships in adolescent anthropomorphic engagement with conversational AI. Specifically, the study investigates a) whether anthropomorphic tendencies differ across gender and grade level, b) whether time spent interacting with conversational AI influences anthropomorphic tendencies and c) whether anthropomorphic tendencies are associated with and predict perceived functionality of AI systems.

2. METHODOLOGY

2.1 Study Design

This study employed a cross-sectional, survey-based design to examine anthropomorphic tendencies in adolescent use of CAs. Anthropomorphism was conceptualized as a multidimensional construct comprising five dimensions: roleplay, courtesy, emotionality, reinforcement, and companionship. These dimensions reflect the extent to which users attribute human-like qualities, behaviors, and social characteristics to CAs. In addition to these anthropomorphic dimensions, the study measured perceived functionality as a separate outcome variable, representing participants' evaluations of the effectiveness and utility of AI.

2.2 Hypothesis

H1: There will be significant gender differences across anthropomorphic dimensions and perceived functionality.

H2: There will be significant differences between underclassmen and upperclassmen across anthropomorphic dimensions and perceived functionality.

H3: Anthropomorphic tendencies will increase as a function of time spent interacting with conversational agents.

H4: Anthropomorphic tendencies (roleplay, courtesy, emotionality, reinforcement, and companionship) will be positively associated with perceived functionality of conversational agents.

H5: Anthropomorphic tendencies will significantly predict perceived functionality of conversational agents.

H6: The strength and pattern of relationships between anthropomorphic dimensions and perceived functionality will differ between underclassmen and upperclassmen.

2.3 Participants and sampling

Participants were high school students from Henry M. Gunn High School, recruited across all four grade levels (Grades 9–12). Survey distribution was facilitated through multiple channels including teacher relay, QR code sharing, and peer communication networks such as Discord. The final analytic sample consisted of 109 students. For the purposes of analysis, participants were grouped into underclassmen (Grades 9–10) and upperclassmen (Grades 11–12) and examined by gender. Demographic characteristics of the sample are presented in Table 1.

2.4 Instrumentation:

The survey instrument was developed specifically for this study and is provided in full in the supplementary materials. It comprised two sections. Section 1 gathered demographic and usage

information across nine items, including gender identity, grade level, primary AI tool used, frequency of use, and rated engagement across five use contexts: educational, problem-solving, research, artistic, and therapeutic.

Section 2 assessed anthropomorphic tendencies across five subscales, namely, Roleplay, Courtesy, Emotionality, Reinforcement, and Companionship, each consisting of five Likert-scaled items (1 = Strongly Disagree to 5 = Strongly Agree), yielding subscale scores ranging from 5 to 25. Perceived Functionality was measured as a separate outcome subscale using the same format. Internal consistency for all subscales was assessed using Cronbach's alpha, with estimates ranging from .60 to .80 across the instrument (see Table 3), indicating acceptable to good reliability for a newly developed scale (Nunnally, 1978).

A sample item from the Roleplay subscale reads: *"I have asked my CA to pretend to be a character or play a specific role."* For analysis, grade levels were collapsed into two groups: underclassmen (Grades 9–10) and upperclassmen (Grades 11–12).

2.5 Analysis

A series of statistical analyses were conducted to address the study's research questions. First, independent-samples t-tests were used to examine mean differences in anthropomorphic dimensions and perceived functionality across gender (male vs. female) and grade level (underclassmen vs. upperclassmen). Cohen's *d* was calculated to estimate effect sizes for all group comparisons. To examine whether time spent interacting with conversational agents was associated with differences in anthropomorphic dimensions and perceived functionality, one-way ANOVAs were conducted across four usage categories (less than 5 hours, 5–10 hours, 11–20 hours, and more than 20 hours per week). Where omnibus effects were significant, Tukey's Honestly Significant Difference (HSD) post hoc test was applied to identify specific pairwise differences. Pearson correlation coefficients were computed separately for underclassmen and upperclassmen to examine the associations between anthropomorphic dimensions and perceived functionality. Subsequently, multiple linear regression analyses were conducted for each grade-level group to assess the unique predictive contribution of each anthropomorphic dimension to perceived functionality. All tests were evaluated at a significance threshold of $p < .05$.

2.6 Ethical considerations

The present research was conducted in accordance with the standard ethical guidelines involving minors. Before formal data collection, ethical approval was obtained through Gunn's designated teachers, who provided written consent for the administration of the research survey (see Appendix B for consent letter).

Participant welfare was prioritized throughout the study design. The survey was carefully constructed to avoid content that could cause psychological distress or negatively impact the mental health of respondents. All participants were fully informed about the nature and purpose of the study prior to participation, including the fact that data would be used for research and publication purposes.

Participation was entirely voluntary, and students were free to withdraw at any time without consequence. Confidentiality of responses was assured, and the survey was administered anonymously to protect participant identity. Clear instructions were provided to guide respondents through the questionnaire. No personally identifying information was collected beyond optional self-disclosure of name.

3. RESULTS

Table 1 shows Demographic characteristics and AI usage

Variable	Category	n	%
Grade	Grade 9 (Freshman)	27	24.77
	Grade 10 (Sophomore)	33	30.28
	Grade 11 (Junior)	29	26.61
	Grade 12 (Senior)	20	18.35
Gender	Male	49	44.95
	Female	56	51.38
	Non-binary	4	3.67
Primary AI Tool	ChatGPT	54	49.54
	Gemini	29	26.61
	Claude	20	18.35
	Others	6	5.50
Hours per Week	Less than 5	29	26.61
	5–10 hours	45	41.28
	11–20 hours	25	22.94
	More than 20	10	9.17

Table 2 shows Frequency of AI use across contexts

Usage Context	Not at All	Not so Often	Neutral	Frequently	Most Frequently
Educational Purposes	14 (12.84%)	14 (12.84%)	21 (19.27%)	27 (24.77%)	33 (30.28%)
Problem-Solving	15 (13.76%)	10 (9.17%)	18 (16.51%)	33 (30.28%)	33 (30.28%)
Research Purposes	12 (11.01%)	11 (10.09%)	27 (24.77%)	42 (38.53%)	17 (15.60%)
Social Interaction	28 (25.69%)	14 (12.84%)	17 (15.60%)	29 (26.61%)	21 (19.27%)
Artistic Use	36 (33.03%)	19 (17.43%)	19 (17.43%)	19 (17.43%)	16 (14.68%)
Therapeutic Use	41 (37.61%)	15 (13.76%)	20 (18.35%)	17 (15.60%)	16 (14.68%)

Table 3 shows Internal Consistency Reliability Estimates for All Subscales

Subscale	No. of Items	α	Item–Total Correlation Range	Construct Role
Roleplay	5	.66	.32–.58	Anthropomorphic dimension
Courtesy	5	.69	.39–.54	Anthropomorphic dimension
Reinforcement	5	.63	.31–.43	Anthropomorphic dimension
Companionship	5	.80	.48–.63	Anthropomorphic dimension
Emotionality	5	.69	.33–.57	Anthropomorphic dimension
Perceived Functionality	5	.60	.32–.44	Outcome variable

**Note.* α = Cronbach's alpha coefficient. Item–total correlations reflect corrected items–total correlations. Perceived functionality was treated as a separate outcome variable and not as a dimension of anthropomorphism.

Table 3 presents the internal consistency reliability estimates for all six subscales. Cronbach's alpha coefficients ranged from .60 to .80 across the instrument, indicating acceptable to good reliability. The Companionship subscale demonstrated the strongest internal consistency ($\alpha = .80$), meeting the conventional benchmark for good reliability (Nunnally, 1978). The Courtesy and Emotionality subscales both approached this benchmark ($\alpha = .69$), while Roleplay ($\alpha = .66$) and Reinforcement ($\alpha = .63$) returned acceptable estimates. The Perceived Functionality subscale, treated as a separate outcome variable in the present study, yielded the lowest reliability estimate ($\alpha = .60$), at the minimum threshold of acceptability. Corrected item-total correlations across all subscales ranged from .31 to .63, indicating that individual items demonstrated adequate convergence with their respective subscale totals throughout the instrument. No item deletion was found to improve any subscale's reliability substantially enough to warrant removal. Taken together, these estimates suggest that the instrument demonstrated acceptable psychometric properties for an exploratory, newly developed scale, though the more modest coefficients observed for the Reinforcement and Perceived Functionality subscales indicate that future refinement of these subscales -through item revision, addition of items, or confirmatory factor analysis-would strengthen the instrument's measurement precision in subsequent research.

Table 4 shows Independent Samples t-Test for Gender Differences Across Anthropomorphic Dimensions and Perceived Functionality

Variable	Gender	n	M	SD	t	df	p	Cohen's d
RPS	Male	49	15.24	3.99	0.98	103.00	.331	0.19
	Female	56	14.43	4.50				
CS	Female	56	16.5	4.18	-0.92	103.00	.362	0.18
	Male	49	15.78	3.89				
EMO	Male	49	14.57	4.70	0.04	103.00	.967	0.008
	Female	56	14.54	4.09				
RS	Male	49	13.94	3.89	-1.65	103.00	.102	0.32
	Female	56	15.25	4.20				
PFS	Male	49	16.04	3.92	-0.1304	103.00	.897	0.026
	Female	56	16.14	4.07				
COMP	Male	49	12.78	4.80	-.083	103.00	.934	0.016
	Female	56	12.86	5.23				

*Note. RPS = Role Play Score; CS = Courtesy Score; EMO = Emotionality Score; RS = Reinforcement Score; COMP = Companionship Score. These variables represent dimensions of anthropomorphism. PFS = Perceived Functionality Score and was treated as a separate outcome variable.

Table 4 presents the independent-samples t-test results examining gender differences across five anthropomorphic dimensions (roleplay, courtesy, emotionality, reinforcement, and companionship) as well as perceived functionality. For RPS, male respondents reported a slightly higher mean ($M = 15.24$, $SD = 3.99$) than female respondents ($M = 14.43$, $SD = 4.50$). However, this difference was not statistically significant, $t(103) = 0.98$, $p > .05$ ($p = .331$), with a very small effect size (Cohen's $d = 0.19$). For CS, females scored marginally higher ($M = 16.50$, $SD = 4.18$) than males ($M = 15.78$, $SD = 3.89$), but the difference was not significant, $t(103) = -0.92$, $p = .362$, $d = 0.18$. For EMO, males and females had nearly identical means ($M = 14.57$, $SD = 4.70$; $M = 14.54$, $SD = 4.09$, respectively), and the difference was nonsignificant, $t(103) = 0.04$, $p = .967$, with a negligible effect size ($d = 0.008$).

A similar pattern was observed for RS, where females ($M = 15.25$, $SD = 4.20$) scored slightly higher than males ($M = 13.94$, $SD = 3.89$), but this difference did not reach significance, $t(103) = -1.65$, $p = .102$ ($d = 0.32$, small effect). For PFS, male ($M = 16.04$, $SD = 3.92$) and female ($M = 16.14$, $SD = 4.07$) respondents did not differ significantly, $t(103) = -0.13$, $p = .897$, with a negligible effect size ($d = 0.026$). Lastly, for COMP, the means for males ($M = 12.78$, $SD = 4.80$) and females ($M = 12.86$, $SD = 5.23$) were virtually the same, with no significant difference, $t(103) = -0.083$, $p = .934$, $d = 0.016$. Overall, no statistically significant gender differences were observed across either anthropomorphic dimensions or perceived functionality. Accordingly, H1, which proposed significant gender differences across anthropomorphic dimensions and perceived functionality, was not supported.

Table 5 shows Independent Samples t-Test for Grade Differences Across Anthropomorphic Dimensions and Perceived Functionality

Variable	Group	n	M	SD	t	df	p	Cohen's d
CS	Underclassmen	60	17.91	3.52	6.10	107	< .001	1.17
	Upperclassmen	49	13.83	3.41				
RS	Underclassmen	60	16.03	3.90	4.60	107	< .001	0.89
	Upperclassmen	49	12.65	3.71				
COMP	Underclassmen	60	14.68	5.22	4.73	107	< .001	0.91
	Upperclassmen	49	10.51	3.65				
EMO	Underclassmen	60	16.55	4.01	6.16	107	< .001	1.19
	Upperclassmen	49	12.16	3.27				
RPS	Underclassmen	60	16.67	4.26	6.06	107	< .001	1.17
	Upperclassmen	49	12.31	2.97				
PFS	Underclassmen	60	18.07	3.28	6.92	107	< .001	1.33
	Upperclassmen	49	13.67	3.32				

**Note. RPS = Role Play Score; CS = Courtesy Score; EMO = Emotionality Score; RS = Reinforcement Score; COMP = Companionship Score. These variables represent dimensions of anthropomorphism. PFS = Perceived Functionality Score and was treated as a separate outcome variable.*

Table 5 presents the results of independent-samples t-tests examining differences between underclassmen and upperclassmen across five anthropomorphic dimensions (courtesy, reinforcement, companionship, emotionality, and roleplay), as well as perceived functionality. Underclassmen reported a higher mean across all anthropomorphic dimensions and perceived functionality. Specifically, underclassmen scored higher on Courtesy, $t(107) = 6.10, p < .001, d = 1.17$; Reinforcement, $t(107) = 4.60, p < .001, d = 0.89$; and Companionship, $t(107) = 4.73, p < .001, d = 0.91$. Similarly, significant differences were observed for Emotionality, $t(107) = 6.16, p < .001, d = 1.19$, and Role Play, $t(107) = 6.06, p < .001, d = 1.17$, with underclassmen demonstrating greater emotional engagement and imaginative interaction. The largest difference emerged for Perceived Functionality, $t(107) = 6.92, p < .001, d = 1.33$, indicating that underclassmen were more likely to attribute functional or agent-like qualities to the object compared to upperclassmen. The consistently large effect sizes ($d = 0.89$ to 1.33)

indicate substantial grade-level differences across both anthropomorphic attribution and perceived functionality. This pattern may reflect developmental differences in imaginative engagement, emotional expressiveness, and attribution of human-like qualities, which appear to decrease with advancing grade level. Accordingly, H2 was supported, indicating significant grade-level differences across anthropomorphic dimensions and perceived functionality.

Table 6 shows the Descriptive Statistics of Anthropomorphic Scores by Hours of CA Use

Hours	RPS (M, SD)	CS (M, SD)	EMO (M, SD)	RS (M, SD)	COMP (M, SD)	PFS (M, SD)
<5 hours	13.34 (3.37)	15.31 (3.40)	13.00 (3.96)	14.14 (3.77)	12.66 (5.12)	14.31 (3.67)
5–10 hours	14.13 (4.92)	16.11 (4.09)	14.42 (4.05)	14.18 (4.00)	12.20 (4.96)	16.51 (3.85)
11–20 hours	16.24 (4.04)	16.40 (4.75)	15.92 (4.98)	14.68 (4.63)	12.92 (5.06)	16.92 (4.48)
>20 hours	17.40 (1.84)	17.40 (3.34)	16.50 (2.84)	16.70 (4.62)	15.70 (4.57)	17.30 (2.16)

Descriptive statistics indicated a general increase in anthropomorphic scores with greater time spent interacting with conversational agents. Roleplay, emotionality, and perceived functionality scores showed a consistent upward trend across usage categories, with the highest means observed among participants who reported more than 20 hours of weekly use. A similar, though less pronounced, pattern was observed for courtesy and reinforcement. Companionship scores also increased at higher levels of usage, although the differences across groups were comparatively smaller.

Table 7 shows One-Way ANOVA for Anthropomorphic Dimensions and Perceived Functionality by Hours of AI Use

Variable	F	df ₁	df ₂	p
Roleplay (RPS)	3.87	3	105	.011
Courtesy (CS)	0.76	3	105	.516
Reinforcement (RS)	1.12	3	105	.346
Emotionality (EMO)	2.97	3	105	.035
Companionship (COMP)	1.35	3	105	.261
Perceived Functionality (PFS)	2.97	3	105	.035

*Note. RPS = Role Play Score; CS = Courtesy Score; EMO = Emotionality Score; RS = Reinforcement Score; COMP = Companionship Score. These variables represent dimensions of anthropomorphism. PFS = Perceived Functionality Score and was treated as a separate outcome variable.

A significant effect of hours spent interacting with conversational AI was observed for roleplay scores, $F(3, 105) = 3.87, p = .011$. Post hoc comparisons using Tukey’s HSD test indicated that participants reporting more than 20 hours of use scored significantly higher on roleplay than those

reporting less than 5 hours of use. Significant omnibus effects were also observed for emotionality, $F(3, 105) = 2.97, p = .035$, and perceived functionality, $F(3, 105) = 2.97, p = .035$. However, post hoc comparisons did not reveal statistically significant pairwise differences for these variables, suggesting that while overall group differences exist, they are not localized to specific pairwise contrasts. No significant differences were observed for courtesy, $F(3, 105) = 0.76, p = .516$, reinforcement, $F(3, 105) = 1.12, p = .346$, or companionship, $F(3, 105) = 1.35, p = .261$. Accordingly, H3 was partially supported, as time spent interacting with conversational AI was associated with differences in roleplay, emotionality, and perceived functionality, but not across all anthropomorphic dimensions.

Table 8 shows Tukey HSD Post Hoc Comparisons for Anthropomorphic Dimensions by Hours of CA Use

Variable	Comparison	Mean Difference	p	95% CI
Roleplay (RPS)	>20 hours vs <5 hours	4.06	.044	[0.08, 8.02]
Emotionality (EMO)	No significant pairwise differences	—	—	—
Perceived Functionality (PFS)	No significant pairwise differences	—	—	—

Post hoc comparisons using Tukey’s HSD test revealed that participants who used conversational AI for more than 20 hours per week reported significantly higher roleplay scores than those who used it for less than 5 hours per week. No other pairwise comparisons were statistically significant.

Table 9 shows Correlation Between anthropomorphism dimensions and perceived functionality by grade level

Variables	r	UPPERCLASSMEN Perceived Functionality Score	UNDERCLASSMEN Perceived Functionality Score
Roleplay score	Correlation	0.19	0.53
	p	.197	<.001*
Courtesy Score	Correlation	0.37	0.59
	p	.01*	<.001*
Emotionality Score	Correlation	0.15	0.52
	p	.308	<.001*
Reinforcement Score	Correlation	0.35	0.30
	p	.013*	.021*
Companionship Score	Correlation	0.10	0.22
	p	.487	.09

*significant at 0.05 level

Pearson correlation analyses were conducted separately for upperclassmen ($n = 49$) and underclassmen ($n = 60$) to examine associations between interaction dimensions and perceived functionality. Among upperclassmen, courtesy ($r = .37, p = .010$) and reinforcement ($r = .35, p = .013$) were significantly positively correlated with perceived functionality, indicating moderate associations. Roleplay, emotionality, and companionship were not significantly related to perceived functionality (all $ps > .05$). Among underclassmen, roleplay ($r = .53, p < .001$), courtesy ($r = .59, p < .001$), and emotionality ($r = .52, p < .001$) showed strong positive correlations with perceived functionality. Reinforcement demonstrated a smaller but significant positive association ($r = .30, p = .021$). Companionship was not statistically significant ($p = .090$). Overall, the pattern suggests that underclassmen demonstrate stronger and more consistent associations between interaction dimensions and perceived functionality compared to upperclassmen, for whom only courtesy and reinforcement show meaningful relationships.

Table 10 Multiple Regression Predicting Perceived Functionality Among Underclassmen (N = 60)

Predictor	B	SE B	β	t	p	95% CI for B
Constant	7.25	1.89	—	3.84	< .001	[3.47, 11.03]
Roleplay	0.09	0.13	0.11	0.68	.499	[-0.17, 0.34]
Courtesy	0.39	0.12	0.42	3.16	.003	[0.14, 0.64]
Emotionality	0.23	0.14	0.28	1.62	.111	[-0.05, 0.52]
Reinforcement	-0.09	0.11	-0.11	-0.84	.407	[-0.32, 0.13]

**Model Summary:* $F(4, 55) = 10.18, p < .001, R = .65, R^2 = .43, Adjusted R^2 = .38, SE = 2.57$. Note. B = unstandardized coefficient; SE B = standard error of B; β = standardized coefficient; CI = confidence interval.

A multiple regression analysis was conducted to examine whether roleplay, courtesy, emotionality, and reinforcement predicted perceived functionality among underclassmen ($N = 60$). The overall model was statistically significant, $F(4, 55) = 10.18, p < .001$, explaining 43% of the variance in perceived functionality ($R^2 = .43$; Adjusted $R^2 = .38$), indicating a substantial effect. Among the predictors, courtesy emerged as the only significant positive predictor ($\beta = .42, p = .003$). The confidence interval [0.14, 0.64] did not include zero, confirming the robustness of the effect. Roleplay ($p = .499$), emotionality ($p = .111$), and reinforcement ($p = .407$) were not significant predictors when controlling for shared variance. Thus, among underclassmen, perceived functionality appears to be primarily driven by courtesy rather than by roleplay, emotional expression, or reinforcement behaviors. Overall, the findings indicate that, among underclassmen, courtesy plays a central role in shaping perceptions of functionality, whereas the other interaction dimensions do not uniquely contribute to the model when controlling for shared variance.

Table 11 Multiple Regression Predicting Perceived Functionality Among Upperclassmen (N = 49)

Predictor	B	SE B	β	t	p	95% CI for B
Constant	5.71	2.19	—	2.61	.012	[1.30, 10.11]
Courtesy	0.32	0.13	0.33	2.52	.015	[0.06, 0.57]
Reinforcement	0.28	0.12	0.31	2.41	.020	[0.05, 0.52]

**Model Summary: $F(2, 46) = 6.93, p = .002, R = .48, R^2 = .23, Adjusted R^2 = .20, SE = 2.97$. Note. B = unstandardized coefficient; SE B = standard error of B; β = standardized coefficient; CI = confidence interval.*

A multiple linear regression analysis was conducted to examine whether courtesy and reinforcement predicted perceived functionality among upperclassmen ($N = 49$). The overall model was statistically significant, $F(2, 46) = 6.93, p = .002$, explaining 23% of the variance in perceived functionality ($R^2 = .23$; Adjusted $R^2 = .20$), indicating a moderate effect. Both predictors made significant unique contributions. Courtesy was a significant positive predictor ($\beta = .33, p = .015$), with its 95% confidence interval [0.06, 0.57] not including zero. Reinforcement also significantly predicted perceived functionality ($\beta = .31, p = .020$), with a 95% confidence interval of [0.05, 0.52]. These findings suggest that, among upperclassmen, both courteous interaction and reinforcement behaviors are associated with higher perceived functionality, with both variables contributing comparably to the model.

4. DISCUSSION & IMPLICATIONS

The findings from the present research revealed that there was no significant gender difference across the various anthropomorphic tendencies in consideration, be it reinforcement score, role play, courtesy, emotionality, and companionship. Notably, perceived functionality showed no significant gender differences as well. Interestingly, previous literature aligns with the present findings. Chin et al. (2004) investigated that while gender differences exist towards anthropomorphism of living beings such as animals, there was no reported gender difference towards artifacts such as cars and computers.

Additionally, Li and Sung (2021) found that participants who spent more time with AI assistants and conversational agents tended to perceive those agents more positively, suggesting that time spent interacting with CAs has a significant impact on users' perceptions. Similarly, present research indicates that time spent interacting with a CA does lend higher anthropomorphic characterizations, but this trend is not generalizable to all facets of anthropomorphism. While statistical significance was found in Roleplay scores and Emotionality scores, there was no statistical difference in Companionship scores and Reinforcement scores across all 4 hours-spent categories. Separately, perceived functionality as an outcome measure also showed a significant omnibus effect with time spent, suggesting that deeper engagement with CAs influences not only how "human-like" students perceive them to be, but also how "functionally-capable" they judge them. Still, past research indicates that the relationship, however, is not binary. Uysal et al. (2022) found that although anthropomorphic ratings increased with time spent, long-term use was associated with unfavorable assessments of the CA's anthropomorphic tendencies.

As the present research exclusively sampled high school teenagers, it occupies a distinct niche within anthropomorphism literature, a field that has predominantly drawn from adult and mixed-age samples. This demographic specificity both enriches and complicates direct comparison with prior work, as the psychological and developmental processes governing anthropomorphic tendency in adolescents differ meaningfully from those observed in adult samples. Adolescence is a period characterized by heightened neurological plasticity, particularly in regions governing social and emotional processing. Developmental research has established that younger individuals are more prone to attributing mental

states, emotions, and intentions to non-human agents, a tendency that diminishes as cognitive sophistication and metacognitive awareness develop with age (Beran et al., 2011; Kahn et al., 2012). Interestingly, Pan et al. (2025), in a survey of 487 adolescents aged 13 to 19, observed no significant age-related differences in anthropomorphic tendency as a general construct, a result that appears at first glance to contradict the present findings. However, that study used a broad, single-dimensional measure of anthropomorphic tendency, whereas the present research employed five distinct subscales targeting different facets of human-like attribution, alongside perceived functionality as a separate outcome. As shown in Table 5, grade-level differences were not uniform across dimensions – the largest effects were observed for emotionality, courtesy, and roleplay (Cohen's $d = 1.19, 1.17, \text{ and } 1.17$ respectively), suggesting that age-related differences in anthropomorphic engagement are domain-specific rather than reflecting a general decline across all dimensions.

5. CONCLUSION

The adoption of conversational agents (CA) into daily routine, and into schools in particular, is one of the most drastic points of change for the present generation of adolescents. As LLMs like ChatGPT, Gemini, and Claude become embedded in the process of how students learn, research, communicate, and create, the psychology of the interaction that regulates them becomes more and more pressing. The most important of these dynamics is anthropomorphism: the propensity to project human-like qualities, feelings, and wills onto non-human agents. Anthropomorphism influences the degree to which users believe, depend, and have an emotional connection to the systems with which they engage, and is thus directly related to the quality and nature of human-AI systems at scale. When students are more likely to perceive their CAs as a social collaborator as opposed to a tool, this has a major effect on learning outcomes, emotional dependence, critical reaction to AI, and the thinking and processing of intelligence, agency, and human distinctiveness by this generation. These stakes concern the cognitive and social development of millions of adolescents who are forming their habits, beliefs, and mental models of AI at the very moment that AI itself is undergoing unprecedented transformation. Therefore, the anthropomorphic role of AI is such an issue, which requires strict, systematic, and demographically particular analysis.

The present study is the first research study conducted among adolescent students with 5 dimensions of anthropomorphism and thus has various new contributions to the expanding literature in the area. It offers one of the first multidimensional studies of anthropomorphism in CA use, specific to an adolescent population, by sampling 109 high school students at all four grade levels and measuring anthropomorphic tendency at five different facets such as Roleplay, Courtesy, Emotionality, Reinforcement, and Companionship. The results demonstrate that anthropomorphic propensity is not homogenous over the high school years: underclassmen (Grades 9 to 10) significantly and consistently outperform upperclassmen (Grades 11 to 12) on all five dimensions of anthropomorphism with large effect sizes (Cohen $d = 0.89 \text{ to } 1.19$), which indicates that younger teens are more likely to adopt anthropomorphic tendencies when interacting with CAs. The perceived functionality scores of underclassmen were also reported to differ at significantly greater levels ($d=1.33$). Gender on the other hand was a non-shower, as there was no significant difference in any anthropomorphic dimension or perceived functionality. This result is in line with the previous literature and is predictive of the democratizing influence of CA using among the youth of the present age. The effects of interaction time on anthropomorphic dimensions were selective and increased Roleplay and Emotionality scores, but not Companionship or Reinforcement, indicating a subtle effect, dimension-specific effect of engagement depth on anthropomorphism attribution; perceived functionality also rose with time spent, but without pairwise differences. Perhaps the most practically important of all is the result that in both grade-level samples, courtesy most strongly predicts perceived functionality, indicating that students perceive that the degree to which they behave in a courteous manner with their CAs leads to increase in the functionality of the agent. Such results contribute to a better and more conceptually informed understanding of the psychologically based engagement of high-school teenagers with conversational agents and offer the

researchers a conceptual framework based on empirical evidence that guides the further understanding and designing of said engagement.

Implications of the study:

The findings of the present study carry actionable implications beyond academia. For policymakers, the data underscore the need for AI literacy curricula that are age-differentiated — addressing the notably higher anthropomorphic tendencies of younger high school students with targeted interventions that build critical awareness of AI's non-human nature without undermining productive engagement with these tools. Educators face a similar responsibility: the centrality of courtesy in predicting perceived functionality suggests that classroom conversations about how students communicate with a CAI, and how they perceive a CAI's communicative style, could meaningfully shape how productively and critically they engage with these tools. For CAI designers and developers, the findings suggest that optimizing for courtesy and social warmth may disproportionately shape younger users' evaluations of functional competence — raising important questions about whether such design choices inadvertently amplify anthropomorphic engagement among more developmentally vulnerable age groups and calling for age-conscious design standards in educational CAI applications. For students themselves, awareness of the tendency to anthropomorphize- and to conflate social agreeableness with functional intelligence-is an essential component of the AI literacy skills this generation will need to navigate an increasingly AI-integrated world with responsibility and discernment.

Limitations of the Study:

1. Although the present study sampled 109 high school students, the relatively modest sample size limits the statistical power of certain analyses and may not fully capture the diversity of anthropomorphic tendencies across the broader adolescent population. The unequal distribution of respondents across grade levels (e.g., only $n = 20$ seniors) further constrains group-level comparisons and increases the margin of error in subgroup analyses. Future studies should aim for larger, more balanced samples to improve the precision and reliability of findings.
2. As a self-report survey instrument, the study is susceptible to response biases, most notably social desirability bias, whereby respondents may underreport behaviors or attitudes they perceive as socially undesirable, such as emotional attachment to an AI or extensive daily use, and overreport those perceived as more acceptable. Adolescents are particularly susceptible to such biases given their heightened sensitivity to peer norms and social evaluation. Measured behavioral data (e.g., interaction logs) alongside self-report would help mitigate this limitation in future work.
3. The entire sample was drawn from one school, introducing potential institutional confounds such as school culture, specific technology access policies, teaching practices, or the socioeconomic profile of the student body. Findings may therefore reflect the particularities of this environment rather than generalizable patterns in the broader adolescent population. Multi-school designs encompassing diverse institutional settings would significantly strengthen the external validity of the research.
4. Based on 2025 data (Niche, 2025), HMGHS has a cultural mix of 44.1% Asians, 29.1% White, 13.5% Hispanics, and 0.9% African American students, with the remainder identifying as other races. While this does not represent a global population, the cultural diversity present within Silicon Valley does provide meaningful demographic variability within the constraints of a single-school design.

Future Directions

1. Future research should extend the current framework beyond high school to examine how anthropomorphic tendencies toward CAIs evolve across a larger age demographic; this may include sampling from middle school throughout early adulthood. Specifically, study designs that

track the same individuals over multiple years would be especially valuable in disentangling the effects of age, accumulated experience with AI, and educational exposure — three factors that co-vary in the present cross-sectional data and cannot be separated without repeated-measures designs. Such research would help determine whether the grade-level differences observed here reflect a genuine developmental trajectory or are partially attributable to generational gaps.

2. As the methods used were solely cross-sectional surveys, the present study cannot establish causal relationships between anthropomorphic dimensions, usage rates, and grade levels. Experimental designs, in which features of CAI behavior such as politeness level, emotional expressiveness, or conversational warmth are deliberately manipulated as variables, would allow researchers to test the causality of the relationships observed here, particularly the finding that courtesy predicts perceived functionality. Controlled laboratory studies and field experiments within educational settings would also enable researchers to assess whether reducing or increasing anthropomorphic design features produces measurable changes in learning outcomes, trust calibration, or emotional dependency.
3. The trend in which courtesy was the most significant predictor of perceived functionality in both grade-level groups is perhaps the most practically relevant outcome of the current study, but the mechanism that causes the relationship still stands to be unclear based on the current data. A follow-up study ought to use qualitative designs like semi-structured interviews, focus groups or think-aloud protocols in the process of interacting with CAI live to test the courtesy-functionality nexus.
4. The cross-sectional aspect of the current study implies that the differences between underclassmen and upperclassmen cannot be determined to unquestionably be a result of developmental change. Another way to explain this is that the exposure to conversational AI as a young adult is significantly different in current 9th and 10th graders compared to currently 11th and 12th graders, and that the observed differences are due to cohort effects and not personal cognitive maturation. Future studies ought to use longitudinal designs that follow the same group of students in Grade 9 to Grade 12 and assess the anthropomorphic tendencies and perceived functionality at various points in time. These designs would enable the researcher to say whether anthropomorphic engagement actually decreases as individual students go through high school or it is constant among individual students but different across generations.
5. Although the current research paper records the way adolescents view and interact with conversational AI, the researchers do not investigate whether these trends have quantifiable implications on learning. This is a significant loophole, considering that most of the participants were known to use CAIs regularly to solve problems and as educational aids. Further studies would help to determine whether greater anthropomorphic engagement, especially the propensity to view CAIs as social collaborators, rather than as tools are related to academic performance, quality of AI output assessment, or the emergence of autonomous critical thinking abilities.

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APPENDICES

Appendix A. Artificial Intelligence Relationships Survey

Introduction

*** Indicates a required question.**

Section 1

1. OPTIONAL: What is your name/ initials?

In order to ensure anonymity, you can mention the initials of your name instead.

2. Grade *

- Freshman (Grade 9)
- Sophomore (Grade 10)
- Junior (Grade 11)
- Senior (Grade 12)

3. Gender Identity *

- Male
- Female
- Transgender
- Non-Binary
- Other: _____

4. Do you use AI on a daily basis? *

- Yes
- No

5. Name the CA you most commonly use: _____

6. For what purposes do you most frequently find yourself using CAs? Rank the following from 1 (most frequent) to 6 (least frequent):

- Education
- General Problem Solving
- Research
- Conversation/Social Interaction
- Artistic Inspiration and Feedback
- Therapeutic Conversations
- If the listed use-cases didn't match with any of your own uses, feel free to list them below Other uses:

7. How many hours per week do you spend using a CA?

- Less than 5 hours
- 5–10 hours
- 11–20 hours
- More than 20 hours
- Other _____

8. Why do you feel more comfortable with your chosen CA compared to other ones? (It can just be a single sentence)

Section 2: Halfway there!

9. Choose the most appropriate option *

If you find your actions not aligning with any particular scenario, please select 'Strongly Disagree'.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have asked my CA to pretend to be a character or play a specific role	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I treat my CA differently depending upon the personality I imagine it has	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I give my CA names or identities when I interact with it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy imagining that my CA understands my emotions or humor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I pretend that my CA is a person talking back to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Choose the most appropriate option *

If you find your actions not aligning with any particular scenario, please select 'Strongly Disagree'.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I use polite language when talking to my CA (e.g., please, thank you).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel awkward being rude to my CA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I treat my CA with the same level of politeness that I use with people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I expect my CA to respond appropriately when I speak respectfully to it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I try to be considerate or respectful even when my CA gives unsatisfactory responses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Choose the most appropriate option *

If you find your actions not aligning with any particular scenario, please select 'Strongly Disagree'.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I talk to my CA when I need someone to listen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I use my CA whenever I feel lonely or bored	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I talk to my CA in the same way as how I would talk to a human being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe that my CA responds with actual emotions that accurately reciprocate my feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy having regular conversations with my CA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Choose the most appropriate option *

If you find your actions not aligning with any particular scenario, please select 'Strongly Disagree'.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel more motivated when my CA gives positive feedback compared to neutral responses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Praise from my CA makes me more likely to return to it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer CA agents that more often express positive attitudes when interacting with them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe my CA more effectively encourages me than people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I actively seek out my CA for encouragement/motivation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Choose the most appropriate option *

If you find your actions not aligning with any particular scenario, please select 'Strongly Disagree'.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe my CA gives me more satisfactory responses after I have asked it to play a specific role.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe my CA gives me more satisfactory responses when I am polite to it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe my CA gives me more satisfactory responses after I have conversed deeply with it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe my CA gives me more satisfactory responses after I have given it constructive criticism.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe, overall, how I interact with a CA will lead to the generation of more satisfactory responses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Choose the most appropriate option *

If you find your actions not aligning with any particular scenario, please select 'Strongly Disagree'.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Whenever I face a personal problem, I rely on CA to offer me solutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel like CA understands me whenever I am going through something difficult.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer CA as a therapy tool compared to in-person therapy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CA has helped me feel better in times of distress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I consider CA not just a tool but a friend to seek help from in times of need.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. OPTIONAL: If you lose connection with your CA, describe how that will make you feel?



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Dr. Wendy Stratton, Principal

To Whom It May Concern:

March 28th, 2026

I am writing to confirm that Raunak Garhyan was granted permission to conduct a digital survey among the students of Henry M. Gunn High School, including the distribution of the survey across various Discord servers and through teacher referrals. Please note that the survey and its results were and will remain strictly anonymous, and no student names will be published.

If there's any further information I can provide, please don't hesitate to contact me: tfirenzi@pausd.org, or 831-295-3252.

Sincerely,

Tara Firenzi

Instructor and Teacher on Special Assignment (TOSA) at Gunn High School (PAUSD)

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