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RESEARCH ARTICLE

From Real to Digital Life: The Relationship between Students' Perceptions of School Climate Openness, Self-efficacy, and Prosocial Gaming Behaviors

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Background/purpose – Research tends to focus on understanding the school climate impacts and outcomes on real-life situations and problems while not giving deserved attention to their effects on digital life experiences and behaviors, such as those provided by videogame contexts. This article explores the relationship between school climate openness, sense of self-efficacy, and prosocial gaming behaviors.

Materials/methods – A cross-sectional study using a questionnaire-based survey was conducted among 611 college students aged from 17 to 45 years old from 15 higher education institutions in Porto (Portugal). The analytical procedures involved cluster, multivariate, and meditation analyses.

Results – The study revealed a relationship between students' perceptions of school climate and their sense of self-efficacy and prosocial gaming behaviors. Students' self-efficacy was proven to mediate the relationship between their perceptions of school experiences and behaviors in gaming communities.

Conclusion – The study extends the literature by expanding knowledge about how students' perceptions of school climate openness for discussion, perspective-taking, and social analysis, and their sense of political efficacy, are related to how they exercise their citizenship while participating in videogame communities. The existence of a spillover effect from real to digital life was concluded.

Keywords – citizenship education, school climate openness, self-efficacy, prosocial gaming behaviors

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1. INTRODUCTION

Every democratic and socially just society needs well-informed, critical, and active citizens. Citizenship education is a collective project carried out by multiple and coexistent social groups and institutions; however, school has taken a lead role through the promotion of knowledge, skills, values, and dispositions, which are considered relevant for the development of democratic citizenship and culture (Schulz et al., 2022; Subba, 2014). Concretely, higher education institutions are privileged spaces for sustaining and nurturing a participatory and social justice-oriented democratic culture that goes beyond the school walls and follows students into their other life contexts (Davids & Waghid, 2016; Krčmářová, 2011).

Over the past decades, the concept of school climate has changed; it has been defined in countless ways and is still subject to debate. School climate is embedded in the subjective and ongoing experiences of school life lived by all members of the school community, involving teachers, staff, and students, grounded on norms, goals, values, interpersonal relationships, teaching methodologies, learning practices, and organizational structures (Berkowitz et al., 2017; Payne, 2018). Those experiences take place through observations and interactions in a given context that influences how people come to understand, adopt, and implement the ideas and behaviors that surround them throughout school, from the classroom to the schoolyard (Bandura, 1997; Diazgranados & Noonan, 2015; McGiboney, 2023).

Educational policymakers, researchers, and practitioners have increasingly recognized the relevance of the context in which education and participation experiences occur, given the undeniable impact of school climate on students' cognitive, emotional, relational, and behavioral development, and on democratic culture overall. A substantial amount of literature agrees that students' perceptions about the school climate influence their civic and political knowledge, skills, values, and dispositions inside and outside the school context (Knowles et al., 2018). Existing research shows that students' perceptions of school climate influence, for instance, their school affection and academic achievement (Maxwell et al., 2017), school avoidance (Sobba, 2019), subjective wellbeing (Varela et al., 2019), bullying and aggression rates (Diazgranados & Noonan, 2015), and cyberbullying (Simão et al., 2017). Research also gives empirical evidence that when students have ongoing and significant opportunities to experience participatory, collaborative, and open school climates, they tend to display cognitions, values, and attitudes that are consistent with democratic processes, practices, and values, among them, self-efficacy (Manganelli et al., 2015), prosocial behaviors (Astuto & Ruck, 2010), perspective-taking, tolerance, trust (Flanagan et al., 2007), communication, cooperation, teamwork, and problem solving (Diazgranados & Noonan, 2015).

Even so, research tends to focus on understanding the school climate impacts and outcomes on real-life situations and problems while not giving deserved attention to their effects on digital life experiences and behaviors, such as those provided by videogame contexts. The number of people playing video games worldwide was estimated to reach 3.2 billion (Newzoo, 2022); however, little is known about how the cultural, societal, and experiential baggage that each video gamer inevitably brings into the videogame context affects their values, attitudes, and behaviors while interacting with other players. A central

assumption of the current study was that students' real-world experiences and attitudes influence their prosocial participatory behaviors within their video game communities, such as helping other players and engaging with the gaming community, are affected, and influenced by their real-world experiences and attitudes.

2. LITERATURE REVIEW

2.1. The mediating role of self-efficacy

The sense of self-efficacy refers to the confidence in one's capacities to understand the social, political, economic, and cultural surroundings and act effectively in it through individual and/or collective action and the belief that those judgments and actions are meaningful and impactful to promote social transformation (Bandura, 1997; Waddington, 2023). People are most likely to develop their sense of self-efficacy when their life contexts and relationships continually allow and support them to build relevant resources to be critical of and to engage in their political and civic environments, as well as to identify opportunities for influence and action in interaction with different others (Beaumont, 2011; Theiss-Morse & Hibbing, 2005).

Decades of research have shown that the sense of self-efficacy is a central element for political and civic agency and democratic participation (Almond & Verba, 1963; Bandura, 1997; Sohl & Arensmeier, 2015). It is a powerful mediator between civic and political cognitions, motivations, beliefs, choices, values, interactions, and behaviors (Beaumont, 2011; Manganelli et al., 2015; Maurissen, 2018).

Beaumont (2011) identified sociopolitical learning mechanisms that differently interact with and reduce the influence of individual backgrounds (like socioeconomic status and civic resources), contributing to students' increment of self-efficacy and equality. Beaumont's (2011) study showed that when students have opportunities to participate in civic and politically active communities, which embrace diversity and enable them to collaborate while developing skills for civic and political discourses and actions, they tend to feel more sense of self-efficacy and equity. Nevertheless, more research is needed to understand better the educational processes and mechanisms behind the development of self-efficacy.

Manganelli et al. (2015) demonstrated that when students are encouraged to express their opinions, raise different points of view, and bring up significant issues, they tend to feel more capable of organizing a group of students, arguing their points of view, or discussing public issues. More recently, Maurissen (2018) found that students, who had more opportunities for civic learning experiences, classroom discussions on political and social issues, and active participation at school tend to feel more confident about their civic and political abilities, which in turn positively impacts upon their expected participation behaviors, like contributing to an online discussion forum about social or political issues or organizing an online group to take a stance on a controversial political or social issue. Therefore, the research gave evidence of the mediation role of self-efficacy in the relationship between students' perception of the school climate and their engagement and participation in various social environments. However, research is lacking in understanding how students' perception

of school climate and their sense of self-efficacy affect their behaviors, values, and attitudes in digital social contexts, as is the case of video games.

2.2. Prosocial behaviors in the digital context

The recreational, educational, and social experience of playing video games is part of everyday life for many people nowadays (Lenhart, 2015; Przybylski & Weinstein, 2017). Videogames refer to electronic/digital games played on diverse audiovisual platforms (e.g., computers, consoles, tablet computers, or smartphones), which can be based on different content-based stories (Jones et al., 2014). These games can be played collaboratively or competitively, alone, or with other players on the Internet or in the same physical space, which are "designed for players to engage with their systems actively and for these systems to, in turn, react to players' agentive behaviors" (Granic et al., 2014, p. 67).

The field of video games has been growing in importance, visibility, and controversy (Kirsch, 2006). Much of the research effort devoted to video games has focused on the adverse effects of gaming in predicting real-life behaviors, particularly following the school shootings of the 1990s (Anderson, 2004). Much of the reported adverse effects of video games relate to their violent content (Copenhaver, 2015; Sax, 2016), addictive and pathological potential (Lemmens et al., 2011; Van Rooij, 2011), mainly when associated with excessive gameplay time, and links to existing psychosocial conditions (Jones et al., 2014). These studies generally state vulnerable people who play more violent video games tend to report more aggressive feelings and behaviors, lower psychological, physical, and social wellbeing, lower achievement and productivity, and less interpersonal relationships and prosocial behaviors (Gentile, 2009; Grüsser et al., 2007).

Literature published about the positive effects of videogame playing has been considerably less than those with a focus on the negative effects. Nevertheless, empirical studies have proven the cognitive, social, and emotional development benefits of playing videogames, including violent ones (Przybylski et al., 2009; Wang et al., 2008). Some of the positive outcomes included greater mental health and a sense of wellbeing (Desai et al., 2010; Jones et al., 2014), improved academic performance (Gee, 2003; Johnson, 2005), a greater sense of efficacy and power over one's surroundings (Jones, 2002), and improved community bonding and prosocial behaviors within and outside the game context (Gordon & Baldwin-Philippi, 2014).

More recently, research has been providing evidence of the potential of videogames and gaming communities as a locus for democratic learning and citizenship experience that allows players to explore and develop their individual and collective identity and, therefore, influencing their participatory behaviors whether gaming or not (Bogost, 2006; Mitgutsch & Alvarado, 2012; Molyneux et al., 2015; Steinkuehler & Williams, 2006). Molyneux et al. (2015) conducted research based on the assumption that interpersonal interactions in multiplayer videogames may contribute to the development of social capital. They found that players who develop ties with other game community members have what they referred to as gaming social capital. Their research revealed the impact of the interactional environment provided by multiplayer videogames on their users' political and civic knowledge, attitude, and values,

which might be applied in their real-world contexts and experiences. Their study confirmed the existence of a spillover effect from gaming social capital to social capital in the real world. That said, there remains a gap in the videogames literature approaching the reverse relationship; therefore, the current study constitutes an effort to analyze the influence of real-life experiences and attitudes in digital participatory behaviors.

3. METHODOLOGY

3.1. Research question and hypotheses

Drawing from the literature review, the research question central to this study asks how students' perceptions of school climate openness for reflection, discussion, and dissent influence their prosocial behaviors while playing videogames, and aims to clarify the role of self-efficacy as a mediating mechanism in this relationship. In Hypothesis 1, a negative relationship was expected between students' lower perceptions of their school climate openness and sense of self-efficacy (Beaumont, 2011). Therefore, a comparison was made between higher education students who reported lesser openness (low and moderate perceptions) for reflection, discussion, and dissent in their schools and those who reported higher perceptions of school climate openness (reference group). In Hypothesis 2, considering that higher levels of perceived school climate openness tend to lead to students feeling more emotionally empowered, it was assumed that students' sense of self-efficacy would more likely be impacted by higher perceptions of school climate openness than by low or moderate perceptions (Perliger et al., 2006). In Hypothesis 3, it was postulated that self-efficacy would mediate the relationship between students' low and moderate perceptions of school climate openness for reflection, discussion, dissent, and their prosocial gaming behaviors (Maurissen, 2018).

3.2. Research context and procedure

The Ethics Committee of the Faculty of Psychology and Education Sciences of the University of Porto approved the study, informing that it would be necessary to ask for participants' informed consent. After obtaining informed consent from each participant, the respondents completed the questionnaire individually. Standardized instructions were written on the front page of the questionnaire. Participants were assured of the confidentiality and anonymity of their responses. The survey took approximately 15 minutes to complete. The data were collected during the second semester of the 2018-2019 academic year.

3.3. Participants and sampling

The data collection procedure started by contacting with institutes, faculties, and student associations at the University of Porto (UP) and Porto Polytechnic Institute (PPI) to present the research project and ask for support in its dissemination among educational communities through available communication networks. The request for participation was launched via dynamic email to the educational community of both institutions, in this way all students were invited to participate by responding to an online questionnaire.

The study participants were 611 (50.7% female) higher education students, aged between 17 and 45 years old (M_{age} = 22.55 years; SD = 5.32), from 15 faculties and schools

from UP and PPI, obtained through non-probabilistic sampling. Around 76% of the students reported having played videogames, from which 53.8% used to play frequently alone and 34.8% with others on the Internet.

3.4. Measures

All scales used in this study were submitted to exploratory factor analyses (EFA), using the principal component extraction method with direct oblimin rotation to examine the underlying structure using IBM's SPSS Statistics Package v25 (Field, 2009). The items that displayed communalities less than .40 were removed (Hair et al., 2006). The EFA results were later validated by confirmatory factor analyses (CFA) using IBM's SPSS Amos v24 (Marôco, 2014). A maximum-likelihood estimator was used to estimate model parameters, and regression imputation was performed to replace missing data. The Chi-square (χ^2) statistic, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) were used to assess model fit (Hu & Bentler, 1998). Internal consistency reliability of the scales was evaluated according to Cronbach's alpha (α) coefficient.

Openness of school climate for reflection, discussion, and dissent (CLIMATE)

An open school climate for reflection, discussion, and dissent is defined as a context in which students can freely express their opinions, explore those of other students and teachers, and investigate significant issues in interaction with diversity. This measure was drawn from Flanagan et al. (2007) and consisted of three components: open classroom climate (four items; e.g., "In my school, students are encouraged to express opinions"); perspective-taking opportunities (two items; e.g., "I have opportunities to work in groups on projects with people who are very different from me"); and, social analysis (four items; e.g., "In our classes, we talk about current events"). Participants rated each item on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

The EFA led to the exclusion of one item, which displayed a communality value lower than .40. The remaining nine items were grouped into two factors that explained 69.54% of the total variance. The CFA confirmed a good model fit: $\chi^2(26) = 131.35$, $\chi^2/df = 5.05$, $p \leq .00$, RMSEA = 0.08, CFI = 0.97, and TLI = 0.94. The internal consistency reliability of the scale was Cronbach's α = .87.

For the analytic purpose of the current study, a combination of hierarchical and k-means cluster analysis was conducted to classify the participants into clusters (Tabachnick & Fidell, 2001) based upon their perception of the openness of their school climate for reflection, discussion, and dissent. Participants with similar perceptions would be assigned to the same cluster. In this analysis, Ward's method was used to calculate the cluster solution, and a 3-cluster solution was revealed, explaining about 83.84% of the variance. The first cluster consisted of students who reported high CLIMATE ($n = 138$, $M = 4.34$, $SD = 0.33$); the second cluster consisted of students who reported moderate CLIMATE ($n = 219$, $M = 3.35$, $SD = 0.28$); and the third cluster consisted of students who reported low CLIMATE ($n = 159$, $M = 2.32$, $SD = 0.38$). The multicategorical variable CLIMATE was treated as the independent variable (X) in the mediation analysis.

Sense of self-efficacy (EFFICACY)

The sense of self-efficacy is defined as the young people's perception of their competences to influence and produce changes in their personal and sociopolitical context. This nine-item measure was drawn from Flanagan et al. (2007) and includes items such as: "If you encounter a problem in your community (e.g., water problem contamination or racial group discrimination), how competent you would feel to create a plan to deal with the problem?" and "…identify other people or groups that could help solve the problem?" Participants evaluated each item on a 5-point scale from 1 (*nothing competent*) to 5 (*totally competent*). The EFA results justified the exclusion of one item, and then an eight-item factor structure was obtained, which explained 51.67% of the total variance. The CFA results provided good model fit indices: $\chi^2(19) = 112.55$, $\chi^2/df = 5.92$, $p \leq .00$, RMSEA = 0.09, CFI = 0.95, TLI = 0.93. The internal consistency reliability of the scale was Cronbach's $\alpha = .86$. EFFICACY was integrated as the mediator variable (M) for the mediation analysis.

Prosocial gaming behaviors (GAMBEH)

Prosocial gaming behaviors are defined as young people's behaviors while playing videogames, which are related to helping other players and engaging in game community activities such as reflection, discussion, and decision-making experiences. This six-item measure was adapted from Lenhart et al. (2008), including examples "When you play videogames, how often do you help or guide other players?" and "…how often do you reflect about social issues?" Respondents rated each item on a 5-point scale from 1 (*never*) to 5 (*very frequently*). Considering the EFA results, one item was excluded, and the remaining five items were grouped into a factor that explained 59.83% of the total variance. The CFA results showed good model fit: $\chi^2(5) = 8.453$, $\chi^2/df = 1.69$, $p = .13$, RMSEA = 0.03, CFI = 0.997, TLI = 0.994. The internal consistency reliability of the scale was Cronbach's $\alpha = .81$. GAMBEH was considered the dependent variable (Y) for the mediation analysis.

Control variables

In the literature, gender and age have consistently been associated with young people's sense of self-efficacy (e.g., Christens et al., 2011; Seibert et al., 2011; Speer et al., 2013). Also, the context in which videogames are played (playing competitively or cooperatively with other players or playing alone) is found to influence the player's prosocial behaviors in videogames (Adachi et al., 2015). Therefore, gender (female = 1; 50.7%), age (*M* = 22.55; *SD* = 5.32), playing videogames with others on the Internet (*M* = 3.03; *SD* = 1.62) or alone (*M* = 4.03; *SD* = 1.22) were used as control variables in the data analysis.

3.5. Analytical procedures

First, the assumptions for analysis of variance (ANOVA) and mediation analysis were evaluated. Assumptions of normality, linearity, and homoscedasticity were met (Kline, 2005).

Before analyses to test our hypotheses, control variables were checked to explore any confounding effects, performing one-way ANOVA and Chi-square using IBM's SPSS Statistics Package v25. Results showed that the three CLIMATE groups differed significantly according to gender [$\chi^2(2) = 12.80$, $p < .01$], and significant correlations between playing videogames

with others on the Internet and prosocial gaming behaviors [$F(38, 347) = 1.79$, $p < .01$]. Therefore, both variables were included as control variables in further analyses.

The bivariate relationships between students' perception of school climate openness for reflection, discussion, dissent, and sense of self-efficacy were analyzed using Pearson correlations (H1). Then, a one-way ANOVA was performed to investigate CLIMATE group differences in students' sense of self-efficacy between high, moderate, and low CLIMATE groups (H2). A mediation analysis (model 4) with a multicategorical independent variable (in our study, CLIMATE) was conducted based on the PROCESS v3.3 macro for SPSS (Hayes, 2013) to explore if students' sense of self-efficacy mediates the relationship between their perceptions of school climate openness and prosocial gaming behaviors (H3). This tool uses ordinal least squares regression analyses for the first two steps of mediation analysis and bootstrap samples for mediator analysis. Following Hayes and Preacher (2014) stance on statistical mediation analyses with a multicategorical independent variable, a dummy (or indicator) coding scheme was used. This implied the creation of two dummy variables (D1 and D2), with each corresponding to the CLIMATE groups (1 = high, 2 = moderate, 3 = low), which were set to 1 where a case was in the group and 0 where a case did not belong to the group. The high CLIMATE group was not explicitly coded (the reference group); therefore, the two dummy variables were set to 0 for cases in that group. The dummy coding scheme used is presented in Table 1.

Table 1. Dummy coding scheme

Group	Dummy 1 (D_1)	Dummy 2 (D_2)
	Medium vs. High	Low vs. High
High CLIMATE (reference group)	0	0
Moderate CLIMATE	1	0
Low CLIMATE	0	1

The high CLIMATE group represents the reference group in the analysis, and all parameters in the model pertinent to group differences are values relative to this reference group. For example, c'1 quantifies the mean difference in GAMBEH between the group coded with D1 and the reference group (moderate CLIMATE versus high CLIMATE).

A nonparametric bootstrapping procedure with 10,000 replications and 95% bias-corrected confidence intervals was conducted to examine the significance of indirect mediation effects (Hayes & Preacher, 2014). The statistical significance level of all analyses was .05. If the upper and lower confidence interval (CI) range contains a zero at $p = .05$, then there is a significant indirect mediation effect. This statistical procedure is mathematically similar to an analysis of covariance but also computes group means for the mediator and dependent variable. Thus, it is possible to get model, parameter estimates, and model fit statistics that provide information about how the low CLIMATE group and moderate CLIMATE group differ from each other compared to the reference group, which are the students who reported a high school climate openness for reflection, discussion, and dissent. The

conceptual mediation model is represented in Figure 1. A priori, power analyses were performed using G * Power for the first two steps in the mediation analysis related to the correlations between the independent and dependent variables and between the independent and mediator variables. A sample of 343 was sufficient for α = .05, a medium effect size (F^2 = 0.15), and a per of .80.

4. RESULTS

Pearson correlations were calculated to explore bivariate relationships between CLIMATE groups, EFFICACY, and GAMBEH and are presented in Table 2. Negative significant correlations ($p < .05$) between CLIMATE groups (1 = high, 2 = moderate, 3 = low), EFFICACY, and GAMBEH were found. It shows that the lower students' perceptions of CLIMATE, the lower their EFFICACY and GAMBEH. This result validated the first hypothesis, which stated that participants in the moderate and low CLIMATE groups reported lower rates of EFFICACY than participants in the high CLIMATE group. Additionally, the same association was identified between the GAMBEH and CLIMATE groups. Also, a positive correlation was revealed between EFFICACY and GAMBEH. Thus, greater levels of EFFICACY are associated with higher levels of GAMBEH.

Table 2. Correlations between independent, mediator, and dependent variables

	School climate openness	Self-efficacy	Prosocial gaming behaviors
School climate openness	—	-.29[*]	-.16[*]
Self-efficacy	-.29[*]	—	.36[*]
Prosocial gaming behaviors	-.16[*]	36[*]	—

* $p \leq .01$ level

Previous correlation analysis demonstrated a significant association between CLIMATE groups and EFFICACY; however, this did not confirm if there would be a linear decrease in EFFICACY between high, moderate, and low CLIMATE groups. So, a one-way ANOVA was performed to explore CLIMATE group differences in EFFICACY. The results of ANOVA are displayed in Table 3.

Table 3. Means and standard deviations of students' self-efficacy and prosocial gaming behaviors in low, moderate, and high CLIMATE groups

	Self-efficacy (M)		Prosocial gaming behaviors (Y)	
	M	SE	M	SE
High CLIMATE (n = 138)	3.70	0.67	3.40	1.05
Moderate CLIMATE (n = 216)	3.39	0.60	2.99	1.02
Low CLIMATE (n = 157)	3.12	0.81	2.94	1.00
All groups combined	3.39	0.76	3.09	1.04

Results showed that the CLIMATE groups differed significantly on EFFICACY [$F(2, 508) = 23.12$, $p < .001$, $\eta^2 = .08$]. Post hoc Bonferroni pairwise comparisons showed that the high CLIMATE group differed significantly from the moderate CLIMATE group ($p < .001$) and

the low CLIMATE group (p = .002) in terms of EFFICACY. The difference in EFFICACY was also shown to be significant between the low and moderate CLIMATE groups (p = .002). This finding indicates that the participants assigned to the high CLIMATE group had a significantly more positive perception of their EFFICACY than those from the low and moderate CLIMATE groups. Based on these results, the second hypothesis was validated. Additionally, a one-way ANOVA was conducted on the level of GAMBEH across CLIMATE groups. Results revealed that the CLIMATE groups differed significantly on GAMBEH [F(2, 367) = 6.41, p < .001, η^2 = .03]. Post hoc Bonferroni pairwise comparisons showed that the high CLIMATE group differed significantly from the moderate CLIMATE group (p = .007) and the low CLIMATE group (p = .004) in terms of GAMBEH; however, there was no significant difference found between the moderate CLIMATE group and low CLIMATE group (p > .05). The high CLIMATE group participants reported greater GAMBEH rates than the moderate and low CLIMATE groups.

Figure 1 shows the results of the mediation analysis. Participants in the moderate and low CLIMATE groups were more likely to report lower levels of EFFICACY than those in the high CLIMATE group ($\beta_{moderate}$ = -0.41, t(354) = -3.32, p = .001; β_{low} = -0.93, t(354) = -7.03, p < .001). Participants in the moderate CLIMATE group were also more likely to report lower rates of GAMBEH ($\beta_{moderate}$ = -0.32, t(353) = -2.48, p = .014) compared to those in the high CLIMATE group; however, the direct path from low CLIMATE group to GAMBEH was not found to be statically significant (β_{low} = -0.25, t(353) = -1.79, p = .740). Additionally, students who reported higher levels of EFFICACY tended to report greater levels of GAMBEH [β = 0.44, t(353) = 6.29, p < .001].
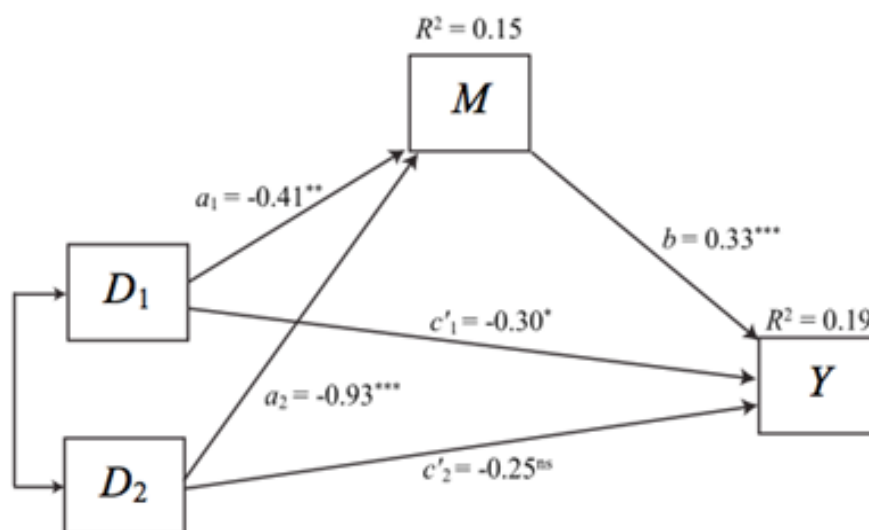
Figure 1. Mediation analysis results (standardized path coefficients presented)
*p < .05, **p < .01, ***p < .001, ns = nonsignificant (p > .05)

Regarding the effect of the control variables, playing videogames with others on the Internet had a significant effect on EFFICACY [β = 0.20, t(354) = 3.73, p < .001], and on GAMBEH [β = 0.17, t(353) = 3.15, p < .001]. The path model explained 15% of students' sense of EFFICACY and 19% in GAMBEH.

Table 4 presents the results of decomposing direct, indirect, and total effects among variables by performing bootstrapping. The total indirect effects of moderate and low

CLIMATE on GAMBEH through EFFICACY were both significant ($\beta_{moderate}$ = -.13, 95% CI = -.23 to -.05; β_{low} = -.30, 95% CI = -.44 to -.19). The standardized indirect effect mediated by EFFICACY corresponds to 30.23% of the total effect of moderate CLIMATE on GAMBEH and 54.55% of the total effect of low CLIMATE on GAMBEH. There is an authentic, even if partial, mediating role for EFFICACY in the relationship between students' low and moderate perceptions of school climate openness and their prosocial behaviors when playing videogames. This result validated the third hypothesis.

Table 4. Mediation analysis results (N = 611)

		Total	Direct	Indirect
EFFICACY	← D_1 (moderate vs. high CLIMATE)	-.41***	-.41***	
	D_2 (low vs. high CLIMATE)	-.93***	-.93***	$-$
GAMBEH	← EFFICACY	.33***	.33***	$-$
	← D_1 (moderate vs. high CLIMATE)	-.43***	-.30**	-.13**
	← D_2 (low vs. high CLIMATE)	-.55***	-.25ns	-.30**

Note: Standardized coefficients are presented

*p < .05, **p < .01, ***p < .001, ns = nonsignificant (p > .05)

5. DISCUSSION

This study adds to existing literature by bringing evidence of how school climate affects students' civic and political development (Diazgranados & Noonan, 2015; Geboers et al., 2013; Knowles et al., 2018; Reichert & Print, 2018). Following previous empirical studies, the perceived school climate for reflection, discussion, and dissent was found to be a significant predictor of change patterns of students' political and civic attitudes and behaviors, as their sense of self-efficacy (Beaumont, 2011; Manganelli et al., 2015; Maurissen, 2018). In the current study, students who perceived their school environment as being more supportive of opportunities for reflection, discussion, and dissent tended to feel more emotionally empowered. This means that the interaction experiences of sharing and confronting opinions and engaging in perspective-taking and collaborative social analysis processes significantly and positively influenced how students felt about their abilities to influence and produce meaningful changes in their living conditions and of others in their communities.

Furthermore, previous research found a significant relationship between students' perceptions of school climate and their prosocial behaviors in real-life contexts (Astuto & Ruck, 2010; Levine & Higins-D'Alessandro, 2010; Li et al., 2023). The current study tested and validated a similar connection between school climate openness and prosocial participatory behaviors in digital life contexts. The study's results show that students with less favorable perceptions of their school climate openness for reflection, discussion, and dissent are less likely to engage in prosocial activities (e.g., helping other players or debating ethical issues) while playing videogames.

6. CONCLUSION

This paper rests on the argument that schools, particularly in higher education, play a significant role in promoting and disseminating a democratic and human rights culture, which influences students' conceptions and feelings towards themselves as individuals and as part

of a collective or community, affecting their political and civic values, attitudes, and behaviors inevitably both within and outside of the school environment (Biesta, 2008; Freire, 1970; Schulz et al., 2022).

Furthermore, previous research found a significant relationship between students' perceptions of school climate and their prosocial behaviors in real-life contexts (Astuto & Ruck, 2010; Garaigordobil, 2003; Levine & Higins-D'Alessandro, 2010). The current study tested and validated a similar connection between school climate openness and prosocial participatory behaviors in digital life contexts. Our results show that students with less favorable perceptions of their school climate openness for reflection, discussion, and dissent are less likely to engage in prosocial activities (e.g., helping other players or debating ethical issues) while playing videogames.

The current study's findings are in line with previous empirical research and illustrate the sense of self-efficacy not only as a significant predictor of democratic, participatory behaviors (Beaumont, 2011; Manganelli et al., 2015; Maurissen, 2018), but also as a mediator of the relationship between students' perception of the school climate and their prosocial gaming behaviors. The study showed that the more students feel part of an open, participatory, inclusive, and respectful community, the more likely they would feel emotionally capable and willing to act individually or collectively to bring about positive social change. Furthermore, the greater a student's sense of self-efficacy, the more aware and able they are to engage in civic and prosocial behaviors when interacting with other players within their videogame communities. It was also shown that the student's sense of self-efficacy may reduce the negative influence of less positive experiences of school climate on their prosocial behaviors whilst gaming.

7. SUGGESTIONS

First, it should be considered that citizenship education is not exclusively confined to the school environment. People learn about democracy and human rights through participation in everyday practices and processes and the quality of their experiences as citizens in various life contexts (Biesta, 2008; Dewey, 1916/1985; McCowan, 2006). Notwithstanding, schools are seen as privileged spaces for citizenship education and empowerment, allowing students to understand their place as citizens and active members of their multiple communities.

The current study reinforces the premise that the democratic quality of school life predicts students' civic and political development, affecting their understanding, feelings, emotions, and actions both inside and outside of the school environment. It is essential, therefore, to pursue a school environment where there are continuous opportunities and support given to students so that they may openly discuss current, political, and social issues with both their teachers and peers, to participate in the school governance, to address real-life problems through individual or collective action, and to participate in other situated learning experiences within an environment that allows for the existence and confrontation with diversity and plurality of ways of thinking, being, and doing (Beaumont, 2011; Levine, 2007; McIntosh & Youniss, 2010).

The current study extends the existing literature by deepening the knowledge about how students' perceptions of school climate openness for discussion, perspective-taking, and social analysis, and their sense of political efficacy, relate to how they exercise their citizenship whilst participating within videogaming communities. A spillover effect was observed from real to digital life; in other words, students learn and adopt more or less democratic forms of action and interaction while interacting with peers, teachers, and staff, some of which are then reproduced in their digital communities. These findings raise concerns about the potential consequences of the lack of democratic culture in videogames. Many studies have shown that aggressive behavior and prosocial behavior are negatively correlated at different development stages (Krahé & Möller, 2011; Obsuth et al., 2015). Research has been calling public attention to the rise of cyberbullying, which sometimes also a continuation of bullying that originated at school (Olweus, 2012). Different but not dissimilar from face-to-face bullying, cyberbullying consists of engaging in forms of social interaction using digital technologies that aim at hurting or attacking others (Hinduja & Patchin, 2009; Simão et al., 2017). Aggressors and victims of bullying and cyberbullying tend to perceive their school climate more negatively than others (Souza et al., 2014). Moreover, the perceived school climate affects students' choices to confront (or not) violent online and offline behaviors (Diazgranados & Noonan, 2015). Thus, further exploration is needed.

As with any empirical research, the current study has certain limitations. First, the findings cannot be generalized to other populations and contexts, although replication of the study with different samples could broaden its transferability and generalizability. Second, the study was based on cross-sectional data, so caution is warranted in interpreting causality, demanding the need for a detailed exploration of these phenomena using a longitudinal design. Third, the study was limited to analyzing school climate impacts on students' sense of political efficacy and prosocial gaming behaviors. Future research should also combine the effects of different social agents (e.g., family, peers, school, media, and voluntary associations) to better explain the behaviors that students portray whilst playing videogames.

DECLARATIONS

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