

Discipline, Responsibility, and Autonomy of Senior High School Students in Principal Leadership Based on Digital Evidence Governance

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ABSTRACT

Changes in secondary education governance require principal leadership that is able to integrate data, technology, and student character development. Discipline, responsibility, and autonomy among senior high school students cannot be sufficiently explained through formal rules alone, but must be examined through a leadership framework based on digital evidence governance. This study aims to synthesize empirical findings on the relationships among principal leadership, digital evidence governance, school climate, and student character formation. Articles were retrieved from the Scopus database using structured keywords and then screened based on publication years from 2021 to 2026, journal article type, English language, open access status, abstract relevance, active DOI availability, and the suitability of primary data. From 985 initial articles, 83 articles remained after Scopus filtering and were rigorously screened into 13 included articles. Student responsibility and autonomy are strengthened through autonomy support, meaningful engagement, school belonging, and participation in learning communities. Digital evidence serves as an interpretive basis for understanding student engagement, discipline, and development, rather than merely as an administrative instrument. This review contributes to the formulation of a conceptual foundation for principal leadership based on digital evidence governance to strengthen the character of senior high school students.

INTRODUCTION

Secondary education is increasingly being directed toward school governance that is more adaptive to digital change, character development, and learning accountability. In this context, principal leadership can no longer be understood merely as an administrative function, but must be positioned as a capacity to mobilize technology, data, teachers, and school culture in an integrated manner. The digital leadership role of school principals has been associated with technological readiness, teacher capability development, and the transformation of educational practices (Karakose et al., 2021; Uzorka & Kalabuki, 2025). In addition, effective school leadership has been shown to be related to student engagement, while student responsibility is associated with school climate and reduced violence (Ji & Li, 2025; Manzano-Sánchez et al., 2024). Therefore, the study of student discipline, responsibility, and autonomy needs to be situated within a school leadership framework based on digital evidence.

The current research landscape indicates three interconnected main streams. First, data governance research emphasizes principals' data literacy, distributed data use, and evidence-based decision-making for school improvement (Datnow et al., 2021; Lee et al., 2024). Second, evidence-informed learning research confirms that performance data, observation, and feedback can be used to design interventions that are more responsive to students' learning needs (Hubers, 2022). Third, research on character and digital resilience shows that responsibility, positive behavior, and the ability to deal with digital risks need to be developed through a consistent school environment and social support (Hammond et al., 2023; Hsu et al., 2022). Thus, the available research landscape has provided a conceptual basis, although it has not fully integrated discipline, responsibility, autonomy, principal leadership, and digital evidence.

A visible knowledge gap lies in the limited number of studies that specifically connect the character formation of senior high school students with principal leadership based on digital evidence governance. Research on student agency has explained the importance of autonomy, meaningful experience, and students' capacity to act within the school context (Mameli et al., 2023). Research on student voice also shows that principals can strengthen democratic agency and student participation through authentic involvement in decision-making (Egan et al., 2025; Flores & Ahn, 2024). Meanwhile, studies on student agency in sustainable competencies affirm that autonomy cannot be adequately formed through instruction alone, but through structured participatory experiences (Rupnik & Avsec, 2025). This gap indicates that the topic requires further examination to establish a preliminary study foundation and strengthen the rationale for selecting the research focus.

Based on this background, this study aims to examine how discipline, responsibility, and autonomy among senior high school students are constructed within principal leadership based on digital evidence governance. The research questions address the conceptual relationship pattern among principal leadership, digital evidence, school climate, and senior high school student character formation, as well as the most dominant elements in explaining student discipline, responsibility, and autonomy. These questions are important because

sustainable school improvement requires leadership supported by a collaborative culture, data-based routines, and clear transformational goals (Koh et al., 2023; Mincu, 2022; Rääk & Eisenschmidt, 2025). The contribution of this study lies in the development of a systematic literature review foundation that integrates student character, school leadership, and digital evidence into a single analytical framework.

METHOD

This study employed a systematic literature review design using the PRISMA approach to identify, screen, and synthesize articles on student discipline, responsibility, autonomy, school leadership, and digital evidence governance. The search was conducted in the Scopus database using the search string school AND leadership AND discipline AND responsibility AND autonomy AND students AND digital. The initial search yielded 985 articles. After the 2021–2026 publication-year filter was applied, 633 articles remained. Screening based on journal article document type resulted in 122 articles. After the English-language filter was applied, 118 articles remained. The All Open Access filter produced 83 articles, which were then assessed through abstracts and key metadata.

The inclusion criteria consisted of articles published from 2021 to 2026, written in English, available as open access, categorized as journal articles, having an active DOI, containing primary data or empirical findings, and being relevant to at least two main components of the study, namely school leadership, discipline or school climate, social responsibility, student autonomy or independence, digital learning, and data governance or educational evidence. The exclusion criteria included purely conceptual articles, bibliometric studies, systematic reviews, meta-analyses, articles outside the school education context, higher education studies unrelated to schools, health-related studies, industrial organization studies, and digital topics unrelated to educational governance. Duplicate checking was conducted based on DOI and title. No duplicate articles were found among the 83 records, and retracted articles were not included.

The review process was conducted in stages. Titles and abstracts were read to identify topical proximity to the research focus. Articles containing primary data were prioritized, especially quantitative, qualitative, mixed-method, experimental, intervention, case study, and survey articles. Articles with only general relevance, such as leadership in noneducational organizations, higher education unrelated to schools, or general technology without a school governance dimension, were excluded. Thirteen articles with the strongest relevance were selected as the closed corpus for analysis. DOI metadata, journal names, volume, issue, page range, and article numbers were checked through publisher websites or verified article indexes.

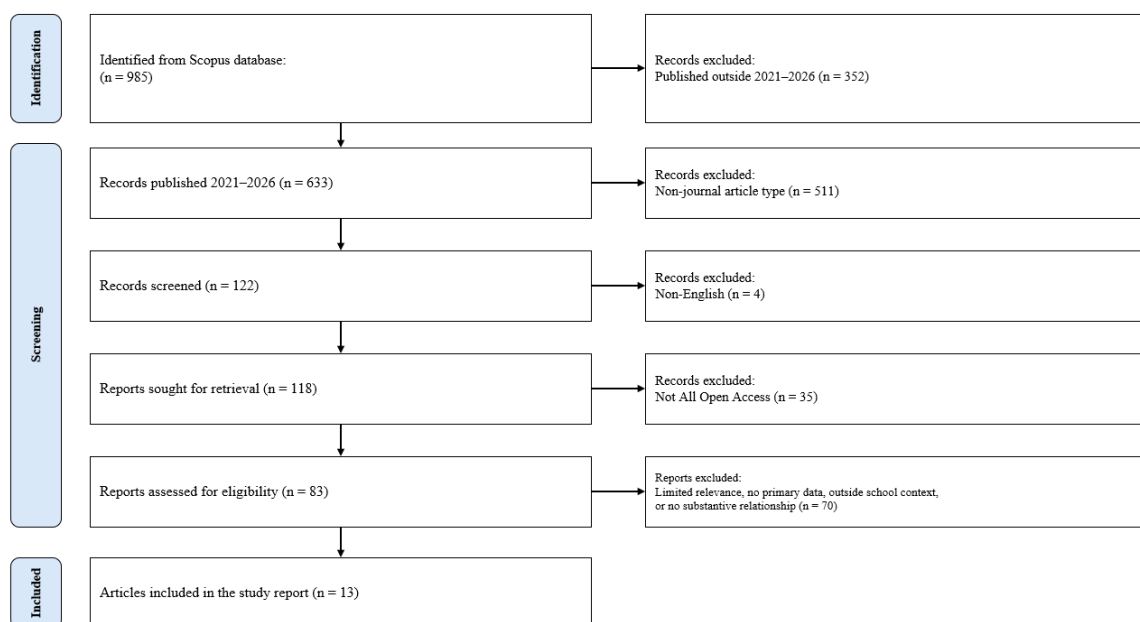
At the identification stage, 985 articles were retrieved from Scopus. At the screening stage, 352 articles were excluded because they were outside the 2021–2026 publication range, leaving 633 articles. A total of 511 articles were excluded because they were not journal articles, leaving 122 articles. Four articles were excluded because they were not written in English, leaving 118 articles. A total of 35 articles were excluded because they were not categorized as All Open

Access, leaving 83 articles. At the eligibility stage, 83 abstracts were fully assessed. Seventy articles were excluded because they did not meet the relevance criteria, were not based on primary data, were not situated in the school context, or did not contain a substantive relationship with leadership, discipline, responsibility, autonomy, digitalization, or educational data governance. At the inclusion stage, 13 articles were designated as the final articles for synthesis.

PRISMA Flowchart

The following section presents the article selection flow based on the PRISMA guidelines, from the identification stage in the Scopus database to the final inclusion of articles that met the eligibility criteria for further analysis in this study. This flow outlines the number of records at each stage and the reasons for exclusion applied systematically, as shown in Figure 1.

Figure 1. PRISMA Flowchart



RESULT

Table 1. Article Review Results

No	Author(s)	Findings
1	Berhanu and Naidoo (2024)	PTSA involvement was significantly correlated with learning engagement and academic achievement. Learning engagement mediated the effect of school participation on student achievement.
2	Delcker and Ifenthaler (2022)	Digital distance learning generated challenges in teaching, feedback, organization, collaboration, resources, infrastructure, learning success, and school professionalization.
3	Makas et al. (2025)	School belonging was related to meaningful school experience. Mental health and online gaming addiction mediated this relationship.
4	Chiriacescu et al. (2023)	Teacher competence predicted attitudes toward STEM practices. Perceived usefulness and

No	Author(s)	Findings
		enjoyment of learning mediated the relationship between competence and learning attitudes.
5	Adsız and Dinçer (2025)	Online classrooms faced low participation, limited interaction, technical problems, technological literacy issues, and discipline challenges that differed from traditional classrooms.
6	El Achi et al. (2025)	The work environment strongly influenced teacher performance, while transformational leadership was effective when supported by resource stability and a positive work climate.
7	Prøitz et al. (2022)	Student performance data were used in local governance, but the meaning of numerical data was shaped by administrators' interpretations, policy goals, and institutional processes.
8	Petropoulou et al. (2025)	Aggression norms, prosocial attitudes, and perceptions of school climate were related to violence-supportive attitudes among vocational students.
9	Carreres-Ponsoda et al. (2021)	The TPSR model improved personal responsibility, social responsibility, prosocial behavior, and self-efficacy compared with conventional sports methods.
10	Vinokur et al. (2024)	SBL transformed conflict into educational opportunities through accountability, joint problem-solving, group reflection, and strengthened student-teacher-parent relationships.
11	Looker et al. (2023)	Less close and conflictual teacher-student relationships contributed to student alienation. Early negative experiences became critical events that were difficult to forget.
12	Cisneros-Cohernour (2021)	School administrators and supervisors influenced teacher leadership, discipline policies, school belonging, and support for students' success and personal development.
13	Utaminingsih et al. (2024)	Instructional leadership contributed to the development of science teachers' professional competence, especially through planning, learning processes, evaluation, and reflection.

The screening results show that the 13 included articles had the strongest relevance to the research focus and formed the main corpus from the 83 open access articles assessed. The selected articles contained five main intersections, namely leadership and the school environment, student performance data governance, digital learning management, school discipline and violence, and the formation of student responsibility and autonomy. This composition

indicates that the research theme is cross-domain in nature because discipline, responsibility, and autonomy do not stand alone, but are formed through leadership, school climate, data evidence, and the quality of pedagogical relationships.

DISCUSSION

Digital evidence governance in school leadership cannot be understood merely as a documentary activity, but must be positioned as an interpretive process that connects data, leadership actions, and learning quality improvement. In vocational schools, the digitalization of learning has generated challenges in teaching, organization, collaboration, resources, and professionalization, making it necessary for principals to interpret digital evidence as a basis for school transformation (Delcker & Ifenthaler, 2022). Findings on representations of student performance data also show that numerical data do not function neutrally because their meaning is shaped by administrators, policy targets, and local contexts (Prøitz et al., 2022). In crisis environments, leadership effectiveness is even more strongly determined by work environment support than by transformational style alone (El Achi et al., 2025). Therefore, digital evidence governance must be positioned as a mechanism for data interpretation that guides school decisions reflectively, rather than merely as an administrative archive for passively monitoring student behavior.

Student discipline emerges as a social construction that is strongly influenced by interaction quality, group norms, and school responses to conflict. In online classrooms, discipline challenges were found alongside low participation, limited interaction, infrastructure constraints, and variations in teachers' technological literacy (Adsız & Dinçer, 2025). Among vocational students, aggression norms and perceptions of school climate were strongly related to violence-supportive attitudes, indicating that discipline cannot be sufficiently explained through the existence of formal rules (Petropoulou et al., 2025). Conflictual teacher-student relationships may also deepen student alienation from school, especially when early negative experiences are not addressed through consistent relational strategies (Looker et al., 2023). Meanwhile, the Social-Based Learning approach shows that conflict can be transformed into learning in accountability and joint problem-solving (Vinokur et al., 2024). Thus, student discipline is more effectively understood as a relational product shaped by social climate, pedagogical justice, and the consistency of everyday school responses.

Student responsibility and autonomy become stronger when educational interventions do not merely demand compliance, but also provide space for reflection, self-efficacy, and meaningful participation. The Teaching Personal and Social Responsibility intervention was proven to improve personal responsibility, social responsibility, prosocial behavior, and self-efficacy among adolescents aged 14–16 years (Carreres-Ponsoda et al., 2021). This finding is consistent with the PTSA study, which shows that school, parent, and student involvement is related to learning engagement and academic achievement (Berhanu & Naidoo, 2024). Among senior high school adolescents, school belonging was also associated with meaningful school experience, while online

gaming addiction could weaken this positive pathway (Makas et al., 2025). Therefore, student autonomy and responsibility appear to develop when external control is transformed into autonomy support, meaningful engagement, and personal accountability within the learning community.

Principal leadership needs to be positioned as an ecosystem lever rather than merely an administrative instruction from the top of the structure. Secondary school teachers' competence has been shown to influence attitudes toward STEM practices, while perceived usefulness and enjoyment of learning mediated acceptance of these practices (Chiriacescu et al., 2023). In the Indonesian context, principals' instructional leadership contributed to the development of teachers' professional competence through planning, learning processes, evaluation, and reflection (Utaminingsih et al., 2024). In southern Mexico, administrators and supervisors were found to play a role in supporting teacher leadership, discipline policies, school belonging, and students' personal development (Cisneros-Cohernour, 2021). However, leadership still requires a stable work environment so that its influence on teacher performance can be realized (El Achi et al., 2025). Thus, principal leadership must be translated into teachers' collective capacity so that data, technology, and discipline policies can meaningfully and sustainably reach students' learning experiences.

The synthesis of 13 articles shows that discipline, responsibility, and autonomy among senior high school students are more appropriately understood as outcomes of interactions among data governance, school climate, relational support, and instructional leadership. PTSA participation and school belonging strengthen engagement and meaningful school experience, although their effects can be weakened by problematic digital behavior such as online gaming addiction (Berhanu & Naidoo, 2024; Makas et al., 2025). At the same time, digital learning requires classroom management and infrastructure that enable student participation to be monitored fairly (Delcker & Ifenthaler, 2022; Adsız & Dinçer, 2025). Student performance data and conflict-resolution exercises become important when used for reflection, rather than merely for compliance control (Prøitz et al., 2022; Vinokur et al., 2024). The integration of these findings addresses the conceptual gap regarding the unclear relationship among digital evidence, principal leadership, and student character formation. Therefore, this research theme is important to develop as a preliminary study foundation and as a rational basis for selecting a research title on discipline, responsibility, and autonomy among senior high school students in principal leadership based on digital evidence governance.

CONCLUSION

The 13 selected articles form an adequate empirical basis for formulating the relationship among student discipline, responsibility, autonomy, school leadership, and digital evidence governance. Student discipline cannot be sufficiently built through formal rules alone, but must be strengthened through a safe school climate, healthy teacher-student relationships, and educational responses to conflict. Student responsibility develops when schools provide space for participation, reflection, and learning experiences that foster self-efficacy and prosocial behavior. Student autonomy is formed when autonomy

support, school belonging, and learning engagement are consistently maintained within the school ecosystem.

Principal leadership serves as a connector among data, teachers, students, and school policy. Digital evidence needs to be used to understand patterns of engagement, discipline, participation, and student development, rather than merely to fulfill administrative requirements. Therefore, the conceptual model that can be developed is principal leadership based on digital evidence governance that integrates student performance data, pedagogical relationships, school climate, digital learning, and character strengthening. This model is relevant for senior high schools because students are in a developmental phase that requires a balance among control, autonomy, social responsibility, and readiness to face a digital learning environment.

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