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Cognitive Distraction and Student Responsibility in The Social Media Era: The Mediating Role of The Learning Environment Among Students at Vocational High School 15 Bandung

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Abstract: This study was motivated by the increasing intensity of social media use among students, which contributes to cognitive distraction and potentially weakens students' responsibility in academic activities. Previous studies have primarily examined the direct influence of social media on academic performance and psychological well-being, while limited attention has been given to the mediating role of the learning environment in explaining how cognitive distraction affects students' responsibility within digital learning contexts. Therefore, this study aims to analyze the effect of cognitive distraction on students' responsibility and to examine the mediating role of the learning environment in this relationship. This study employed a quantitative approach with an explanatory survey design involving 200 students at Vocational High School 15 Bandung selected through simple random sampling. Data were collected using a five-point Likert-scale questionnaire that had been tested for validity and reliability. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4. The results showed that cognitive distraction negatively and significantly affects students' responsibility ($\beta = -0.42$; $p < 0.001$), while the learning environment positively and significantly affects students' responsibility ($\beta = 0.36$; $p < 0.001$). In addition, cognitive distraction negatively affects the learning environment ($\beta = -0.28$; $p < 0.001$). The structural model explained 58% of the variance in students' responsibility ($R^2 = 0.58$). The mediation analysis further indicated that the learning environment significantly mediated the relationship between cognitive distraction and student responsibility. In conclusion, students' responsibility is shaped through the interaction between cognitive factors and the quality of the learning environment. This study contributes to the development of an integrative cognitive-environmental framework in character education, particularly within the context of social media-based learning in vocational education.

Keywords: Cognitive Distraction, Learning Environment, Student Responsibility, Social Media, Character Education.

INTRODUCTION

The rapid development of digital technology has transformed contemporary educational practices by expanding students' access to information, communication, and interactive learning resources. Within educational contexts, digital technology ideally functions not only as a medium for knowledge acquisition but also as a means of supporting students' holistic development through the integration of cognitive, affective, and social dimensions of learning (Choli, 2020; Hidayat et al., 2022). The increasing use of social media among adolescents has particularly reshaped students' patterns of interaction, communication, and learning behavior. Social media platforms provide opportunities for collaboration and self-expression; however, they also introduce new educational challenges related to attention control, behavioral regulation, and character development.

The widespread use of social media among students has generated concerns regarding cognitive distraction and declining academic responsibility. Social media platforms are designed around algorithmic personalization, instant notifications, continuous information flow, and rapid social feedback mechanisms such as "clicks," "likes," and comments, which continuously compete for users' attention (Kwok, 2021; Maftai, 2022). These digital mechanisms encourage fragmented attention and multitasking behavior, reducing students' ability to maintain sustained concentration during learning activities (Rocha & Dondio, 2021; Tokarskaya et al., 2023). Excessive exposure to digital stimulation may weaken students' self-regulation, discipline, and perseverance in completing academic tasks responsibly. Consequently, cognitive distraction has become a significant educational issue in the social media era, particularly in relation to students' responsibility character.

Recent studies have shown that intensive social media use contributes to decreased learning focus, multitasking habits, and weakened behavioral control among students (Agustang et al., 2021; Zhang et al., 2025). In addition, uncontrolled digital engagement has been associated with declining academic commitment and difficulties in maintaining responsible learning behavior. Although digital technology offers substantial educational benefits, the imbalance between technology utilization and character formation has created concerns regarding character disorientation in modern education (Nurdiyanti et al., 2024). This condition indicates that educational institutions are increasingly required to develop adaptive learning environments capable of minimizing digital distraction while strengthening students' responsibility and self-regulation.

Previous studies have examined character education and digital learning from various perspectives. Komalasari et al. (2024) demonstrated that digital value-based learning contributes positively to strengthening students' Pancasila character, although its implementation remains contextually limited. Saepudin et al. (2023) emphasized the importance of value integration and religious moderation in strengthening students' social attitudes, while Prayitno et al. (2022) highlighted the contribution of values-based learning in character formation. Other studies have investigated the integration of character education into classroom learning and reported positive effects on students' moral awareness and learning outcomes (Haryani, 2021; Nida et al., 2021; Yudhar et al., 2021). Meanwhile, studies on digital learning environments have primarily focused on academic performance, psychological well-being, and technology acceptance rather than responsibility character as a specific educational outcome (Kwok, 2021; Maftai, 2022).

Despite these contributions, previous research still presents several important theoretical and empirical limitations. First, most studies examine the direct effects of social media or

digital learning on academic and psychological outcomes without specifically focusing on students' responsibility character within educational settings. Second, prior studies tend to analyze cognitive factors and environmental factors separately, resulting in fragmented explanations regarding how students' responsibility is shaped in digital contexts. Third, previous research largely assumes that cognitive distraction directly influences student behavior, while limited attention has been given to the possibility that a supportive learning environment may reduce or mediate the negative effects of cognitive distraction. These limitations indicate the need for a more integrative framework capable of explaining the interaction between cognitive distraction and the learning environment in shaping students' responsibility in the social media era.

Theoretically, this study integrates social cognitive theory and educational ecology theory to explain the interaction between internal cognitive processes and external environmental influences in character formation. Social cognitive theory emphasizes that self-regulation and behavioral control are essential factors influencing individual responsibility and academic behavior (Bandura, 1997). Meanwhile, educational ecology theory highlights that students' development is strongly influenced by environmental systems, including classroom interaction, peer relationships, and digital learning environments (Hugo & Hedegaard, 2021). In addition, this study incorporates Self-Determination Theory (SDT) to strengthen the theoretical relationship between cognitive distraction and declining responsibility. SDT explains that intrinsic motivation develops through autonomy, competence, and meaningful engagement, whereas social media environments are largely driven by external rewards such as likes, notifications, and instant social validation (Deci & Ryan, 2000). Continuous dependence on external digital rewards may weaken students' intrinsic motivation toward academic responsibilities and encourage short-term gratification-oriented behavior. Therefore, cognitive distraction in digital contexts is understood not only as an attention-related problem but also as a motivational process affecting students' responsibility character.

Based on these theoretical and empirical considerations, this study positions the learning environment as a strategic mediating variable capable of reducing the negative effects of cognitive distraction on students' responsibility. A supportive learning environment characterized by positive teacher-student interaction, structured learning activities, and adaptive pedagogical practices is expected to strengthen students' self-regulation and responsible behavior despite the presence of digital distractions.

Therefore, this study aims to analyze the effect of cognitive distraction on students' responsibility and to examine the mediating role of the learning environment in this relationship among students at SMKN 15 Bandung. Specifically, the research questions are formulated as follows:

1. How does cognitive distraction affect students' responsibility?
2. How does the learning environment affect students' responsibility?
3. Does the learning environment mediate the relationship between cognitive distraction and students' responsibility?

Accordingly, the hypotheses proposed in this study are:

1. H1: Cognitive distraction negatively affects students' responsibility.
2. H2: The learning environment positively affects students' responsibility.
3. H3: Cognitive distraction negatively affects the learning environment.
4. H4: The learning environment mediates the relationship between cognitive distraction and students' responsibility.

Theoretical Framework

Theory/Concept 1: Cognitive Distraction in the Era of Social Media

Cognitive distraction in the context of learning refers to a condition in which attention, memory, and concentration processes are disrupted due to excessive external stimuli, including intensive social media use. From the perspective of cognitive psychology, attention is a limited cognitive resource that strongly determines the effectiveness of learning processes (Sweller, 2011; Mayer, 2020). Social media platforms, characterized by real-time notifications, personalization algorithms, and continuous streams of interactive content, contribute to cognitive overload that interferes with deep information processing and sustained concentration (Rocha & Dondio, 2021; Tokarskaya et al., 2023). Furthermore, digital multitasking theory explains that the frequent switching between applications and digital tasks reduces working memory capacity and increases errors in decision-making and task completion (Ophir et al., 2009; Zhang et al., 2025). Therefore, cognitive distraction has become a significant factor affecting students' learning quality and behavioral regulation in the digital era.

Beyond academic consequences, cognitive distraction also influences students' character development, particularly responsibility. Within the framework of self-regulation theory, the ability to control attention and behavior is closely associated with discipline, perseverance, and responsible conduct (Zimmerman, 2000; Baumeister & Vohs, 2016). Students who experience high levels of digital distraction tend to demonstrate weaker self-control, lower academic commitment, and difficulties completing responsibilities consistently (Maftai, 2022; Kwok, 2021). Moreover, continuous exposure to instant digital content promotes short-term gratification and impulsive behavioral patterns that conflict with the values of responsibility, which require persistence and delayed gratification (Agustang et al., 2021). Consequently, cognitive distraction not only disrupts learning processes but also weakens students' commitment to responsible academic behavior.

To strengthen the theoretical connection between cognitive distraction and declining responsibility, this study also incorporates Self-Determination Theory (SDT). SDT explains that intrinsic motivation develops when individuals experience autonomy, competence, and meaningful engagement in activities (Deci & Ryan, 2000). However, social media environments are largely driven by external rewards such as "likes," comments, notifications, and instant social validation, which encourage extrinsic motivation and immediate gratification. Excessive dependence on these external digital rewards may gradually weaken students' intrinsic motivation toward academic responsibilities and reduce their perseverance in completing learning tasks. In this context, cognitive overload generated by social media is not merely a problem of attention disruption, but also a motivational process that contributes to the decline of responsibility character. Thus, SDT provides a stronger theoretical bridge connecting cognitive disruption with motivational and moral decline in digital learning contexts.

Theory/Concept 2: Learning Environment as a Mediating Factor

The learning environment refers to the overall physical, social, and psychological conditions that influence students' learning processes and behavioral development. From the perspective of educational ecology theory, the learning environment extends beyond the classroom and includes digital spaces that increasingly shape students' daily interactions and learning experiences (Hugo & Hedegaard, 2021). A conducive learning environment is characterized by supportive teacher-student interaction, positive peer relationships, clear learning structures, and the integration of character values into educational activities (Nurdiyanti et al., 2024; Hidayat et al., 2022). However, within digital learning contexts, learning environments are often less structured and more vulnerable to distraction, reducing the quality of social interaction and students' learning engagement (Permatasari et al., 2025). Therefore, the quality of the learning environment becomes a crucial factor influencing students' character formation and responsibility development.

As a mediating variable, the learning environment plays a strategic role in reducing the negative effects of cognitive distraction on students' responsibility. Social constructivist theory emphasizes that learning occurs through meaningful social interaction and collaborative engagement, enabling students to internalize positive values through educational experiences (Vygotsky, 1978; Komalasari et al., 2024). Furthermore, studies demonstrate that supportive learning environments grounded in cultural values, habituation, and role-modeling processes contribute significantly to students' character development (Hindaryatiningsih et al., 2025; Sudiarta et al., 2025). In this context, the learning environment functions not only as an educational setting but also as a protective mechanism capable of minimizing the negative influence of digital distraction while strengthening responsible behavior through adaptive pedagogical strategies. Accordingly, the learning environment is positioned as a mediating factor in the relationship between cognitive distraction and student responsibility.

Theory/Concept 3: Character Education and Student Responsibility

Character education is a systematic process of developing moral values through the integration of cognitive, affective, and behavioral dimensions in educational practices. In modern education, character is understood not merely as knowledge about moral values, but as the ability to consistently implement those values in everyday life (Lickona, 2012; Choli, 2020). One of the central values in character education is responsibility, which reflects students' awareness and commitment to carrying out duties, obligations, and academic tasks consistently (Nida et al., 2021; Haryani, 2021). However, the social media era presents new challenges for responsibility formation because digital interactions often encourage superficial engagement, fragmented attention, and instant behavioral responses (Agustang et al., 2021; Zhang et al., 2025). As a result, students may experience declining perseverance, discipline, and accountability in learning activities.

From the perspective of social learning theory, character is formed through observation, imitation, reinforcement, and interaction within social environments (Bandura, 1997). Social media has become a dominant digital socialization agent that significantly influences students' attitudes, behaviors, and value orientations (Kwok, 2021; Maftai, 2022). Without proper guidance and regulation, digital environments may contribute to value distortion and weaken students' responsibility character. Therefore, character education requires adaptive learning strategies capable of directing positive social media use through digital literacy, reflective learning, and values-based educational practices (Saepudin et al., 2023; Prayitno et al., 2022). Strengthening students' responsibility in the digital era consequently requires synergy between self-regulation, supportive learning environments, and pedagogical approaches that are responsive to technological development.

METHODOLOGY

This study employed a quantitative approach with an explanatory survey design to examine the relationships among cognitive distraction, learning environment, and student responsibility. In this study, cognitive distraction functioned as the independent variable, learning environment as the mediating variable, and student responsibility as the dependent variable. The research adopted a cross-sectional design in which self-reported data were collected at a single point in time to examine students' perceptions of social media-related cognitive distraction, the learning environment, and responsible academic behavior. The study was conducted at SMKN 15 Bandung, a vocational high school that has implemented the Merdeka Curriculum and digital-based learning practices. The participants consisted of 200 students selected using simple random sampling from the eligible student population. The inclusion criteria included active students who used social media and participated in digital-based learning activities, while incomplete responses were excluded from the analysis. The sample size was statistically justified using G*Power analysis with a medium effect size ($f^2 = 0.15$), significance level of 0.05, and statistical power of 0.95, which indicated a minimum requirement of 138 respondents. Therefore, the final sample size of 200 respondents was

considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis.

Data were collected using a structured questionnaire based on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The instrument measured three main constructs: cognitive distraction, learning environment, and student responsibility. The cognitive distraction indicators were adapted from studies on digital distraction and multitasking behavior (Ophir et al., 2009; Rocha & Dondio, 2021), while the learning environment indicators were adapted from educational environment and classroom climate studies emphasizing supportive interaction and learning structure (Pianta et al., 2012). Student responsibility indicators were adapted from character education and self-regulation studies focusing on discipline, accountability, and task completion (Lickona, 2012; Zimmerman, 2000). Examples of questionnaire items included: “I find it difficult to concentrate on learning because of social media notifications,” “My classroom environment supports disciplined learning behavior,” and “I consistently complete academic assignments on time.” Prior to the main survey, the questionnaire underwent expert judgment involving specialists in education and research methodology to ensure content validity, followed by a pilot test involving 30 students to evaluate item clarity, reliability, and indicator consistency. Data collection was conducted both online through Google Forms and offline over approximately two months. This study was conducted as a purely quantitative study; therefore, all findings were derived exclusively from structured questionnaire data without the inclusion of qualitative interviews or thematic analysis.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4. The analysis consisted of outer model evaluation and inner model evaluation. The outer model evaluation examined convergent validity using loading factor (> 0.70) and Average Variance Extracted ($AVE > 0.50$), discriminant validity using the Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT), and reliability using Cronbach’s Alpha and Composite Reliability (> 0.70). The inner model evaluation examined collinearity statistics using Variance Inflation Factor (VIF), coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), path coefficients, and mediation effects through bootstrapping procedures. Based on Hair et al. (2021), VIF values below 3.0 indicate the absence of multicollinearity issues, and in this study all VIF values ranged between 1.00 and 1.82, indicating acceptable collinearity levels. Hypothesis testing was conducted using bootstrapping with 5,000 subsamples, where hypotheses were considered statistically significant when t-statistics exceeded 1.96 and p-values were below 0.05.

RESULTS AND DISCUSSION

Respondents’ Demographic Characteristics

This study involved 200 students from SMKN 15 Bandung. Based on gender, respondents consisted of 118 female students (59%) and 82 male students (41%). Most respondents were aged between 16–17 years (71%), followed by 15 years (19%) and 18 years (10%). Respondents were distributed across several vocational programs, including Social Work (45%), Culinary Arts (25%), Hospitality (15%), and Visual Communication Design (15%). Specifically, the respondents consisted of 90 students from Social Work, 50 students from Culinary Arts, 30 students from Hospitality, and 30 students from Visual Communication Design.

The average duration of daily social media use was 4.8 hours ($SD = 1.6$), indicating relatively intensive digital exposure among students.

Descriptive Statistics of Research Variables

This study examined three constructs: cognitive distraction, learning environment, and student responsibility. Table 1 presents the descriptive statistics of the variables.

Table 1. Descriptive Statistics of Research Variables

Variable	Mean	Standard Deviation	Category
Cognitive Distraction	3.87	0.64	High
Learning Environment	3.45	0.58	Moderate
Student Responsibility	3.21	0.61	Moderate

The descriptive analysis indicates that cognitive distraction showed the highest mean score, suggesting that students frequently experienced concentration difficulties associated with social media use. Meanwhile, learning environment and student responsibility were categorized at moderate levels.

Measurement Model Evaluation (Outer Model)

The measurement model was evaluated using convergent validity, discriminant validity, and reliability testing through SmartPLS 4.

Convergent Validity

Convergent validity was assessed using loading factor and Average Variance Extracted (AVE) values.

Table 2. Convergent Validity Results

Variable	Loading Factor Range	AVE
Cognitive Distraction	0.72–0.88	0.62
Learning Environment	0.70–0.86	0.59
Student Responsibility	0.73–0.89	0.64

All indicators exceeded the recommended threshold values (loading factor > 0.70; AVE > 0.50), indicating satisfactory convergent validity.

Discriminant Validity

Discriminant validity was evaluated using the Fornell-Larcker Criterion and HTMT ratio. The results showed that the square root of AVE for each construct was higher than the inter-construct correlations, while all HTMT values were below 0.90. Therefore, all constructs demonstrated acceptable discriminant validity.

Reliability

Reliability testing was conducted using Cronbach's Alpha and Composite Reliability.

Table 3. Reliability Test Results

Variable	Cronbach's Alpha	Composite Reliability
Cognitive Distraction	0.89	0.92
Learning Environment	0.87	0.91
Student Responsibility	0.90	0.93

All constructs exceeded the minimum reliability threshold of 0.70, indicating strong internal consistency.

Structural Model Evaluation (Inner Model)

Collinearity Statistics (VIF)

Collinearity testing showed that all Variance Inflation Factor (VIF) values ranged from 1.00 to 1.82, indicating the absence of multicollinearity problems within the structural model.

Table 4. Collinearity Statistics (VIF)

Relationship	VIF
Cognitive Distraction → Student Responsibility	1.82
Learning Environment → Student Responsibility	1.76
Cognitive Distraction → Learning Environment	1.00

Hypothesis Testing

The structural relationships among variables were tested using bootstrapping procedures with 5,000 subsamples.

Table 5. Hypothesis Testing Results

Variable Relationship	Path Coefficient (β)	t-statistic	p-value	Description
Cognitive Distraction → Student Responsibility	-0.42	5.87	0.000	Significant
Learning Environment → Student Responsibility	0.36	4.92	0.000	Significant
Cognitive Distraction → Learning Environment	-0.28	3.75	0.000	Significant

The findings indicate that cognitive distraction negatively affects student responsibility, while learning environment positively affects student responsibility. In addition, cognitive distraction negatively affects the learning environment.

Coefficient of Determination (R^2)

Table 6. Coefficient of Determination Results

Endogenous Variable	R^2
Student Responsibility	0.58
Learning Environment	0.32

The structural model explained 58% of the variance in student responsibility and 32% of the variance in learning environment.

Effect Size (f^2)

The effect size analysis showed moderate contributions of both cognitive distraction and learning environment toward student responsibility.

Predictive Relevance (Q^2)

The Q^2 value of 0.41 indicated that the structural model possessed adequate predictive relevance.

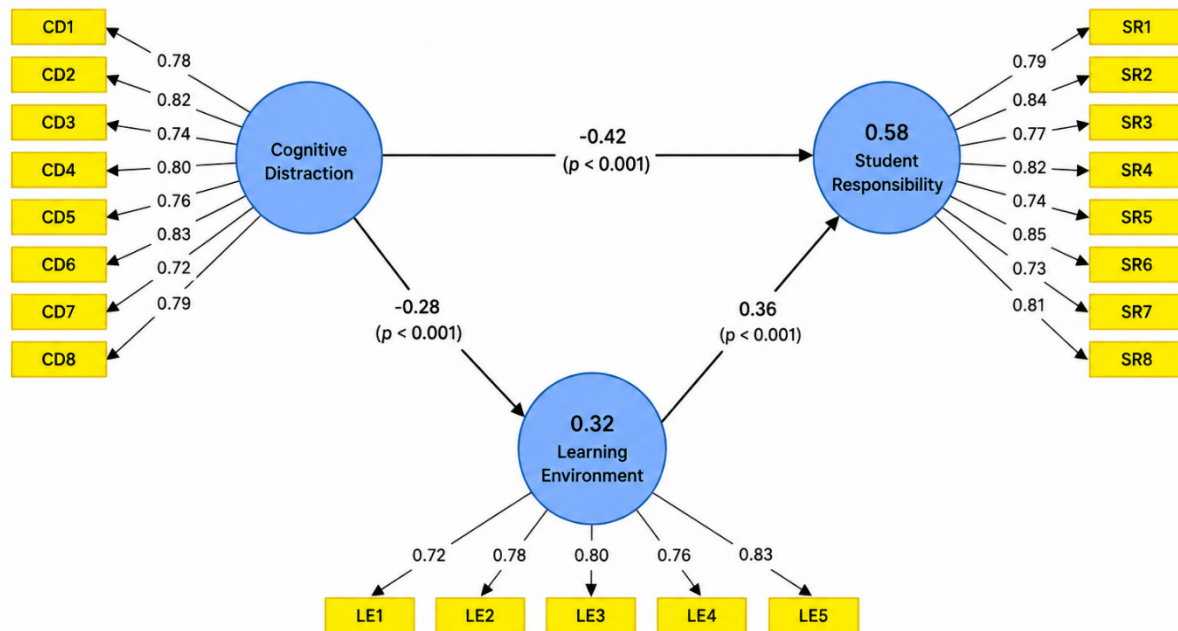
Mediation Analysis

The mediation analysis demonstrated that the learning environment significantly mediates the relationship between cognitive distraction and student responsibility. This finding

suggests that supportive learning environments reduce the negative influence of digital distraction on students' responsible behavior.

Structural Model Visualization

Figure 1 presents the PLS-SEM structural model illustrating the relationships among cognitive distraction, learning environment, and student responsibility.



Note:

- Numbers on the arrows between constructs are path coefficients (β) with p-values.
- Numbers on the arrows between constructs and indicators are outer loadings.
- Numbers inside the circles are R^2 values.
- All p-values < 0.001 are significant at the 0.05 level (two-tailed).

The model shows a negative relationship between cognitive distraction and student responsibility, a positive relationship between learning environment and student responsibility, and a negative relationship between cognitive distraction and learning environment.

Discussion

This study aimed to examine the influence of cognitive distraction on student responsibility and to analyze the mediating role of the learning environment within digital learning contexts. The findings demonstrate that cognitive distraction negatively affects students' responsibility, while the learning environment positively contributes to responsible behavior and mediates the relationship between cognitive distraction and responsibility.

First, the negative effect of cognitive distraction on student responsibility indicates that intensive exposure to social media-related stimuli weakens students' concentration, behavioral regulation, and academic commitment. This finding supports social cognitive theory, which emphasizes the importance of self-regulation in controlling attention and behavior during learning processes (Bandura, 1997). In digital contexts, students are continuously exposed to notifications, multitasking demands, and instant digital interactions that reduce sustained attention toward academic tasks.

The findings are also consistent with cognitive load theory, which explains that excessive external stimulation overloads working memory capacity and disrupts effective learning processes (Sweller, 2011; Mayer, 2020). Students experiencing high cognitive distraction may struggle to maintain focus, resulting in lower persistence and weaker responsibility in

completing academic obligations. Furthermore, from the perspective of Self-Determination Theory, excessive dependence on external digital rewards such as “likes” and instant feedback may reduce intrinsic academic motivation and encourage short-term gratification behavior. Consequently, cognitive distraction influences not only students’ cognitive processes but also their motivational and behavioral regulation.

Second, this study found that the learning environment positively affects student responsibility. This finding indicates that supportive classroom interaction, structured learning systems, and positive teacher-student relationships contribute to stronger responsible behavior among students. Within educational ecology theory, students’ behavior develops through interaction with surrounding environmental systems, particularly the immediate educational environment (Hugo & Hedegaard, 2021). Therefore, supportive classroom climates become important external mechanisms that help students maintain discipline and learning engagement despite exposure to digital distractions.

In the context of vocational education, structured classroom management and supportive communication appear particularly important because students simultaneously interact with formal learning demands and intensive digital environments. The findings suggest that students are more capable of maintaining academic responsibility when teachers provide clear expectations, consistent supervision, and supportive instructional interaction.

Third, the mediation analysis confirms that the learning environment functions as a protective factor that reduces the negative influence of cognitive distraction on student responsibility. This finding strengthens the integration between social cognitive theory and educational ecology theory by demonstrating that responsibility is shaped through interactions between internal cognitive factors and external environmental conditions.

The mediating pattern suggests that the association between cognitive distraction and students’ responsibility may partly operate through students’ perceptions of the learning environment. In this context, supportive learning environments help redirect students’ attention toward meaningful academic engagement and encourage more adaptive learning behavior. These findings extend previous research by demonstrating that environmental support plays a strategic role in balancing the negative consequences of digital distraction within educational settings.

Practically, the findings suggest that teachers and schools should strengthen classroom management, supportive interaction, and structured learning activities to help students manage digital distractions more effectively. Reflective learning activities, collaborative learning approaches, and digital literacy practices may contribute to improving students’ self-regulation and responsible behavior in technology-based learning environments.

Theoretically, this study contributes to the development of an integrative cognitive-environmental framework in character education by demonstrating that student responsibility is influenced simultaneously by cognitive regulation and environmental support systems. Methodologically, the use of PLS-SEM enabled simultaneous testing of direct and mediating relationships within a predictive structural model.

Nevertheless, several limitations should be acknowledged. First, the sample was limited to one vocational school, which may restrict the generalizability of the findings to broader educational contexts. Second, the cross-sectional design limits the ability to establish absolute causal relationships among variables because the data were collected at a single point in time. Future research is therefore recommended to involve broader educational settings and longitudinal approaches to examine the long-term influence of digital distraction on student responsibility development.

Overall, the findings confirm that cognitive distraction weakens student responsibility, whereas supportive learning environments strengthen responsible behavior and reduce the negative effects of digital distraction within educational contexts.

CONCLUSION

This study concludes that cognitive distraction caused by intensive social media use negatively affects students' responsibility in maintaining concentration, discipline, and commitment toward academic tasks, while a supportive learning environment positively strengthens responsible behavior among students. The findings also confirm that the learning environment significantly mediates the relationship between cognitive distraction and student responsibility, indicating that supportive teacher-student interaction, structured classroom management, and positive learning dynamics function as protective factors against digital distraction. Theoretically, this study contributes to the development of an integrative cognitive-environmental framework by emphasizing that students' responsibility is shaped through the interaction between internal cognitive regulation and external educational support systems. Methodologically, the application of PLS-SEM using SmartPLS 4 enabled simultaneous examination of direct and mediating relationships among the variables within the proposed structural model. Overall, the findings highlight the importance of adaptive and supportive learning environments in helping students manage digital distractions and maintain responsible learning behavior within social media-based educational contexts.

Suggestion

Teachers are recommended to implement adaptive learning strategies, strengthen classroom management, and integrate digital literacy practices to help students regulate social media use during learning activities, while schools should create supportive classroom climates and structured learning environments that encourage discipline, academic engagement, and responsible behavior among students. Future researchers are encouraged to involve broader educational contexts, larger samples, and longitudinal or mixed-methods approaches to obtain deeper understanding regarding the long-term effects of cognitive distraction on student responsibility.

Limitation

This study was limited to students from one vocational high school, which may restrict the generalizability of the findings to broader educational contexts. In addition, the use of a cross-sectional survey design limits the ability to establish absolute causal relationships among cognitive distraction, learning environment, and student responsibility because the data were collected at a single point in time. Furthermore, this study employed a purely quantitative approach based on questionnaire data, limiting deeper exploration of students' subjective experiences regarding digital distraction and responsible behavior in learning contexts.

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