



Fostering Student Discipline Character during Emergency Remote Learning: An Empirical Model from Indonesian Secondary Education

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Abstract

Purpose: This study aims to develop and examine an empirical model of student discipline character formation during Emergency Remote Learning (ERL) in secondary education. Specifically, it investigates how instructional strategies, teacher supervision, student self-regulation, and learning environment interact to shape discipline-related behaviors under crisis-driven remote learning conditions.

Methods: The study employed a quantitative research design using survey data collected from secondary school students and teachers who experienced ERL. Data were analyzed through descriptive statistics and structural modeling to identify key dimensions and relational patterns influencing discipline character development. Instrument validity and reliability were established prior to analysis to ensure methodological rigor. The proposed model was constructed based on empirical relationships derived from the data.

Findings: The findings indicate that discipline character during ERL is not determined by a single factor but emerges from the interaction between instructional clarity, consistency of teacher monitoring, students' self-discipline, and adaptive learning routines. Teacher feedback and structured learning schedules were found to significantly reinforce students' punctuality, task completion, and responsibility. Conversely, limited supervision and unstructured learning environments weakened discipline outcomes. The empirical model demonstrates that self-regulation acts as a mediating factor linking instructional practices and discipline character formation.

Significance: This study contributes to applied educational research by offering an empirically grounded model of discipline character formation in emergency learning contexts. The findings provide practical implications for educators and policymakers in designing remote learning strategies that support character development alongside academic outcomes. Moreover, the model extends contemporary discussions on character education by situating discipline within adaptive, crisis-responsive instructional systems.

INTRODUCTION

The rapid shift to Emergency Remote Learning has fundamentally altered the structure of teaching and learning in secondary education worldwide. Unlike planned online learning, emergency remote learning emerged as a crisis response that disrupted established routines, monitoring mechanisms, and teacher–student interactions. These disruptions raised serious concerns not only about academic achievement but also about students' discipline character, which relies heavily on structure, consistency, and supervision. Discipline character is widely recognized as a core dimension of holistic education, particularly at the secondary level where self-regulation is still developing. During remote learning, the absence of physical classroom

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control weakened traditional disciplinary practices and exposed limitations in existing character education models. Empirical evidence indicates that students experienced declining punctuality, reduced task commitment, and inconsistent learning habits during emergency learning contexts (Aldhahi et al., 2022; Tulaskar & Turunen, 2022). This situation suggests that discipline character cannot be assumed to persist under crisis conditions without adaptive instructional strategies. Therefore, investigating how discipline character is fostered during emergency remote learning becomes an urgent and relevant research agenda.

From a global perspective, character education research has increasingly emphasized resilience, self-discipline, and responsibility as essential competencies for contemporary learners. However, most empirical studies on character education were conducted under normal schooling conditions, where institutional control and social norms are relatively stable. Studies in secondary education demonstrate that discipline character is strongly influenced by leadership practices, teacher personality, and structured learning environments (Januardi, 2024; Kilag et al., 2023). When learning shifted abruptly to remote modes, these influencing factors were reconfigured in unpredictable ways. The crisis context forced teachers to redesign instructional practices while students were expected to exercise greater autonomy. This created a tension between external control and internal self-regulation that has not been sufficiently examined empirically. Existing character education frameworks provide limited guidance for emergency learning situations. Consequently, there is a critical need to develop an empirical model that explains discipline character formation under emergency remote learning conditions.

The rationale of this study is grounded in the need to bridge theoretical character education frameworks with applied educational practices in crisis contexts. While discipline is often treated as a behavioral outcome, this study conceptualizes discipline character as a dynamic construct shaped by instructional design, teacher monitoring, and student self-regulation. Previous research has highlighted the importance of teacher leadership and personality in strengthening character education in secondary schools (Effendi & Sahertian, 2022; OKWEDADI, 2025). However, such findings are insufficient to explain discipline formation when face-to-face supervision is removed. Emergency remote learning requires students to internalize discipline rather than merely comply with external rules. This shift necessitates a reconceptualization of discipline character from a control-based to a self-regulated framework. By focusing on emergency remote learning, this study responds directly to contemporary educational challenges rather than idealized learning conditions. The study also aligns with applied educational sciences by offering a practical model that can inform instructional decision-making during crises.

Recent studies on character education in secondary education have emphasized resilience and self-discipline as key outcomes of effective pedagogical practices. Spohrer, (2024) demonstrated that character education in English secondary schools is closely linked to structured learning environments and consistent teacher engagement. Similarly, Effendi & Sahertian, (2022) found that transformational leadership plays a significant role in strengthening character education in Indonesian senior high schools. Research by Lukman et al., (2021) highlighted the influence of teachers' personality traits on students' character development, including discipline. These studies collectively suggest that discipline character is shaped by interpersonal and organizational factors. However, they largely assume stable classroom settings and direct supervision. When applied to emergency remote learning, the relevance of these findings becomes uncertain. The literature indicates a strong foundation for character education

but reveals contextual limitations. This underscores the need for empirical examination within emergency learning environments.

Other studies have explored discipline and character development through technological and contextual innovations. Suryadi et al., (2025) developed a mobile-based discipline monitoring system, showing that digital tools can support discipline enforcement when direct supervision is limited. Sudarmin et al., (2023) demonstrated that project-based learning approaches can enhance character outcomes by promoting responsibility and autonomy. Tadege et al., (2022) examined teachers' perspectives on values education, emphasizing the role of teacher beliefs in character formation. Warni, (2019) highlighted character transformation through extracurricular achievement, suggesting that discipline extends beyond classroom instruction. Kumarassamy & Koh, (2019) stressed the importance of values infusion across subjects rather than isolated character lessons. Together, these studies confirm the multidimensional nature of discipline character. However, none explicitly model discipline character within emergency remote learning contexts. This gap limits the applicability of existing findings to crisis-driven education.

Despite extensive research on character education and discipline in secondary education, significant gaps remain. First, most studies focus on planned instructional settings and overlook emergency learning contexts. Second, existing research often treats discipline as an outcome rather than a process mediated by self-regulation. Third, few studies integrate instructional practices, teacher monitoring, and student self-regulation into a single empirical model. Fourth, technological mediation in discipline formation has been discussed descriptively rather than analytically. Fifth, there is limited empirical evidence from developing country contexts under emergency learning conditions. Sixth, current models lack explanatory power for crisis-induced behavioral changes. Seventh, discipline character during emergency remote learning remains under-theorized. Eighth, these gaps justify the need for a comprehensive, empirically grounded model.

The purpose of this study is to develop and validate an empirical model of discipline character formation during emergency remote learning in secondary education. The study seeks to examine the relationships between instructional strategies, teacher monitoring, learning structure, and student self-regulation. It aims to identify key factors that sustain discipline character under crisis-driven learning conditions. The study also investigates the mediating role of self-regulation in discipline formation. By employing quantitative analysis, the research provides evidence-based insights into discipline character dynamics. The proposed model is intended to support applied educational decision-making. The findings are expected to inform policy and instructional design in emergency contexts. Ultimately, the study contributes to advancing applied character education research in contemporary schooling.

METHOD

Research Design

This study employed a quantitative research design with a cross-sectional survey approach to examine discipline character formation during Emergency Remote Learning in secondary education. A quantitative design was selected to allow systematic measurement of latent constructs and to test empirical relationships among instructional, behavioral, and self-regulatory variables. The study was grounded in applied educational research, focusing on real-world learning disruptions rather than experimental manipulation. Emergency Remote Learning was

treated as a contextual condition rather than an intervention, aligning with established definitions in crisis education research (Durrani & Ozawa, 2024; Ritz et al., 2023). The design emphasized explanatory modeling to capture interaction effects among variables influencing discipline character. Structural relationships were analyzed to move beyond descriptive accounts of student behavior. This approach enabled the development of an empirical model applicable to crisis-responsive educational settings. The design choice is consistent with prior character education studies employing quantitative modeling in secondary education contexts (Naveed et al., 2023; Strzelecki & ElArabawy, 2024).

Participants

The participants consisted of secondary school students and teachers who experienced Emergency Remote Learning during a period of institutional school closure. Participants were selected using a purposive sampling strategy to ensure direct exposure to emergency remote learning conditions. Student participants represented diverse academic backgrounds and grade levels within secondary education. Teacher participants were included to capture instructional and monitoring dimensions relevant to discipline character formation. Inclusion criteria required active engagement in remote teaching or learning for at least one academic term. Participation was voluntary, and informed consent was obtained prior to data collection in accordance with ethical research standards. Anonymity and confidentiality were maintained throughout the study to minimize response bias. The participant selection strategy aligns with applied educational research practices in crisis learning contexts (Baxter et al., 2025; Clum et al., 2022).

Instrument

Data were collected using a structured questionnaire designed to measure discipline character, instructional practices, teacher monitoring, learning structure, and student self-regulation. The instrument items were adapted from validated character education and self-regulation scales to ensure content relevance and construct validity (Chen et al., 2024; Ghasemi et al., 2024). Discipline character was operationalized through indicators such as punctuality, task completion, responsibility, and adherence to learning routines. Instructional and monitoring variables assessed clarity of instruction, feedback consistency, and supervision mechanisms during remote learning. Self-regulation items captured students' goal-setting, time management, and autonomous learning behaviors. Responses were measured using a five-point Likert scale ranging from strongly disagree to strongly agree. Prior to analysis, the instrument underwent validity and reliability testing to confirm measurement adequacy. The use of standardized instruments is essential for empirical modeling in character education research (Hajaroh & Dwiningrum, 2023; Hasanzadeh et al., 2023).

Table 1. Construct dimensions and indicator examples

Construct	Key indicators
Discipline character	Punctuality, task responsibility, rule compliance
Instructional structure	Instruction clarity, schedule consistency
Teacher monitoring	Feedback frequency, supervision
Self-regulation	Time management, learning autonomy

Table 1 summarizes how the study operationalizes each core construct in the proposed empirical model by linking it to observable indicators that can be measured through the questionnaire. Discipline character is represented through behavioral markers that are directly visible in students' learning routines, such as punctuality, responsibility for completing tasks,

and adherence to agreed rules during remote instruction. Instructional structure reflects the degree to which learning is organized and predictable, captured through indicators such as clarity of instructions and consistency of schedules, because structured learning environments are expected to reduce ambiguity and support disciplined habits. Teacher monitoring is defined as the intensity and regularity of supervision in remote settings, measured through feedback frequency and monitoring practices that function as external reinforcement when face-to-face control is absent. Self-regulation captures students' internal capacity to manage learning independently, operationalized through time management and learning autonomy, because these abilities determine whether discipline can be sustained without direct supervision. By presenting these constructs and their indicator examples in a single matrix, Table 1 clarifies the measurement logic and ensures conceptual alignment between the theoretical model and the empirical data collection process.

Data Analysis Plan

Data analysis was conducted in several stages to ensure methodological rigor and interpretability of findings. First, descriptive statistics were used to examine response distributions and identify potential data anomalies. Second, reliability analysis was performed using internal consistency measures to assess scale stability. Third, construct validity was evaluated through factor analysis prior to model testing. Fourth, structural modeling techniques were employed to examine relationships among instructional factors, self-regulation, and discipline character. The mediating role of self-regulation was tested to determine its explanatory contribution within the model. Statistical significance was evaluated using standard threshold values commonly adopted in social science research. The analytical approach supports theory-driven interpretation rather than purely statistical inference. This data analysis plan follows best practices in quantitative character education research (Oldham & McLoughlin, 2025b, 2025a).

RESULTS AND DISCUSSION

Result

The results indicate that discipline character among secondary school students during Emergency Remote Learning was shaped by multiple interrelated factors rather than a single dominant variable. Descriptive analysis showed moderate levels of punctuality and task completion, while consistency in learning routines varied significantly across participants. Students who reported clearer instructional structures demonstrated higher levels of discipline-related behaviors. Teacher monitoring emerged as a critical external factor, particularly through timely feedback and supervision. Self-regulation displayed the strongest association with discipline character, indicating its central role under remote learning conditions. Variability in discipline outcomes reflected differences in both instructional practices and student autonomy. These findings suggest that discipline character during emergency contexts is conditional rather than stable. Overall, the results support the need for an integrative empirical model.

Table 2. Descriptive statistics of key constructs

Construct	Mean	Standard Deviation
Discipline character	3.62	0.54
Instructional structure	3.71	0.49
Teacher monitoring	3.58	0.57
Self-regulation	3.76	0.46

Table 2 presents the descriptive profile of the main constructs examined in this study and provides an initial overview of students' discipline character and its supporting factors during Emergency Remote Learning. The mean score for self-regulation is the highest among all constructs, indicating that students tended to rely more on internal control mechanisms than on external supervision when learning remotely. This finding suggests that the ability to manage time, regulate learning behavior, and maintain focus became particularly important in the absence of face-to-face classroom routines. Instructional structure also shows a relatively high mean value, reflecting that clear instructions and consistent schedules were perceived positively by participants. In contrast, teacher monitoring records a slightly lower mean and higher variability, indicating differences in how supervision and feedback were experienced across learning contexts. Discipline character itself falls within a moderate range, implying that disciplined behavior was maintained but not uniformly strong. The relatively small standard deviations across constructs suggest a reasonable level of response consistency. Overall, Table 2 highlights the foundational role of self-regulation and instructional structure in supporting discipline character under emergency learning conditions.

Structural analysis revealed that instructional structure had a positive and statistically significant effect on discipline character. Teacher monitoring also showed a direct effect, although its magnitude was lower than that of instructional structure. Self-regulation significantly mediated the relationship between instructional factors and discipline character. This mediation effect indicates that structured instruction enhances discipline primarily by strengthening students' self-regulatory capacity. Direct paths from instructional structure to discipline character remained significant, suggesting partial mediation. The overall model demonstrated acceptable explanatory power for discipline character outcomes. Model fit indices indicated that the proposed structure adequately represented the empirical data. These results confirm the theoretical assumption that discipline character emerges through both external guidance and internal control.

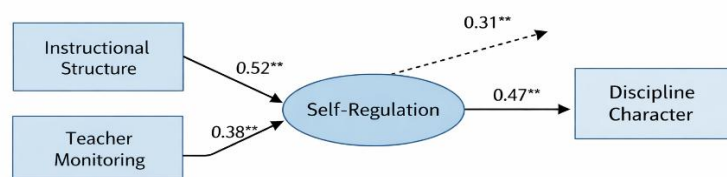


Figure 1. Empirical model of discipline character formation during Emergency Remote Learning

Figure 1 illustrates the empirical model of discipline character formation during Emergency Remote Learning by depicting the structural relationships among instructional structure, teacher monitoring, self-regulation, and discipline character. The model shows that instructional structure and teacher monitoring both exert direct influences on discipline character, indicating the continued importance of external educational support even in remote settings. At the same time, self-regulation occupies a central mediating position, linking instructional factors to students' disciplined behavior. This configuration demonstrates that structured instruction and monitoring primarily strengthen discipline by fostering students' capacity for autonomous regulation. The presence of both direct and indirect pathways suggests that discipline character is shaped through a combination of guidance and internalized control. The model also reflects the adaptive nature of discipline under crisis conditions, where reliance on self-regulation increases as direct supervision decreases. By visualizing these relationships,

Figure 1 clarifies the explanatory logic of the proposed framework. Overall, the diagram reinforces the argument that discipline character during emergency remote learning emerges from the interaction between instructional design, monitoring practices, and learner agency.

Discussion

The findings of this study reinforce the view that discipline character is a dynamic construct shaped by contextual and psychological factors rather than fixed behavioral compliance. Consistent with Spohrer (2024), the results indicate that discipline is sustained when students experience structured learning environments. The prominence of instructional clarity supports prior research emphasizing the role of organized pedagogy in character education (Effendi and Sahertian, 2022). Unlike traditional classroom settings, emergency remote learning reduces immediate behavioral control, shifting responsibility toward learners. This condition explains why self-regulation emerged as the strongest predictor of discipline character. Similar patterns have been observed in studies highlighting learner autonomy in crisis learning contexts (Lukman et al., 2021). The findings extend existing literature by situating discipline within emergency-responsive instructional systems. Thus, discipline character should be reconceptualized as adaptive rather than static.

Teacher monitoring remained significant but played a different role compared to face-to-face learning environments. In line with Tadege et al. (2022), monitoring functioned more as guidance than enforcement during remote learning. Feedback frequency and clarity were more influential than control mechanisms. This aligns with Kumarassamy and Koh (2019), who argued that values education is more effective when embedded in instructional interaction. The reduced physical presence of teachers altered the nature of discipline enforcement. Instead of compliance, students responded to perceived instructional support. Digital supervision tools partially compensated for reduced direct monitoring, as suggested by Suryadi et al. (2025). However, monitoring alone was insufficient without internalized discipline. These findings underscore the need to balance supervision with autonomy.

The mediating role of self-regulation provides important theoretical insight into discipline character formation. Self-regulation allowed students to translate instructional expectations into consistent behavior. This finding supports Sudarmin et al. (2023), who demonstrated that autonomy-enhancing pedagogies strengthen character outcomes. Students with stronger self-regulation maintained discipline even when supervision was limited. Conversely, low self-regulation weakened the effectiveness of instructional structure. This pattern highlights the interaction between personal and environmental factors. The result also aligns with Warni (2019), who emphasized internal motivation in character transformation. Emergency remote learning magnified the importance of internal control mechanisms. Therefore, self-regulation should be treated as a central component of discipline education.

From a broader perspective, this study contributes to applied educational sciences by offering an empirically grounded model for crisis contexts. Previous character education studies focused on stable schooling environments (Effendi and Sahertian, 2022; Lukman et al., 2021). This research extends those models to emergency conditions, addressing a critical gap in the literature. The findings resonate with global discussions on resilience and adaptability in education (Spohrer, 2024). Emergency remote learning should not be viewed solely as a disruption but as a test of educational robustness. Discipline character emerges as a key indicator of system resilience. The proposed model integrates instructional design, monitoring, and learner

agency. This integrated approach advances both theory and practice in character education research.

Implications

The findings imply that discipline character development during emergency learning requires intentional instructional design rather than reliance on traditional control mechanisms. Educational institutions should prioritize structured learning routines and clear instructional communication. Teacher training should emphasize feedback-oriented monitoring instead of punitive supervision. Policies should integrate self-regulation training as a core component of character education. Digital learning platforms must support consistent scheduling and progress tracking. The empirical model can guide schools in designing crisis-responsive pedagogy. These implications are particularly relevant for secondary education systems facing future disruptions. Ultimately, discipline character should be cultivated as adaptive competence.

Limitations

This study is limited by its cross-sectional design, which restricts causal interpretation. Self-reported data may introduce response bias despite anonymity measures. The study focused on secondary education, limiting generalizability to other educational levels. Contextual differences among schools were not examined in depth. Emergency remote learning conditions may vary across regions and time periods. The model did not include parental involvement as a variable. Longitudinal behavioral changes were not captured. These limitations suggest caution in generalizing the findings.

Suggestions

Future research should employ longitudinal designs to examine changes in discipline character over time. Comparative studies between emergency and planned online learning are recommended. Additional variables such as parental support and digital literacy should be incorporated. Mixed-method approaches could deepen understanding of discipline processes. Experimental interventions focusing on self-regulation training should be tested. Cross-cultural studies would enhance generalizability. Policymakers should support research on crisis-responsive education. These directions will strengthen the evidence base for discipline character education.

CONCLUSION

This study concludes that discipline character during Emergency Remote Learning in secondary education is not merely a product of external control but emerges from the interaction between structured instruction, teacher monitoring, and students' self-regulation. The findings demonstrate that self-regulation plays a central mediating role, enabling students to sustain disciplined behavior when direct supervision is limited. Instructional clarity and consistent feedback remain important, yet their effectiveness depends on students' capacity to internalize learning routines. Overall, the proposed empirical model offers a robust framework for understanding and strengthening discipline character in crisis-responsive educational settings.

AUTHOR CONTRIBUTION STATEMENT

Aniza Dewi Fatmala contributed to the conceptualization of the study, development of the research design, data collection, and initial drafting of the manuscript. She also played a primary

role in data analysis, interpretation of findings, and integration of results with the theoretical framework. Mulyono contributed to the refinement of the research methodology, validation of instruments, and critical review of the data analysis procedures. He provided substantial input in strengthening the discussion, ensuring theoretical coherence, and improving the academic rigor of the manuscript. Both authors collaboratively revised the manuscript, approved the final version for submission, and take full responsibility for the integrity and accuracy of the research reported in this article.

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