Bulletin of Education and Language

Publisher: Standout Press
E-ISSN: XXXX-XXXX
Homepage: https://standoutpress.org/bel
Volume 1, Issue 1, January–April 2026, pp. 16–27

Research Article

Coping with Science Academic Workloads: Strategies of Middle School Learners in Ghana

[1]Anfo Ama Asieduwaa Elfreda and [2*]Benjamin Obeng Konadu

[1]University of Education, Winneba, Ghana
ORCID: https://orcid.org/0009-0008-7138-6883
[2]School of Teaching and Learning, Illinois State University, USA
ORCID: https://orcid.org/0009-0003-6804-8676
*Corresponding Author Email: benjaminobengkonadu@gmail.com

Received: January 15, 2026 **Accepted:** February 07, 2026 **Published:** February 13, 2026

Abstract
With an emphasis on the demands of scientific education, this study examined ways of coping with academic workloads in science among middle school learners in Ghana. The study was supported by quantitative data findings, which demonstrated that grade 6 learners employ a variety of coping mechanisms to deal with academic workloads in science. The quantitative data was gathered using a method design that involved administering structured yes/no questionnaires to 37 students, 19 of whom were boys and 18 of whom were girls. The study revealed that almost all learners engaged in relaxation exercises since they were the most popular and successful. Although fewer make regular schedules, time management was also evident, with many people doing chores ahead of schedule. Many learners reported giving up sleep to meet deadlines, which was an indication of maladaptive coping, and girls were more likely to seek support, but its effects were limited. In general, learners actively manage their stress, but the efficacy of their coping mechanisms differs, underscoring the need for better time-management and support techniques. To promote both academic and emotional well-being, this emphasizes the necessity of improved task planning. According to the study's findings, an unmanaged academic workload causes a great deal of emotional stress and necessitates immediate school-based interventions, such as more precise task instructions, well-balanced curriculum design, emotional support networks, and organized coping skill development, to safeguard learners' psychological health and academic engagement.
Keywords: Coping, Science, Academic Workloads, Strategies, Middle School Learners, Self-Regulatory Theory.

Introduction

In upper primary classes like grade 6, science-related homework, tests, and projects can induce academic stress (Cooper et al., 2006). The formal education system is designed to equip learners with the necessary skills to confront the challenges of life, including physical, psychological, and professional development. However, this procedure places a significant burden on their emotional and physical health. A variety of positive and negative outcomes may arise as a consequence of academic stress. The term "eustress" is used by psychologists to describe the beneficial stress that learners experience, which promotes enthusiasm and maintains their academic motivation. This type of tension is beneficial for learners in order to achieve high scores. Stress can enhance performance to a certain extent; however, it may have a detrimental impact on individuals' performance capabilities if it exceeds this threshold (Rowland & van Lankveld, 2019).

Acute stress may be advantageous for learners, notably in the lead-up to examinations, as it improves memory retention (Yaribeygi et al., 2017). Moderate stress can improve the immune system and increase the body's ability to manage injuries and diseases, such as infections and wounds (Dhabhar, 2018). Eustress is a motivator that compels learners to perform and is essential for fulfilment (Kenwright, 2018).

Nevertheless, when stress levels increase from a moderate state, they transition to a state of concern. It occurs when learners are unable to manage the increased academic demands and lack the necessary resources and skills. Regardless of gender, role, race, or academic grade, severe academic stress is associated with poor mental health (Barbayannis et al., 2022). The symptoms of depression and anxiety are exacerbated by academic stress, which results in a decline in academic performance. The academic achievements and overall quality of life of learners are significantly influenced by depressive symptoms that result from academic and domestic stress (Deng et al., 2022).

The physical health of learners is also considerably impacted by the stress they experience, which primarily results in fatigue and frailty (Musabiq & Karimah, 2020). Furthermore, academic stress has a detrimental effect on academic achievements and self-confidence, which in turn results in a decrease in graduation rates and a rise in college attrition rates. This, in turn, leads to increased alcohol consumption, absenteeism, delays in meeting deadlines, and a diminished sense of academic motivation (Gobena, 2024). Academic stress and mental and physical health are reported to have extreme correlations (Travis et al., 2020).

Learners' ability to handle increasingly difficult assignments is essential to preserving their mental stability and academic success. Through observation of the classroom, the researchers observed that learners' coping mechanisms varied. When given traditional assessments like quizzes and written reports, some learners showed signals of withdrawal, irritation, or avoidance, while others showed resilience and asked for assistance from teachers or peers during inquiry-based science projects (Suldo et al., 2013). Rapid cognitive and emotional development characterizes grade 6, a crucial developmental stage. At this point, learners should be familiar with intricate scientific ideas and procedures, such as formal reporting, experimental analysis, and data interpretation (Eccles & Roeser, 2011; NRC, 2012).

High-level coping methods, such as problem-focused tactics (like planning and seeking assistance) and emotion-focused tactics (like self-soothing and rephrasing difficulties), are frequently necessary to meet these academic expectations (Compas et al., 2001). Individual characteristics like self-efficacy, interest in science, and prior academic experiences have been found to impact learners' coping mechanisms (Bandura et al., 2001; Wigfield et al., 1998). While some learners use time management or teamwork to deal with high workloads, others use avoidance, denial, or disengagement techniques that may provide temporary respite but may have negative long-term effects on academic performance (Zimmer-Gembeck & Skinner, 2008).

Crucially, how students handle the situation also shows how they view the assignment. People are more likely to use adaptive coping mechanisms like perseverance and asking for assistance if they believe that science assignments are worthwhile or doable. On the other hand, maladaptive coping strategies like procrastination or physical complaints often surface when assignments are perceived as excessively challenging or irrelevant (Putwain, 2007; Suldo et al., 2008). The importance of cognitive appraisal in determining these coping mechanisms is highlighted by the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). While secondary appraisal affects the coping strategies learners believe they have at their disposal, primary appraisal establishes whether learners perceive a science activity as a threat or a challenge. For instance, a learner who feels that a scientific group assignment is too challenging may mentally disengage or place the blame on others, but a confident student may actively look for answers or ask the teacher for assistance. Designing interventions that not only lower stress but also improve learner engagement and emotional well-being requires an understanding of various coping strategies. The balance between task demands and the coping resources available to learners determines stress outcomes, as Bakker and Demerouti (2007) contend in the Job Demands-Resources model. Because science and other topics like it frequently cause anxiety and academic self-doubt, educational settings must help learners build healthy, age-appropriate coping mechanisms (Putwain et al., 2010).

In sum, this study focuses on uncovering the varied coping strategies of grade 6 learners in managing science workloads, ranging from active engagement and planning to emotional regulation and avoidance, offering insights into how to better support learners academically and emotionally in challenging classroom environments.

Problem Statement

The researchers noticed that many sixth-grade science learners in Ghana frequently seemed overburdened by the rigors of their coursework, particularly during the time before exams, project due dates, and practical assignments. Reduced involvement in class, ongoing exhaustion, and physical problems like headaches and stomachaches were all indicators of stress. While some learners became emotionally reactive or disengaged in response to academic pressure, others participated in avoidance strategies, including procrastination or withdrawal from science-related tasks. More emotional outbursts and frustration were reported by parents and teachers, especially when learners found it difficult to juggle difficult science assignments with short turnaround times. These emotional and behavioral reactions bring up significant issues about how learners handle their academic workloads and the coping mechanisms they use. To develop supportive teaching strategies that enhance resilience and foster emotional well-being during this crucial changeover period, it is imperative to investigate these coping mechanisms.

Therefore, the study's purpose was to determine the coping strategies employed by sixth-grade learners in managing academic workloads in science. The study sought to address the question: What coping strategies do grade 6 learners use in response to academic workloads in science?

Theoretical Framework

The Self-Regulation Theory of Carver and Scheier (1994), which describes how people track and modify their actions to achieve personal objectives, was used in this study. This notion is based on the idea that deliberate self-direction is necessary to overcome obstacles like academic workload. Students may use strategies like time management, asking for assistance, or emotional control to decompress and regain equilibrium when they feel that the demands of their studies are out of proportion to their present abilities.

Self-regulation is crucial in identifying whether coping mechanisms are adaptive or maladaptive, claimed Zimmer-Gembeck and Skinner (2008). In this regard, the theory offers a framework for evaluating the deliberate steps students take to deal with stress brought on by their workload, which directly advances the third goal of the study. Zimmerman's (2000) self-regulated learning model, which contends that students who practice goal setting, self-monitoring, and strategy modification have a higher chance of both academic and emotional success, serves as the foundation for this study. Additionally, Durlak et al. (2011) stress how social-emotional learning (SEL) fosters resilience. To understand how learners deal with stress, their approach emphasizes the significance of self-awareness, self-management, and responsible decision-making.

The model posits that it is feasible to assist students in comprehending their motivations and learning requirements, setting educational objectives, and orchestrating their motivational and meta-motivational experiences: self-efficacy expectations (Bandura, 1987), academic behavioral confidence (Sander and de la Fuente, 2020a, b), personal improvement and achievement goals (Pintrich, 2000), and achievement emotions in anticipation of success or failure (Pekrun et al., 2014). This model has enabled recent investigations into distinct motivational behaviors (decisions, positive and negative emotions) and the extent of meta-motivational control: motivational strategies and self-instructions (Powers et al., 2020), emotional coping strategies (de la Fuente et al., 2020), motivational choices (self-reinforcement versus self-punishment), and the dichotomy of perfectionism versus procrastination (Garzón-Umerenkova et al., 2018). The model delineates how self-assessment behaviors (Zimmerman et al., 2011) and the self-regulation of emotions influence the ultimate motivational state of engagement against burnout (de la Fuente et al., 2020). The model's creators assert that adaptive assessment entails acknowledging faults while also emphasizing triumphs. A maladaptive evaluation results in the self-infliction of unpleasant feelings. Causal or attributional explanations of success and failure are modified according to stability, internality, and controllability aspects (Weiner, 1993).

This theory of this study views academic workloads in science as a stressor, coping mechanisms as behavioral reactions, and emotional well-being as the result. The theory makes it possible to assess whether the techniques learners employ, such as planning, relaxation, and asking for help, are successful in preserving emotional stability when faced with academic pressure.

Conceptual Framework

This study uses a conceptual framework that relates science learners' academic workloads to their coping mechanisms, focusing on how sixth-grade learners deal with stress in response to a variety of academic demands linked to science. Coping is defined as the behavioral and cognitive strategies learners employ to manage the demands of their coursework (Lazarus & Folkman, 1984). The paradigm acknowledges that learners' emotional reactions and academic performance are greatly influenced by how they view and handle academic pressures, especially in cognitively demanding courses like science.

In general, learners' coping mechanisms fall into one of two categories: problem-focused or emotion-focused. Activities like asking for assistance, planning, or organizing tasks are examples of problem-focused strategies. Using techniques like self-soothing, denial, or diversion, emotion-focused therapies aim to control emotional distress (Compas et al., 2001). According to Bandura et al. (2001) and Wigfield, et al. (1998), the framework emphasizes that individual differences, including self-efficacy, past academic experiences, and interest in science, have a significant impact on the type and efficacy of the coping strategy employed.

Grade 6 science instruction frequently involves difficult homework, abstract ideas, and practical lab work, all of which call for a high level of emotional regulation and cognitive effort (Hmelo-Silver et al., 2007; Osborne, 2014). Strong coping mechanisms may make it easier for learners to view these assignments as doable difficulties in this situation, utilizing flexible techniques like peer cooperation and time management. On the other hand, learners with worse coping mechanisms can see the same assignments as dangers, which could result in maladaptive reactions like worry, disengagement, or procrastination (Putwain et al., 2010).

The Transactional Model of Stress and Coping, which contends that people's coping mechanisms are influenced by their evaluation of the stressor and their perceived capacity to manage it, is another source of inspiration for the

conceptual framework (Lazarus & Folkman, 1984). The stressors in this study are science assignments, and the mediating reactions are the coping mechanisms used by the learners. How learners evaluate their workload and the resources they believe are available determines whether they experience adaptive engagement or emotional strain (Zimmer-Gembeck & Skinner, 2008). Designing developmentally appropriate support systems that increase learners' resilience requires an understanding of these coping mechanisms. Teachers can design science learning environments that support healthy coping mechanisms, lessen emotional distress, and foster long-term academic and psychological well-being by determining which strategies are most frequently employed and under what circumstances they work best (Shapiro et al., 2007; Suldo et al., 2008).

Empirical Evidence

Coping mechanisms are essential for lowering academic stress, according to earlier studies. For instance, a twelve-week programme teaching diaphragmatic breathing and progressive muscular relaxation significantly lowered subjective stress levels among elementary school students, as cited in Sofianopoulou et al. (2021). In a similar vein, autonomy-supportive settings that empower learners to take charge of their work boost resilience and motivation, according to Reeve and Tseng (2011).

More recent research by Kim and Park (2022) demonstrated that structured planning combined with emotional support improved academic performance and decreased stress symptoms in preadolescents. These results supported the current study's focus on identifying coping strategies and their efficacy in actual classroom environments. Literature revealed that several science workloads affect learners' academic performance and mental health globally, thus the current study seek to fill the gap in science learning by providing coping strategies that Ghanaian middle level learners employ to cope with their academic workloads in science.

Methodology

Design

The present study sought to address the question: What coping strategies do grade 6 learners use in response to academic workloads in science? To investigate the coping mechanisms used by sixth-grade science learners to handle their academic workloads in science, a quantitative design was chosen. The reason for using a quantitative design to conduct this study was the appropriateness of this approach to the subject of research and the purpose of this research. Quantitative research is theory-based, a process beginning with a theory and ending with testing hypotheses to infer patterns and relationships; it involves operationalization of variables to construct a questionnaire, data collection, and conducting statistical analyses (Taylor et al., 2025). A quantitative approach provided a relatively accurate picture of learners' behavior at a particular moment, limited the possible bias due to self-reporting and retrospective recall, and, due to the use of standardized measures, could be generalized to the population.

In addition, a key feature of quantitative designs is the focus on method robustness, including the control of confounding variables and other threats to the validity of the study, which allows one to ensure that the data obtained on the three types of coping mechanisms (avoidance-based, emotion-focused, and problem-focused) is reliable, valid, and interpretable in an existing theoretical context (Taylor et al., 2025). By focusing on numerical data, quantitative research may rely on inferential statistics and, going beyond mere description, enable the identification of significant trends and patterns that can be generalized in terms of the relevance to the specific subject of study (managing academic stress, in this case) (Taylor et al., 2025). This made this approach more suitable for this study of the frequency and type of coping strategies used by the learners to respond to academic workload than retrospective self-reporting, which would require the activation of long-term memory and be subject to bias and individual subjective interpretations (Fowkes & Fulton, 1991; Donnelly, 2004).

The study used information gathered from a structured questionnaire that was created especially to record the frequency and kind of coping mechanisms used by learners, such as avoidance-based, emotion-focused, and problem-focused answers. This method made it possible to gather quantifiable, standardized data that could be examined to find patterns and trends throughout the sample. Without the influence of long-term changes or retrospective bias, the quantitative method gave a clear overview of how learners handle academic stress by concentrating on current coping behaviors.

Study Area

The study was conducted at a private basic educational institution located within a growing urban community in the Greater Accra Region of Ghana. The school offers a comprehensive educational programme from the nursery to the primary level and follows the Ghana Education Service (GES) curriculum. It emphasizes practical, learner-centred instruction aimed at fostering academic excellence, discipline, and self-motivation among pupils (Ghana Education Service, 2023). The institution is equipped with modern teaching and learning facilities, including

organized classrooms, recreational spaces, and dedicated areas that support both academic and social development. It maintains a conducive environment for learning, enhanced by full internet access, 24-hour campus security, and a backup power system to ensure uninterrupted teaching activities (Ghana Education Service, 2023). With a teaching staff of 26 and a learner population of about 1,000, the school provides a structured and resource-rich environment ideal for investigating grade 6 learners' coping strategies in response to academic workload, particularly in science. The well-supported infrastructure and the academic focus of the institution made it a suitable setting for this research.

Population

Learners in grade 6 attending a private basic school in Ghana's Greater Accra Region made up the study's population. All 37 learners in the single grade 6 class were included in the target demographic. This demographic was chosen because learners in this stage are subjected to higher academic demands, especially in science, which makes them a pertinent group to study coping mechanisms for academic workload. A census technique was used to include the entire population in the study due to the manageable class size and the goal of documenting a variety of learner experiences.

Sample and Sampling Techniques

A total of 37 learners (19 boys and 18 girls) were selected using purposive sampling to ensure participants had sufficient exposure to science-related workload. The target population consisted of all learners enrolled at the school. The accessible population was all 37 learners in the grade six class. All learners in grade six were used for the study.

Data Collection Instruments

A structured questionnaire with 10 items was used to capture learners' coping strategies, time-use patterns, and perceived effectiveness of support systems.

Data Collection Procedures

Data collection was conducted over a six-week period during regularly scheduled science lessons to ensure minimal disruption to the learners' academic routine. Questionnaires were administered at the beginning of each session, with students allotting the first 15 minutes of class time to complete them. The purpose of administering the questionnaire was to find out effective strategies learners use to cope with their academic workloads. The questionnaire was administered over a period of 6 weeks to ensure thorough data collection while taking into consideration the ethical and practical constraints of administering research for grade 6 learners.

Also, ethical considerations, which include obtaining parental approval from learners, require adequate time to be processed. This timing was strategically chosen to capture responses when learners were mentally alert and before engagement in the day's instructional content could influence their perceptions. The structured timing also allowed for consistency in data collection across different classes and weeks, enhancing the reliability of the responses. Teachers were briefed in advance to support the administration process without influencing participants' responses, thereby maintaining the objectivity and integrity of the data collected. This method ensured a naturalistic and familiar environment for participants, fostering honest and thoughtful engagement with the survey instruments.

Data Analysis Approach

Quantitative data were analyzed using descriptive statistics. A bar chart was used to provide a visual representation of learners' coping strategies. A pie chart was used to provide a visual representation of the number of boys and the number of girls in the class. The questionnaire results were depicted by using percentages because it is easier to quickly grasp the proportion of learners who gave a particular response as well as enable a direct comparison between the questionnaire items or responses.

Ethical Considerations

This study adhered strictly to ethical research standards to ensure the protection, dignity and welfare of all participants. Approval was initially sought from the relevant authorities, including informed consent from parents or guardians. Learners were assured of anonymity and confidentiality and were informed of the nature of the study and their choice to either participate or not. Learners were treated with respect and empathy, while any signs of distress during data collection were immediately addressed.

Results

Presentation of Learners' Demographics

Figure 1 is the pie chart showing the demographics of the participants, with 19 boys and 18 girls.

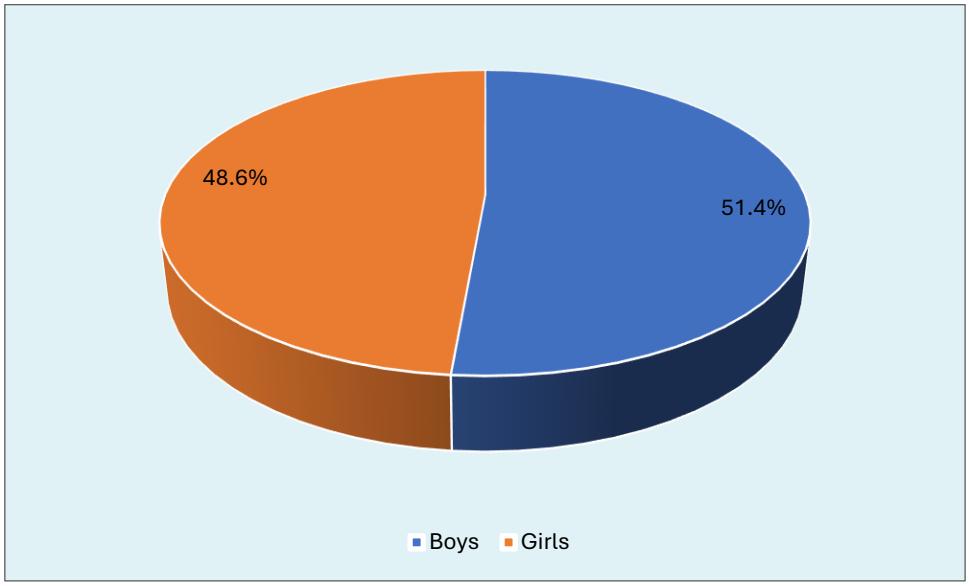

Figure 1. Gender of participants.

Feedback of Learners in the Questionnaire

Learners' responses provided through administering questionnaires offered an insight into their lived experiences with academic workload. This feedback entails a percentage representation of how learners cope with heavy academic workloads.

Table 1. Learners' feedback.

Question No.	Boys (Yes%)	Boys (No%)	Girls (Yes%)	Girls (No%)
Q1	52.6%	47.4%	44.4%	55.6%
Q2	57.9%	42.1%	77.8%	22.2%
Q3	42.1%	57.9%	50.0%	50.0%
Q4	84.2%	15.8%	77.8%	22.2%
Q5	78.9%	21.1%	77.8%	22.2%
Q6	100.0%	0.0%	94.4%	5.6%
Q7	89.5%	10.5%	94.4%	5.6%
Q8	52.6%	47.4%	22.2%	77.8%
Q9	52.6%	47.4%	50.0%	50.0%
Q10	73.7%	26.3%	55.6%	44.4%
Source: Field survey (2025).				

The results shown in table 1 indicate that the most widely adopted and effective coping strategy among learners was engaging in relaxation activities (Q6 & Q10), with 100.0% of boys and 94.4% of girls reporting involvement in activities like playing games or drawing. This was followed by their attempts to stay emotionally stable during academic stress (Q10), with boys (73.7%) leading girls (55.6%). Time management also appeared as a significant strategy, where although only 42.1% of boys and 50.0% of girls create schedules (Q3), a much higher percentage, 84.2% of boys and 77.8% of girls, attempted to complete homework early (Q4), showing strong commitment to avoiding last-minute pressure.

Seeking support (Q2 & Q9) was ranked next in importance, as 77.8% of girls and 57.9% of boys ask for help when overwhelmed, though only about half feel better afterward, indicating a gap in the quality or availability of support. Break-taking (Q1 & Q8) appeared to be less consistent, especially among girls, where only 22.2% believed in the effectiveness of breaks compared to 52.6% of boys. Lastly, both genders reported very high percentages in working late to meet academic demands (Q7), with 89.5% of boys and 94.4% of girls indicating they sacrifice sleep. This reflects strong commitment but also signals potential negative impacts on health. Prioritizing coping strategies that balance productivity with wellness, like structured relaxation, effective time planning, and accessible support systems, was essential to enhancing both academic performance and emotional resilience.

Representation of Questionnaire Items

Figure 2 represents the responses of boys and girls to the ten questions (Q1 to Q10) in the questionnaire. Each question was broken into four categories:

Boys who answered "Yes" were shown in blue.
Boys who answered "No" were shown in orange.
Girls who answered "Yes" were shown in grey.
Girls who answered "No" were shown in yellow.

This representation in Figure 2 illustrates that practical science assignments, including experiments and projects, led to greater average stress levels compared to standard homework, while quizzes were positioned in between. These patterns illustrate how learners employ a range of effective strategies, especially stress breaks and social support, when coping with science workloads.

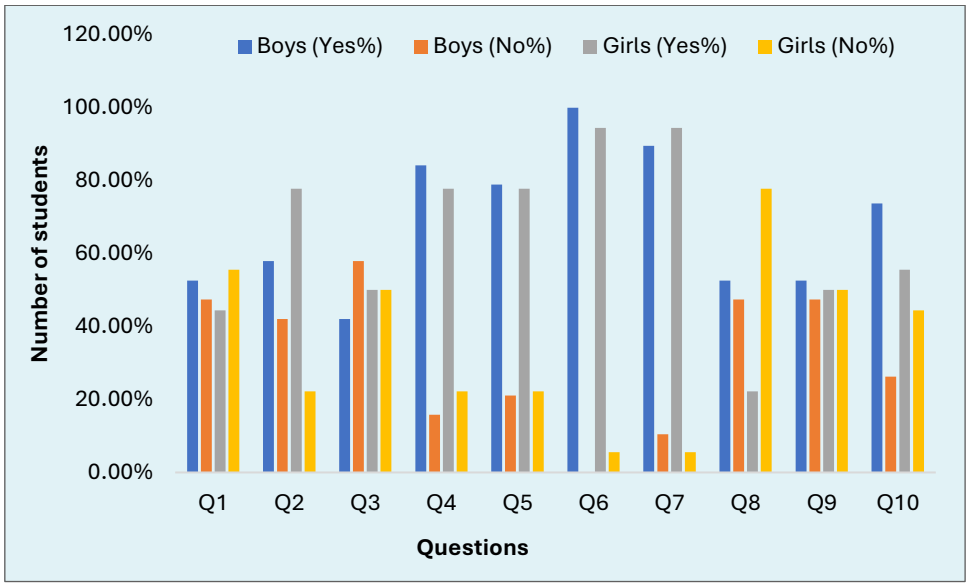

Figure 2. Bar graph showing questionnaire responses of all 37 learners.

Discussion

The findings of the study confirm that learners actively employ a range of coping strategies in response to academic workload, including relaxation techniques, early task completion, and seeking emotional support. These behaviors are consistent with self-regulated learning theory, which posits that students consciously plan, monitor, and reflect on their learning processes to cope with academic demands (Zimmerman, 2002). The theory however views academic workloads in science as a stressor, coping mechanisms as behavioral reactions, and emotional well-being as the result.

Relaxation strategies, such as listening to music, taking short breaks, or engaging in brief physical activity, were especially prevalent among both genders and have been shown in prior research to alleviate acute academic stress (Compas et al., 2017; Frazier et al., 2007). Early task completion was also reported as a commonly used strategy, particularly by boys (84.2%) and girls (77.8%), indicating a proactive attempt to manage workload. However, only a small proportion of these learners relied on formal schedules or structured routines to guide this behavior. The limited use of structured time management tools suggests a potential deficiency in metacognitive regulation, an essential component of effective self-regulated learning (Schunk & Greene, 2018). Without consistent planning and monitoring, even proactive behaviors such as early task initiation may fail to reduce long-term stress or academic pressure (Britton & Tesser, 1991). This affirms the Self-Regulation Theory of Carver and Scheier (1994), which points that the techniques learners employ, such as planning, relaxation, and asking for help, are successful in preserving emotional stability when faced with academic pressure.

Gender-specific patterns were evident in the data. Girls were more inclined to seek emotional support (77.8%) compared to boys (57.9%), a finding that aligns with previous literature suggesting that females generally prefer emotionally expressive and interpersonal coping strategies (Tamres et al., 2002). Boys, on the other hand, demonstrated a stronger preference for disengagement through breaks or relaxation, which aligns with problem-avoidance coping styles often associated with male learners (Hampel & Petermann, 2006). While both forms of coping can be effective in the short term, they may lack the structure and long-term resilience-building found in more goal-oriented strategies like time management or cognitive restructuring.

Crucially, the widespread pattern of learners staying up late to complete assignments reported by over 89% of participants raises concerns about the overall effectiveness of their coping strategies. This behavior suggests that

current strategies may be compensatory rather than preventive, allowing learners to respond to stress but not to manage or reduce it effectively over time. Chronic late-night studying has been associated with poor sleep hygiene, increased emotional exhaustion, and reduced academic performance (Beattie et al., 2004; Orzech et al., 2011).

In summary, according to Jennings and Greenberg (2009), teachers impact on their learners not only through their instruction but also by their interpersonal relationships, pedagogical approaches, modelling of social and emotional components, and classroom management. Therefore, it is clear that learners are better equipped to handle academic pressures, stay focused and manage their time when their teachers foster a supportive classroom environment through strong social and emotional learning, which are important skills when dealing with heavy workloads in science. Collectively, the findings provide empirical support for self-regulation theory but also highlight its limitations in environments where learners are not explicitly taught or encouraged to apply their principles consistently. The data suggests a critical need for schools to implement structured support systems that reinforce time management and emotional resilience and help-seeking behaviors, particularly within demanding subjects such as science. Without intentional scaffolding and skill-building, even motivated learners may default to coping with strategies that are reactive rather than strategic.

Limitations

The results of this study can't be applied to larger populations because it was only carried out in one educational environment. Even within the same region or educational system, different schools may have different sociocultural environments, academic structures, and teacher expectations. Because of this, the coping mechanisms found in this study might be impacted by regional variables, which limits the generalizability of the findings across a variety of learner populations (Creswell & Creswell, 2018).

Furthermore, the study mostly used self-reported information gathered from questionnaires, which are subject to bias even though they were useful for gauging learners' subjective perceptions. These include recollection bias, which occurs especially when learners are asked to consider past coping mechanisms, and social desirability bias, in which participants may give answers they feel are appropriate or expected (Podsakoff et al., 2003). Because students might not have the metacognitive awareness or vocabulary to adequately describe their internal coping processes, self-reports may also reveal complex coping behaviors (Paulhus & Vazire, 2007). As a result, the data collection tools may not adequately capture the complexity and diversity of behavioral, cognitive, and emotional coping mechanisms.

Despite these limitations, the use of self-reports remains a widely accepted method in psychological and educational research, especially when exploring internal processes like stress and self-regulation (Pintrich & de Groot, 1990). However, future research could benefit from triangulating self-report data with observational methods, teacher assessments, or even physiological measures to deepen the understanding of coping responses in academic contexts. While the methodological limitations of this study restrict the breadth of its applicability, they also underscore the importance of contextualized, school-based research. Understanding how learners cope in real-world, localized academic environments can inform more tailored interventions. Still, future studies must broaden their scope and diversify their data sources to build a more comprehensive and generalizable understanding of learner coping behavior.

Implications of the Study

The study emphasizes how important it is for educational institutions to support learners holistically, particularly in challenging topics like science. While emotional check-ins and relaxation areas provide essential mental health assistance, teaching time-management and task-planning skills can help lower academic stress. When combined, these techniques can help learners handle the demands of their homework and improve their general well-being. By putting such strategies into practice, a more encouraging learning atmosphere that promotes both academic achievement and emotional fortitude can be established. The results operate as a wake-up call for teachers and school administrators to give academic and psychological growth equal weight when creating curricula.

Conclusion

According to the study, learners in grade 6 employ a variety of coping mechanisms to deal with the demands of their studies in science, but these are frequently inadequate in the absence of formal help. Reactive behaviors like procrastination and late studies increase stress and diminish performance. By incorporating time-management instruction, emotional support, and balanced workloads into routine operations, schools can play a proactive role. To support learners' academic and mental health, coping should be viewed as a shared duty by teachers, learners, and educational systems. Effective support requires interventions that are specifically designed to meet the requirements of each learner, taking into account gender-related coping variations. Schools can improve resilience and long-term academic success by creating a supportive learning environment.

Recommendations

Firstly, middle-level science teachers in Ghana should offer guidance to learners on different approaches to dealing with academic stress. Teachers should also ensure that they monitor the workload given to learners to prevent overload, which alters their routines and affects their mental health. Additionally, science teachers globally should also make an effort to provide clearer instructions on assignments and curriculum to balance out the high academic expectations of learners. To give middle-level learners useful skills like goal setting, task breaking, and efficient scheduling, especially in areas like science that demand more cognitive effort, this study suggests that schools adopt systematic time-management training.

Middle-level learners can benefit from regular relaxation exercises like mindfulness, creative projects, or outdoor play to help them refuel and manage the stress of school. To promote mental health and the feeling of community where learners feel comfortable discussing their personal and academic struggles, peer support networks must be established. Science teachers globally should receive training on how to spot early indicators of academic strain, including dissatisfaction or disengagement, and how to provide the right kind of support when needed. To minimize overload and prevent last-minute stress, science teachers are also urged to coordinate assignment deadlines across topics.

Declarations

Acknowledgments: The authors express their sincere gratitude to the editor and reviewers for their constructive feedback and valuable suggestions, which significantly improved the quality of this manuscript. The authors also thank the participating school, learners, and teachers for their cooperation and support during the data collection process.

Artificial Intelligence (AI) Use Statement: The authors confirm that no artificial intelligence (AI) tools were used at any stage of the research, including study design, data collection, analysis, or manuscript preparation. The work presented in this manuscript is entirely the original contribution of the authors.

Author Contributions: AAMAE: Conceptualization, data collection, data analysis, and writing – original draft preparation; BOK: Supervision, methodology guidance, and validation, review, editing, and final approval of the manuscript.

Conflict of Interest: The authors declare no conflict of interest.

Consent to Publish: Both authors have read and approved the final version of the manuscript and consent to its publication in Bulletin of Education and Language.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to ethical and privacy considerations involving minor participants.

Funding: This research received no external funding.

Institutional Review Board Statement: Ethical approval was not required for this study as per institutional guidelines. However, the study was conducted in accordance with standard ethical principles for research involving human participants.

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Research Content: This manuscript represents original work and has not been previously published or submitted elsewhere for publication.

References

1. Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309-328.
2. Bandura, A. (1987). *Teoría cognitivo-social del aprendizaje* [Cognitive-social learning theory]. Martínez-Roca.
3. Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development*, *72*(1), 187-206.
4. Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic stress and mental well-being in college students: Correlations, affected groups, and COVID-19. *Frontiers in Psychology*, *13*, 886344.
5. Beattie, S., Hardy, L., & Woodman, T. (2004). Precompetition self-confidence: The role of the self. *Journal of Sport & Exercise Psychology, 26*(3), 427–441.
6. Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology*, *83*(3), 405-410.
7. Carver, C. S., & Scheier, M. F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology*, *66*(1), 184-195.

8. Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin*, *127*(1), 87-127.
9. Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., ... & Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin*, *143*(9), 939-991.
10. Cooper, H., Robinson, J. C., & Patall, E. A. (2006). Does homework improve academic achievement? A synthesis of research, 1987–2003. *Review of Educational Research*, *76*(1), 1-62.
11. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
12. de la Fuente, J., Peralta-Sánchez, F. J., Martínez-Vicente, J. M., Sander, P., Garzón-Umerenkova, A., & Zapata, L. (2020). Effects of self-regulation vs. external regulation on the factors and symptoms of academic stress in undergraduate students. *Frontiers in Psychology, 11*, 1773.
13. Deng, Y., Cherian, J., Khan, N. U. N., Kumari, K., Sial, M. S., Comite, U., ... & Popp, J. (2022). Family and academic stress and their impact on students' depression level and academic performance. *Frontiers in Psychiatry*, *13*, 869337.
14. Dhabhar, F. S. (2018). The short-term stress response–mother nature's mechanism for enhancing protection and performance under conditions of threat, challenge, and opportunity. *Frontiers in Neuroendocrinology*, *49*, 175-192.
15. Donnelly, R. A. (2004). *The complete idiot's guide to statistics*. Alpha Books.
16. Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child development*, *82*(1), 405-432.
17. Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*(1), 225-241.
18. Fowkes, F. G., & Fulton, P. M. (1991). Critical appraisal of published research: Introductory guidelines. *British Medical Journal, 302*, 1136–1140.
19. Frazier, P., Gabriel, A., Merians, A., & Lust, K. (2007). Understanding stress responses and academic outcomes in college students: The role of emotion regulation. *Journal of American College Health, 56*(6), 615–622.
20. Garzón-Umerenkova, A., de la Fuente, J., Amate, J., Paoloni, P. V., Fadda, S., & Pérez, J. F. (2018). A linear empirical model of self-regulation on flourishing, health, procrastination, and achievement, among university students. *Frontiers in Psychology*, *9*, 536.
21. Ghana Education Service. (2023). *GES curriculum and assessment guide*. https://ges.gov.gh
22. Gobena, G. A. (2024). Effects of academic stress on students' academic achievements and its implications for their future lives. *Anatolian Journal of Education*, *9*(1), 113-130.
23. Hampel, P., & Petermann, F. (2006). Perceived stress, coping, and adjustment in adolescents. *Journal of Adolescent Health*, *38*(4), 409-415.
24. Hmelo-Silver, C. E., Duncan, R. G., & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006). *Educational Psychologist, 42*(2), 99–107
25. Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, *79*(1), 491-525.
26. Kenwright, B. (2018). Managing stress in education. *Frontiers in Education 1*, 1–8.
27. Kim, H., & Park, S. (2022). The impact of emotional support and planning skills on adolescents' academic resilience. *Educational Psychology, 42*(5), 567–583.
28. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
29. Musabiq, S. A., & Karimah, I. (2020). Description of stress and its impact on college student. *College Student Journal*, *54*(2), 199-206.
30. National Research Council. (2012). *A framework for K–12 science education*. National Academies Press. https://doi.org/10.17226/13165

31. Orzech, K. M., Salafsky, D. B., & Hamilton, L. A. (2011). The state of sleep among college students at a large public university. *Journal of American College Health*, *59*(7), 612-619.
32. Osborne, J. (2014). Teaching scientific practices: Meeting the challenge of change. *Journal of Science Teacher Education*, *25*(2), 177-196.
33. Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R. W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 224–239). Guilford Press.
34. Pekrun, R., Hall, N. C., Goetz, T., & Perry, R. P. (2014). Boredom and academic achievement: testing a model of reciprocal causation. *Journal of Educational Psychology*, *106*(3), 696-710.
35. Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 452–502). Academic Press.
36. Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, *82*(1), 33-40.
37. Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, *88*(5), 879-903.
38. Powers, J. P., Moshontz, H., & Hoyle, R. H. (2020). Self-control and affect regulation styles predict anxiety longitudinally in university students. *Collabra: Psychology*, *6*(1), 11.
39. Putwain, D. W. (2007). Test anxiety in UK schoolchildren: Prevalence and demographic patterns. *British Journal of Educational Psychology*, *77*(3), 579-593.
40. Putwain, D. W., Woods, K. A., & Symes, W. (2010). Personal and situational predictors of test anxiety of students in post-compulsory education. *British Journal of Educational Psychology*, *80*(1), 137-160.
41. Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology*, *36*(4), 257-267.
42. Rowland, D. L., & van Lankveld, J. J. D. M. (2019). Anxiety and performance in sex, sport, and stage: Identifying common ground. *Frontiers in Psychology*, *10*, 1615.
43. Schunk, D. H., & Greene, J. A. (2018). *Handbook of self-regulation of learning and performance* (2nd ed.). Routledge.
44. Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology, 1*(2), 105–115.
45. Sofianopoulou, K., Bacopoulou, F., Vlachakis, D., Kokka, I., Alexopoulos, E., Varvogli, L., ... & Darviri, C. (2021). Stress management in elementary school students: a pilot randomised controlled trial. *EMBnet Journal*, *26*, e976.
46. Suldo, S. M., Shaunessy, E., & Hardesty, R. (2008). Relationships among stress, coping, and mental health in high-achieving high school students. *Psychology in the Schools, 45*(4), 273–290.
47. Suldo, S. M., Thalji-Raitano, A., Hasemeyer, M., Gelley, C. D., & Hoy, B. (2013). Understanding middle school students' life satisfaction: Does school climate matter? *Applied Research in Quality of Life*, *8*(2), 169-182.
48. Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, *6*(1), 2-30.
49. Taylor, L., Dai, H. M., Ng, H., Playfoot, D., & Rose, S. (2025). Improving quantitative research in higher education learning and teaching. *Journal of University Teaching and Learning Practice*, *22*(2), 1-17.
50. Travis, J., Kaszycki, A., Geden, M., & Bunde, J. (2020). Some stress is good stress: The challenge-hindrance framework, academic self-efficacy, and academic outcomes. *Journal of Educational Psychology*, *112*(8), 1632-1643.
51. Weiner, B. (1993). On sin versus sickness: A theory of perceived responsibility and social motivation. *American Psychologist*, *48*(9), 957-965.
52. Wigfield, A., Eccles, J. S., & Rodriguez, D. (1998). The development of children's motivation in school contexts. In A. Iran-Nejad & P. D. Pearson (Eds.), *Review of Research in Education* (Vol. 23, pp. 73–118). American Educational Research Association.
53. Yaribeygi, H., Panahi, Y., Sahraei, H., Johnston, T. P., & Sahebkar, A. (2017). The impact of stress on body function: A review. *EXCLI Journal*, *16*, 1057-1072.

54. Zimmer-Gembeck, M. J., & Skinner, E. A. (2008). Adolescents' coping with stress: Development and diversity. *The Prevention Researcher, 15*(4), 3–7.

55. Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). Academic Press.

56. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice, 41*(2), 64–70.

57. Zimmerman, B. J., Moylan, A., Hudesman, J., White, N., & Flugman, B. (2011). Enhancing self-reflection and mathematics achievement of at-risk urban technical college students. *Psychological Test and Assessment Modeling*, *53*(1), 141-160.

Citation: Asieduwaa Elfreda, A. A., & Konadu, B. O. (2026). *Coping with science academic workloads: Strategies of middle school learners in Ghana*. *Bulletin of Education and Language, 1*(1), 16–27.