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Students Dimension of Wellness and Learning Engagement as Predictors on Motivation in Science

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Abstract— This study looks into the significance of students' dimensions of wellness and learning engagement as determinants of motivation in science. The study used a descriptive-correlational and predictive approach to determine the combined impact of these characteristics on students' motivation in science. The survey, conducted in integrated schools in the Cateel 2 District of the Philippines, had 100 respondents from Grades 9 and 10. The three-part survey examined students' well-being and learning engagement aspects as predictors of their willingness to learn science. Ethical considerations were strictly followed, including adherence to research ethics and gaining informed consent from both parents and students. The data collection process includes evaluating the study instrument, obtaining authorization from school authorities, and issuing informed consent forms. Data analysis included descriptive statistics, correlational analysis, and prediction approaches to determine the characteristics that influence student motivation in science. The findings demonstrated that students had high levels of wellness on emotional, spiritual, physical, social, and intellectual dimensions, as well as strong engagement in mental, emotional, and behavioral aspects of science study. A statistical analysis revealed a statistically significant positive relationship between the general wellness of students and their motivation in science, as well as a considerable positive relationship between students' learning engagement and their motivation in science. These findings have implications for educational stakeholders, indicating the need for targeted interventions to improve student motivation, engagement, and general well-being in science education.

***Index Terms*—Wellness dimension, learning engagement, motivation in learning science.**

1. Introduction

Nowadays, it can be challenging for teachers to figure out what drives their kids to perform well in the classroom. Tragically, very few educational resources are available, particularly in schools, even though these resources are crucial for learning motivation and are pertinent to specific subjects like science. One of the most challenging yet fascinating topics in school is Science. Regardless of how thrilling and engaging it is, it is understandable that there are elements at play if the kids need more motivation to do well. Teachers have focused much on motivation since it is essential to learning. Education is a challenging and dynamic process, and motivation ultimately completes learning in the true sense. Students make a significant advancement in learning via motivation when they have a will to study, which is one of the fundamental components of learning. However, a substantial obstacle to effective language learning is that students occasionally lose enthusiasm and interest in the lessons.

The reports on performance in science learning in Malaysia found that students lack interest and have a declining ability to do Science (Kong, 1993; Lee, 1989; MOE, 1998). Furthermore, some studies have shown that the students had a negative attitude toward science learning (Aziz & Hui Ling, 2010). Many studies revealed that students' attitudes, interests, and motivation toward science learning decline throughout their years at school, especially during secondary school years (Galton, 2009; Osborne et al., 2003).

The Philippine Educational system has several issues and concerns that need to be addressed for educational reform (Durban & Catalan, 2012). In this digital and fast-changing era, knowledge-based economy in science education has a vital role in economic and social development. This knowledge breakthrough seeks an innovative paradigm through scientific skills as a gateway to meet the countries' promising global economic growth (Morales, 2017). The ultimate goal of science education is for students to acquire scientific literacy. However, the government faces severe challenges in having quality science education as Filipino students' achievements must catch up with those of other countries in Trends International Mathematics and Science Study (TIMSS, 2009).

Numerous articles have clarified that multiple predictors of learners' motivation in science exist. Lastly, students' well-being and learning engagement level, particularly in science-related courses, are significant in determining their motivation.

2. The Rationale of the Study

This study explored whether there is a combined significant influence of Students' Dimension of Wellness and Learning Engagement on Motivation, especially in science. This research addressed a need in the field and benefited organizations like the Department of Education, school administrators, science teachers, students, and future researchers.

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The study results help DepEd create programs and policies that promote student well-being, raise interest in science, and increase motivation for science education. Through an understanding of the relationships among motivation, engagement, and wellness, DepEd may create focused interventions to meet the needs of individual students and enhance the results of science education as a whole.

Administrators can understand the factors influencing student motivation to foster well-being and engagement in science classes. The study's findings can help develop and implement school-based programs that address student well-being and engagement within the school community.

The study can provide scientific instructors with research-proven tactics to enhance student well-being, raise classroom participation, and increase science motivation. By knowing how well-being, engagement, and motivation are related, educators can better adapt their lessons to each student's unique requirements and foster a more enjoyable learning environment.

Students participating in the study may become more conscious of the relationship between their motivation for science, engagement, and general well-being. The study can help students take responsibility for their education and ask for help when needed. The study's results may influence better teaching strategies that support students' engagement and well-being, eventually resulting in a more enjoyable and rewarding science education.

The findings can inspire new research questions examining the effects of interventions intended to improve student well-being and engagement on motivation and achievement in science education. The study can also act as a springboard for future research by offering a framework for additional investigation into how wellness and engagement influence scientific motivation. The study will add necessary information to the body of evidence already available on student motivation in science education, guiding future initiatives to enhance science learning outcomes.

3. Statement of the Problem

This study aims to determine the combined significant influence of the Dimension of Wellness and Learning Engagement on Motivation in Science

Most importantly, this seeks to know the following;

1. What is the level of the Student's Dimension of Wellness in Science in terms of;
   - 1.1 Emotional
   - 1.2. Spiritual
   - 1.3. Physical
   - 1.4. Social
   - 1.5 Intellectual
2. What is the level of the learning engagement of students in science in terms of;
   - 2.1. Cognitive
   - 2.2. Emotional
   - 2.3. Behavioral
3. What is the level of motivation of students in science in terms of;
   - 3.1 Intrinsic
   - 3.2 Self Determination
   - 3.3 Self Efficacy
4. Is there a significant relationship between Students' Dimensions of Wellness and Motivation in Science?
5. Is there a significant relationship between Learning Engagement and Motivation in Science?
6. Is there a combined significant influence of Students' Dimension of Wellness and Learning Engagement on Motivation in Science?

4. Hypotheses

$Ho1$: There was no significant relationship between students' dimension of wellness and motivation in science.

$Ho2$: There was no significant relationship between learning engagement and motivation in science.

$Ho3$: There was no combined significant influence of Students' Dimension of Wellness and Learning Engagement on Motivation in Science.

5. Review of Related Literature

This section included the relevant studies and literature. The researcher discussed and presented the variables and indicators in the specified order. The authors wrote the synthesis of the study to understand the results in greater detail.

A. Students' Dimension of Wellness

In the twenty-first century, wellness has become a trillion-dollar industry, growing faster than the global economy (GWI, 2016). "Attitudes and activities which improve the quality of life and expand the potential for higher levels of functioning" is the definition of wellness (Mullen, 1986, p. 34). Building human qualities, virtues, and skills is prioritized by positive psychology over treating negative emotions and mental illness, which is the conventional "disease model" approach that is commonly seen in treatment facilities and educational institutions nowadays (Seligman & Csikszentmihalyi) 2000.

Emotional. The extent to which a person recognizes and acknowledges their emotions. Emotional encompasses the level at which individuals feel positive and passionate about their lives. It assesses the ability to realistically acknowledge one's limitations and control one's emotions and associated behavior (Hettler, 1980). The New York Times' 2016 coverage on emotional skills in education continues to garner national attention, demonstrating the subject's relevance in educational research and its absence in the classroom (Goleman, 2015; Schulten, 2016; Zernike, 2016; Schulten & Proulx, 2019). Students should intentionally be taught with these emotional abilities as the classroom discourse develops (Proulx & Schulten, 2019).

Spiritual. It is a continuous process of looking for significance and meaning in life. It involves a profound understanding of the breadth and depth of life and the power of nature throughout the universe (Hettler, 1980). As found in the relevant literature, many factors promote and inhibit life satisfaction; of particular note for this study, people's religiosity

and spirituality play an essential role since they are considered psychosocial resources positively associated with psychological well-being (Barreto et al., 2015) and a better mental health condition (Jafari et al., 2010).

Physical. The extent to which one's heart remains strong and flexible. The activities that aid in early sickness detection or prevention were measured in this dimension. As per the Senate Select Committee on Nutrition's report (Hettler, 1980), it measures the extent to which an individual makes food choices that align with the nutritional objectives of the United States. While intelligence and environmental factors interact in a complex way to determine academic performance, a child's health plays a critical moderating role in their learning capacity. It is widely acknowledged and scientifically verified that children in good health learn more effectively (Basch, 2010). Postengagement impacts include enhanced attention (Grieco et al., 2009; Bartholomew & Jowers, 2011), more on-task behaviors (Mahar et al., 2006), and overall learning when physical activity is employed as a break from academic study time.

Social. According to Hettler (1980), the degree of an individual's contribution to their community's well-being reflects our interconnectedness with each other and the natural world. To develop a growth mindset in children, praise them for the process rather than their intelligence or talents, as this can make them vulnerable. Acknowledge their effort, focus, or hard work, as these qualities will make students resilient. This acknowledgment is particularly crucial because research suggests that their short-term effort significantly influences students' success on high-stakes tests (Metcalfe et al., 2011).

Intellectual. The extent to which a person uses their imagination to engage in imaginative, thought-provoking activities. A person in good intellectual health uses the resources at their disposal to increase their capacity for sharing with others (Hettler, 1980).

B. Students Learning Engagement

More than just involvement or participation, engagement necessitates sense-making and emotions in addition to action (see Harper and Quaye, 2009a, 5). Although "student engagement" has garnered significant attention in the literature since the mid-1990s, Alexander Astin's work on student involvement (Astin)1984 might be the term's origin. The definitions of student engagement are as follows: "This study investigates how much students participate in activities that higher education research has identified as linked to high-quality learning outcomes (Krause & Coates, 2008, p. 493). Moreover, "Participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (Kuh et al.)2007.

Cognitive. According to a recent study, a learner's prior knowledge of a topic or related topics influences their learning (Svinicki, 2004). According to Delfino (2019), there is a favorable correlation between academic success and student engagement's behavioral, emotional, and cognitive aspects. Piaget believed that the intellectual and mental development process was similar to a biological act that must be adjusted to the environment's needs (Gillani, 2003).

Emotional. In recent years, researchers have increasingly focused on the importance of emotions in learning and functioning. Studies on school learning, teachers, and students have shown a particular interest in the relationship between emotions and learning (e.g., Becker et al., 2014; Uitto et al., 2015). As evidenced by recent studies (e.g., Gooty et al., 2010; Riforgiate & Komarova, 2017), emotions are a significant factor in workplaces, organizational behavior, and leadership. Research has demonstrated that engaging in scientific inquiry and modeling can amplify feelings (Jimenez-Liso et al., 2019).

Behavioral. According to Fredericks et al. (2004) and Suarez-Orozco et al. (2009), behavioral engagement manifests in students' involvement in their education. It encompasses their participation in class activities and their efforts to complete assignments. Accordingly, students' reading and responding to reading assignments can indicate their behavioral involvement in reading (Bråten et al., 2018; Guthrie & Klauda, 2016). Hughes et al. (2011), Martin (2008), and Skinner and Pitzer (2012) define behavioral engagement as interactions with the academic setting that are characterized by being goal-driven, adaptable, constructive, and persistent.

C. Motivation of Students in Science

According to research, a lack of scientific literacy may result from the Science taught in our schools need to be more abstract and students needing access to the necessary context to apply what they have learned (Conroy et al., 1999; Shelley-Tolbert et al., 2000). Students must engage in courses and activities with personal significance and value if motivated to learn (Glynn & Koballa, 2006). Motivated students attain academic achievement by participating in labs, asking questions, and working in groups (Schunk et al., 2008).

Intrinsic. SDT holds that relatedness, competence, and autonomy drive intrinsic motivation (Ryan & Deci, 2017). Students feel more competent in Science and have more control over their education when they have a good self-concept. The following traits, according to Csikszentmihalyi and Nakamura (1989), characterize intrinsically motivated people: they engage in mental and physical activities holistically; they stay highly focused on these activities with well-defined goals; they are self-critical; realistically reflect on their actions; and they are typically at ease and unafraid of failure when learning. Hughes et al. (2011), Martin (2008), and Skinner and Pitzer (2012) define behavioral engagement as interactions with the academic setting that are characterized by being goal-driven, adaptable, constructive, and persistent.

Self Determination. The Self-Determination Theory (SDT) holds that a learner's autonomy and personal agency are essential to self-determined learning (Kaplan, 2008; Reeve et al., 2008; Zimmerman & Schunk, 2007). Thus, there is less external self-regulation (Deci & Ryan, 2000; Grolnick et al., 1991; Ryan & Deci, 2002). Participating in assignments, assessments, and homework is a component of self-determined learning (Deci et al., 1996). It involves choosing between conflicting motivations and free will (Corno, 2004; Deci et al., 1996).

Self-Efficacy. The most recent National Compulsory Education Quality Testing: Monitoring Results of Scientific Learning Quality Report, released in 2020, based on the observation of 200,000 primary and secondary students' science learning, revealed that only about 20% of the students were inclined to pursue careers in Science when they grew up. Researchers have hypothesized that one of the leading causes of this lack of willingness is the absence of scientific self-efficacy from the standpoint of social cognitive variables (Ballen et al., 2017; Blotnicky et al., 2018; Lamb et al., 2014). Self-efficacy in science and other complex disciplines is more crucial to students' learning than general self-efficacy (Mangos & Steele-Johnson, 2001). According to studies by Baldwin et al. (1999) and Britner & Pajares (2006), students with a higher sense of science self-efficacy are more ready to persevere through challenging science assignments and have more faith in their talents.

D. Synthesis

The wellness industry has grown in the twenty-first century, with an emphasis on habits and mindsets that promote life quality and functional capacity. Positive psychology prioritizes the development of human qualities, virtues, and skills over treating negative emotions and mental diseases. Wellness traits include emotional awareness, spiritual connection, physical fitness, social contribution, and intellectual engagement. Student engagement—emotions, sense-making, and activity—is essential in education. According to the study, abstract language and a lack of relevant context may contribute to insufficient scientific literacy in schools. Intrinsic motivation, self-determination theory, and self-efficacy are critical for children's learning success. Increased self-efficacy in science and other demanding fields boosts confidence, willingness to work hard, and persistence.

6. Theoretical/Conceptual Framework

According to the Self-Determination Theory (SDT) (Deci & Ryan, 2000), three fundamental psychological needs—autonomy (feeling in control), competence (feeling capable), and relatedness (feeling connected)—are what motivate people. Students exhibit intrinsic motivation—which is defined by a sincere interest in and enjoyment of learning science—when these criteria are met. This framework can be used with a wellness model to comprehend the relationship between motivation in science and wellbeing.

The social cognitive theory, which was created by Bandura (1986, 2001, 2006) and expanded upon by other scholars (Pajares & Schunk, 2001; Pintrich, 2003), views human functioning as a sequence of mutually reinforcing interactions between individual traits, behavioral patterns, and environmental settings. According to social cognitive theory, learning is most successful when it is self-regulated by students. It happens when pupils comprehend, keep an eye on, and manage their behavior and motivation, resulting in desired learning results. According to this idea, motivation is an internal condition that stimulates, guides, and maintains goal-oriented behavior. An internal state that promotes, guides, and maintains scientific learning behavior is the motivation to learn Science. Engaging in activities like asking questions, seeking assistance, studying, and participating in labs, study groups, and seminars drives students to succeed intellectually (Schunk et al., 2008).

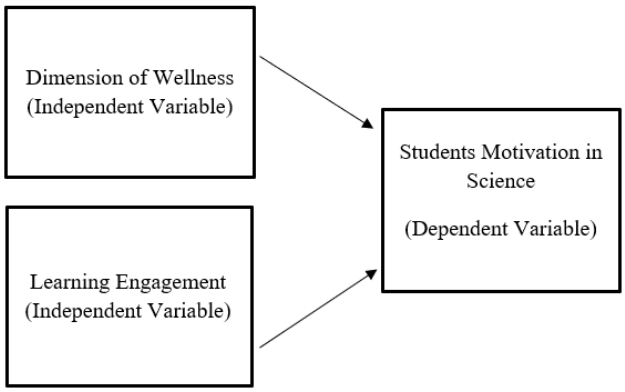

Fig. 1. Conceptual framework the study

7. Method

This section explained the methods employed in this study, such as research design, locale, respondents, instruments, ethical considerations, data gathering procedures, and data analysis.

A. Research Design

Quantitative research aims to advance knowledge, comprehend the environment, and assist in well-informed decision-making across various domains. Although there are many uses for quantitative research, producing information and understanding the world through statistics and numbers is its primary objective. The independent factors under investigation were the student dimensions of wellness and learning engagement, whereas the dependent variable was the learners' motivation in science. The researchers employed a descriptive-correlational and predictive approach. To determine the combined significant impact of students' wellness and learning engagement aspects as predictors of motivation in science.

B. Research Locale

The researchers conducted this study at several Integrated Schools within the Cateel 2 District. Cateel, formerly known as the Municipality of Cateel, is a second-class municipality in the Philippine province of Davao Oriental.

C. Research Respondents

This survey included 100 respondents drawn from integrated schools in Grades 9 and 10 using a random sampling technique.

D. Research Instrument

This investigation employed a three-part survey that underwent modifications and adaptations. The questionnaire is the main instrument for the study. Among the questions were quantitative inquiries to elicit precise answers from participants about students' well-being and learning engagement dimensions, which are predictive factors of their willingness to learn Science.

E. Ethical Considerations

Research ethics are important because they help researchers tell the truth and make wise decisions. The investigator complied with ethical guidelines encompassing societal values, informed consent/assent, hazards, advantages, and security, information privacy and confidentiality, openness, the investigator's qualifications, the sufficiency of facilities, and community engagement.

The study, which examined learning engagement and well-being as determinants of motivation in Science, is pertinent to the Department of Education (DepEd) and kids in integrated schools since their well-being and engagement in the classroom significantly impact their willingness to learn Science.

The parents of the underage respondents provided informed consent, ensuring a legally binding contract. Researchers conducted the inquiry in person with the participants. The survey was distributed during free time or at their discretion to avoid interrupting the class.

The researcher is a licensed professional teacher who concentrated on biological Science during her Bachelor of Secondary Education and is pursuing a Master of Arts in Education while working as a science teacher. Statistical experts advise and aid them with data interpretation. The investigation was conducted in person while following health laws. The researchers designed the survey questions to be neutral regarding sexual orientation, gender, race, politics, religion, or culture.

F. Data Gathering Procedures

This section describes the approach taken in this investigation. The effectiveness of the study depends on the investigator adhering to the ethical standards stated below.

G. Verification of the Study Instrument

Researchers will verify the updated and changed survey form. This approach will allow for a comprehensive examination of the survey form and a thoughtful consideration of relevant feedback and recommendations.

The Researcher Requests Authorization to Perform Research.

The researcher wrote to the principal or head of the integrated schools, requesting permission to perform the investigation.

Informed Consent and Informed Assent are Distributed and Procured.

The researchers obtained informed consent from the parents of the target respondents after securing approval from the principals of the participating integrated schools. Researchers also provided informed consent to minor respondents since most integrated school pupils in Grades 9 and 10 belong to this age group. Only pupils with duly executed informed consent from their parents were permitted to sign their names. The respondent can refuse participation even if their parent has already approved.

H. Distribution of Survey Questionnaires

To ensure informed consent, the researcher included only participants who had completed their informed consent form and a signed parental consent document. After being acknowledged, the researcher gathered the participants in a classroom during their free time and distributed the survey questionnaire to those who qualified.

I. Data Analysis

This study will employ a descriptive approach to measure student wellness, learning engagement, and motivation in science. The researchers will then use correlational analysis to explore the relationships between these variables. Finally, the researcher will use the predictive method to identify the factors most strongly influencing student motivation. The researchers will calculate descriptive statistics, including means and standard deviations, for each dimension of wellness, learning engagement, and scientific motivation.

The researcher will employ frequency distributions to visualize the distribution of scores for each measure. The researcher will utilize Pearson correlation coefficients to analyze the relationships between the various characteristics of wellness, learning engagement, and motivation in science. This analysis will investigate whether health and learning engagement are associated with higher motivation levels in science. The researcher will conduct a multiple regression analysis to see if specific variables related to wellness and learning engagement significantly predict motivation in science. This analysis will help identify the factors that most strongly influence student motivation in science.

8. Results and Discussions

This section presented the results and discussions based on the data gathered after the conduct of this study. This included the interpretation of the data and the implication of the findings of the study. The deliberations presented in this chapter were aligned to the statement of the problem cited in the previous sections of this study.

Table 1
Level of student's dimension of wellness in science

Indicators	Mean	Descriptive Level
Emotional	3.71	High
Spiritual	3.66	High
Physical	3.66	High
Social	3.74	High
Intellectual	3.87	High
Overall	**3.73**	**High**

The table 1 indicates that students have a high level of wellness across all five dimensions: Emotional, Spiritual, Physical, Social, and Intellectual. The mean scores range from 3.66 to 3.87, with an overall mean of 3.73, which falls under the 'High' descriptive level. This suggests that the students are generally well in these areas according to the study's metrics.

Emotional wellness involves recognizing and managing emotions, which is crucial for students' overall well-being. Research emphasizes the importance of emotional skills in education, which can positively impact students' engagement and motivation (Hettler, 1980; Goleman, 2015; Proulx & Schulten, 2019). The study shows a high level of emotional wellness (mean = 3.71), suggesting that students are generally adept at handling their emotions, which is beneficial for their

academic performance and motivation.

Spiritual wellness pertains to seeking meaning in life and understanding one's place in the universe. It has been linked to psychological well-being and mental health (Hettler, 1980; Barreto et al., 2015). The high level of spiritual wellness (mean = 3.66) indicates that students find a sense of purpose, which can enhance their motivation and engagement in learning.

Physical wellness reflects the ability to maintain a healthy body through exercise, nutrition, and preventive healthcare. Good physical health is known to improve cognitive function and academic performance (Basch, 2010; Grieco et al., 2009). The study reports a high level of physical wellness (mean = 3.66), suggesting that students' physical health supports their learning and motivation.

Social wellness involves contributing to the community and developing healthy relationships. It is crucial for fostering a supportive learning environment (Hettler, 1980; Metcalfe et al., 2011). The high level of social wellness (mean = 3.74) suggests that students have strong social connections, which can enhance their motivation and academic engagement.

Intellectual wellness is about engaging in creative and stimulating mental activities. It promotes critical thinking and lifelong learning (Hettler, 1980). The study finds a high level of intellectual wellness (mean = 3.87), indicating that students are intellectually engaged, which likely contributes to their motivation in science.

Table 2
Level of learning engagement of students in science

Indicators	Mean	Descriptive Level
Cognitive	3.56	High
Emotional	3.71	High
Behavioral	3.66	High
Overall	**3.64**	**High**

The table 2 indicates that students have a high level of engagement in their science learning across cognitive, emotional, and behavioral aspects. The mean scores are as follows: Cognitive (3.56), Emotional (3.71), and Behavioral (3.66), with an overall mean score of 3.64, all of which are categorized as 'High'.

Cognitive engagement involves students' investment in learning and their willingness to exert the necessary effort to understand and master complex ideas (Svinicki, 2004). The high level of cognitive engagement (mean = 3.56) reflects students' commitment to learning science, which positively impacts their motivation.

Emotional engagement is the degree to which students feel connected to their learning. It encompasses feelings of interest, excitement, and enjoyment (Becker et al., 2014; Jimenez-Liso et al., 2019). The study reports a high level of emotional engagement (mean = 3.71), suggesting that students are emotionally invested in their science education, enhancing their overall motivation.

Behavioral engagement includes participation in academic activities and the effort put into schoolwork (Fredericks et al., 2004; Hughes et al., 2011). The high level of behavioral engagement (mean = 3.66) indicates that students are actively involved in their learning, which is a strong predictor of their motivation in science.

Table 3
Level of motivation of students in science

Indicator	Mean	Descriptive Level
Intrinsic	3.86	High
Self-Determination	3.56	High
Self-Efficacy	3.47	High
Overall	**3.63**	**High**

The table 3 suggests that students exhibit a high level of motivation in science, with particularly strong intrinsic motivation. The mean scores for intrinsic motivation, self-determination, and self-efficacy are 3.86, 3.56, and 3.47, respectively, all of which fall under the 'High' descriptive level. An overall mean score of 3.63 further supports the conclusion that students are highly motivated in this subject area.

Intrinsic motivation refers to engaging in an activity for its inherent enjoyment and satisfaction (Ryan & Deci, 2017). The study finds a high level of intrinsic motivation (mean = 3.86), highlighting that students are internally driven to learn science, which is critical for sustained academic success.

Self-determination involves the ability to make choices and exercise control over one's learning (Deci & Ryan, 2000; Reeve et al., 2008). The high level of self-determination (mean = 3.56) suggests that students feel autonomous and capable of directing their learning, which enhances their motivation.

Self-efficacy is the belief in one's ability to succeed in specific tasks (Bandura, 1997). The study reports a high level of self-efficacy (mean = 3.47), indicating that students are confident in their science abilities, which positively influences their motivation.

The table 4 shows a correlation coefficient (r) of 0.491, which indicates a moderate positive relationship between students' wellness and their motivation in science. The p-value of 0.000 is less than the typical alpha level of 0.05, which leads to the rejection of the null hypothesis (H0). This suggests that there is a statistically significant relationship between the two variables.

Table 4
Significance on the relationship between students' dimension of wellness and motivation of students in science

	Motivation of students in science			
Students Dimension of Wellness	**r**	**p-value**	**Decision on H_o**	**Interpretation**
	.491	.000	Reject	Significant

Table 5
Significance on the relationship between learning engagement of students and motivation of students in science

	Motivation of students in science			
Learning Engagement of Students	**r**	**p-value**	**Decision on H_o**	**Interpretation**
	.700	.000	Reject	Significant

The table 5 shows a correlation coefficient (r) of 0.700, which indicates a strong positive relationship between students' learning engagement and their motivation in science. The p-value of 0.000 is less than the typical alpha level of 0.05, which leads to the rejection of the null hypothesis (H0). This suggests that there is a statistically significant relationship between the two variables.

The table 6 indicates that Learning Engagement has a significant positive influence on the Motivation of Students in Science, with a standardized coefficient (Beta) of .773 and a p-value of 0.000, which is statistically significant. The Dimension of Wellness, however, does not show a significant influence, as indicated by the 'Not Significant' interpretation and a p-value of .392.

The table 7 examines the relationships between five dimensions of wellness (Emotional, Spiritual, Physical, Social, Intellectual) and four motivational factors (Intrinsic Motivation, Self-Determination, Self-Efficacy, Overall Motivation). The Pearson Correlation values suggest varying degrees of positive relationships between these dimensions and motivational factors, with all dimensions showing significant correlations with at least one motivational factor.

For instance, the Emotional dimension has a strong positive correlation with Overall Motivation ($r = .496$, $p < .000$), indicating that emotional wellness may play a significant role in motivating students. Similarly, the Intellectual dimension shows a strong correlation with Intrinsic Motivation ($r = .476$, $p < .000$), suggesting that intellectual wellness is closely linked to the internal desire to engage in learning.

The Physical dimension has a weaker, yet still significant, correlation with Self-Efficacy ($r = .239$, $p < .017$), which could imply that physical wellness contributes to students' beliefs in their capabilities to succeed in specific tasks.

These findings interpreted to mean that various aspects of students' wellness are interconnected with their motivation in science, with emotional and intellectual wellness being particularly influential. This information could be valuable for educators and policymakers when considering holistic approaches to enhance student motivation and engagement in educational settings.

Table 6
Regression analysis on the combined significant influence of dimension of wellness and learning engagement on motivation of students in science

	Motivation of students in science						
	Unstandardized Coefficient		Standardized Coefficients				
Independent Variables	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Decision on H_0**	**Interpretation**
(Constant)	1.204	.349		3.451	.001		
Dimension Wellness	-.123	.143	-.096	-.861	.392	Failed Reject	Not Significant
Leaning Engagement	.792	.114	.773	6.955	.000	Reject	Significant

R = .703; R2 = .494; F-value = 47.305; p-value = 0.000

Table 7
Dimension of wellness and motivation correlation

		Intrinsic	Self-Determination	Self-Efficacy	Motivation
Emotional	Pearson Correlation	.476**	.436**	.407**	.496**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	100	100	100	100
Spiritual	Pearson Correlation	.385**	.289**	.180	.322**
	Sig. (2-tailed)	.000	.004	.073	.001
	N	100	100	100	100
Physical	Pearson Correlation	.212*	.216*	.239*	.249*
	Sig. (2-tailed)	.034	.031	.017	.012
	N	100	100	100	100
Social	Pearson Correlation	.307**	.260**	.366**	.349**
	Sig. (2-tailed)	.002	.009	.000	.000
	N	100	100	100	100
Intellectual	Pearson Correlation	.476**	.396**	.367**	.465**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	100	100	100	100
Dimension of Wellness	Pearson Correlation	.480**	.415**	.415**	.491**
	Sig.(2-tailed)	.000	.000	.000	.000
	N	100	100	100	100

Table 8
Learning engagement and motivation correlations

		Intrinsic	Self-Determination	Self-Efficacy	Motivation
Cognitive	Pearson Correlation	.475**	.487**	.524**	.557**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	100	100	100	100
Emotional2	Pearson Correlation	.549**	.595**	.687**	.685**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	100	100	100	100
Behavioral	Pearson Correlation	.543**	.567**	.514**	.610**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	100	100	100	100
Leaning Engagement	Pearson Correlation	.594**	.624**	.650**	.700**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	100	100	100	100

The Learning Engagement composite score, which likely combines cognitive, emotional, and behavioral aspects, shows the strongest correlations with all motivational factors, peaking with Overall Motivation ($r = .700$, $p < .000$). This implies that an integrative approach to learning engagement is highly predictive of student motivation.

The results interpreted to suggest that enhancing students' learning engagement, both in specific aspects and overall, could significantly boost their motivation. This has implications for educational strategies, indicating that interventions should target cognitive, emotional, and behavioral facets of engagement to foster a motivated learning environment.

9. Conclusion

The study's findings show a statistically significant beneficial association between students' measures of wellness and their motivation in science. There is a moderately positive association between students' overall well-being and their motivation in science, as well as a substantial positive relationship between students' learning engagement and their motivation in science. These results show that students who have higher levels of wellbeing and are more engaged in their studies are likely to be more motivated in the field of science.

The study also emphasizes the necessity of examining students' well-being and learning engagement as predictors of their willingness to learn science. Understanding and addressing these variables allows educators to better support students in establishing and maintaining their motivation in science education.

Overall, the study emphasizes the importance of promoting student wellness and encouraging active learning engagement in order to boost motivation in science. These findings have implications for scientific education methods, underscoring the need for educators to create supportive and engaging learning environments that prioritize students' overall well-being and academic engagement. Educators may create a good and encouraging learning environment that enables students to achieve in their scientific pursuits by prioritizing students' wellness and learning engagement first.

10. Recommendation

To build a solid foundation for student motivation in science, a multifaceted strategy is required. Schools can implement holistic wellness programs that focus on students' emotional, social, physical, intellectual, and spiritual well-being. This integrated approach helps children thrive overall, which can lead to improved motivation in science. Improving learning engagement is also important. Interactive teaching methods such as hands-on experiments, group activities, and real-world applications can pique students' attention and encourage active engagement, resulting in a more engaging learning environment.

Creating a conducive learning environment is another important component. When classrooms are safe, welcoming, and promote strong relationships, students feel more comfortable taking risks and interacting with the material, which leads to increased motivation. To assist educators in this attempt, professional development opportunities focusing on student wellness, motivation, and engaging teaching approaches can provide them with the resources they require to effectively serve their students.

Furthermore, student-centered approaches that accommodate different learning styles and preferences can boost student ownership and motivation. Finally, collaboration with parents and guardians through open communication channels enables families to participate in their children's science education and contribute to ideas for increasing motivation and engagement. By employing these interconnected techniques, schools can develop a culture of overall student well-being, active involvement, and, ultimately, a solid foundation for student motivation in science.

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