

# PARENTAL INVOLVEMENT, SELF-EFFICACY, SELF-DIRECTED LEARNING AND STUDENTS' ATTITUDE TOWARDS SCIENCE: A PATH ANALYSIS

Rustom P. Clemente<sup>1</sup>; Neil Ryan B. Ado<sup>2</sup>

<sup>1</sup>Graduate School, St. Mary's College of Tagum, Inc., Philippines

<sup>2</sup>Graduate School, St. Mary's College of Tagum, Inc., Philippines

<sup>1</sup>[rustom.clemente001@deped.gov.ph](mailto:rustom.clemente001@deped.gov.ph); <sup>2</sup>[neilravye1985@gmail.com](mailto:neilravye1985@gmail.com)

DOI: 10.47760/cognizance.2024.v04i08.003

**Abstract**— This quantitative research study determined the causal relationship of interconnected variables particularly, parental involvement, self-efficacy, self-directed learning and attitude towards science. A descriptive-correlational research design was employed with path analysis in the treatment of data. Two hundred sixty-three grade 10 students of the secondary schools in Banaybanay District were selected as respondents through stratified random sampling technique. The study used four adapted research instruments to measure the variables, namely: Parental Involvement Mechanisms Measurement, Self-Efficacy Questionnaire for Children (SEQ-C), Self-Directed Learning Instrument (SDLI) and Attitude Towards Science Inventory Survey (ATSI). Mean, Pearson Product Moment Correlation, Multiple Regression Analysis and Path Analysis were applied to treat the data. The results showed that students' parental involvement is evident while both students' self-directed learning and self-efficacy were manifested and students' positive attitude towards science is evident. Among the independent variables, only the self-directed learning is statistically significant predictor of students' attitude towards science. Furthermore, the best fit model indicates that self-directed learning and self-efficacy have significant effect to attitude towards science. While, parental involvement and self-efficacy have significant influence to attitude towards science through self-directed learning. Moreover, parental involvement also has significant effect to attitude towards science through self-efficacy. This study suggests that students should enhance their self-directed learning abilities as this foster positive attitude towards science. It is further recommended to recognize the interconnectedness of self-directed learning, self-efficacy, and parental involvement to maximize their combined impact on students' attitudes towards Science.

**Keywords**— parental involvement, self-directed learning, self-efficacy, attitude towards science, science education, quantitative research, descriptive-correlational design, path analysis, Davao Oriental, Philippines

## I. INTRODUCTION

There is no doubt that Science is one of the most challenging subjects to learn. Mostly, it places a high demand on students' cognitive and psychological aspects. After all, the subject is associated with the advancement and improvement of society, where the practical application of learning is a requisite (Mao et al., 2021). In addition, Science, among all the subjects, is a multifaceted discipline and its branches have grown ever multifarious up to this date. These, among many factors have caused students to develop negative attitudes toward the subject such as poor motivation and anxiety in learning (Kurniawan, et al., 2019; Maison et al., 2020 & Scarpellini et al., 2021). According to studies, students' poor attitudes toward a given subject or course are evidenced by the decrease in their interest (Almahdawi et al., 2021), poor effort and time given to the subject (Mbonyiryivuze, 2021) and being passive in classroom tasks (Özüdoğru, 2021).

In Kayonza and Gasabo Districts of Rwanda, a country in East Africa, students did not consider learning Science, such as physics, as fun. The students claimed Science has nothing to do with the way they understood real-life scenario. Furthermore, students also exhibit negative in terms of their poor effort and time toward Science learning (Mbonyiryivuze et al., 2021). Meanwhile, a comparative study by Kharuddin et al. (2021) on students' attitudes toward science in Asian countries revealed that students in Malaysia and Thailand have a highly negative point of view and low interest in Science. In addition, students in India likewise manifest

the problems above as they showed anxiety in asking questions and have passive involvement in Science learning-related tasks (Maison *et al.*, 2020).

Meanwhile, a study conducted in the four secondary schools in Zambales, Philippines, revealed that the problems relative to the students' attitudes toward Science subject include students' degree of interest, effort, and attention given to the subject. These problems were highly manifested in the students' poor level of motivation to learn the subject (Scarpellini *et al.*, 2021). On the other hand, the problem relative to students' attitude towards Science is also evident in the conclusion made by Pedrona (2021), stating that students' attitude toward Science has become alarming as students were observed to lack interest in the subject. Moreover, the study by Tus (2020) on Senior High School students of Bulacan, Philippines, revealed that a positive attitude of students towards Science subject has become less evident. In Davao City, Tiboron *et al.* (2021), concluded in their study that students' procrastination as an attitude towards Science tasks were observed.

Students' negative attitude toward Science is similarly evident in the Division of Davao Oriental, particularly in Banaybanay District. According to the District Science Coordinator, the students' poor attitudes towards Science include negative feeling and views such as anxiety in learning and incorrect perception of the Science subject. Furthermore, based on the District Learning Action Cell session minutes in Science, students nowadays showed more of anxiety and lack of enjoyment towards Science subject learning and were found alarmingly passive in dealing science activities. Meanwhile, teachers in one of the secondary schools of the same district revealed that these students' attitudes toward science may have occurred due to the level of parents' involvement and students' poor self-directed learning management. With these negative attitudes, it is imperative to address this problem by looking into factors that could enhance and develop students' attitude towards Science.

Students' attitude towards Science can be affected by several factors. These are the parental involvement (Yazdani *et al.*, 2015), students' self-efficacy (Yorganci, 2017) and students' self-directed learning (Humaira, 2018). The influence of these variables to students' attitude are evident in several studies that have correlated students' attitude with parental involvement (Oluwatelure & Oloruntegbe, 2008; Borres, 2017), self-efficacy (Tsai & Wu, 2006; Salami, 2010; Yang, 2012) and self-directed learning (Akgunduz & Akinuglo, 2016; Mentz & Van Zeyl, 2016). These researches were from foreign countries and respondents were college and high school students focusing on other learning area such as English and Mathematics. In this research, respondents were the Grade 10 students from the Philippines specifically in the Municipality of Banaybanay, Province of Davao Oriental. Added to, this study shall focus on the students' enjoyment, anxiety and perceptions as students' attitude towards Science. Moreover, the researcher has found lack of related studies that correlates self-efficacy, parental involvement, self-directed learning and attitude towards Science involving Filipino students that employs path or associational analysis. Thus, this study was centered on the association of parental involvement, self-efficacy, self-directed learning and attitude towards Science of Grade 10 students in Banaybanay District, Division of Davao Oriental.

## II. METHODOLOGY

This quantitative research employed descriptive and correlational design and utilized path analysis in the treatment of data. The descriptive and correlational design were used to examine relationships between parental involvement, self-directed learning, students' self-efficacy and attitudes towards science. Moreover, correlational analysis, using techniques like Pearson's correlation coefficient and multiple regression, measured the strength and direction of relationships among these variables.

Further, Path analysis is a kind of multiple regression statistical analysis. This is used to evaluate causal models by examining the relationships between a dependent variable and two or more independent variables.

The respondents in this study were the Grade 10 students from the four (4) secondary schools in Banaybanay District, Division of Davao Oriental. The study used four adapted research instruments to measure the variables, namely: Parental Involvement Mechanisms Measurement, Self-Efficacy Questionnaire for Children (SEQ-C), Self-Directed Learning Instrument (SDLI) and Attitude Towards Science Inventory Survey (ATSI).

### III. RESULTS AND DISCUSSION

#### Level of Students' Self-Directed Learning in terms of Learning Motivation

Table 1 shows the level of students' self-directed learning in terms of learning motivation. The item "I know what I need to learn" has the highest mean of 4.22 with a descriptive equivalent of Very High. Meanwhile, the item "I enjoy finding answers to questions" has the lowest mean of 3.90 with a High descriptive equivalent.

**Table 1**  
*Level of Students' Self-Directed Learning in terms of Learning Motivation*

Item	SD	Mean	Description
I know what I need to learn.	0.84	4.22	Very High
Regardless of the results or effectiveness of my learning, I still like learning.	0.86	4.02	High
I strongly hope to constantly improve and excel in my learning.	0.93	4.10	High
My successes and failures inspire me to continue learning.	0.94	4.18	High
I enjoy finding answers to questions.	0.97	3.90	High
I will not give up learning even when faced with some difficulties.	0.88	4.18	High
<b>Category Mean</b>	<b>0.68</b>	<b>4.10</b>	<b>High</b>

The level of students' self-directed learning in terms of learning motivation has a category mean of 4.10 with a descriptive equivalent of High. This means that students' self-directed learning in terms of learning motivation is manifested. The findings suggest that learners are self-motivated, goal-oriented, and resilient, finding joy in discovery and persevering through challenges while continuously striving for improvement. The standard deviation of this indicator is 0.68 and indicates that there is uniformity of the responses and were closely clustered around the mean. This suggests a strong commitment to learning, characterized by intrinsic motivation, goal orientation, and resilience in overcoming challenges—a positive indicator for educational outcomes and personal growth of the students.

This finding is parallel to the study of Davidovitch and Dorot (2023) who found that high school students in Israel were highly motivated to learn. They further emphasized the significance of motivation in learning in the students' character development. Also, the study conducted in Riyadh determined that the level of intrinsic and extrinsic motivation for learning of students is high and was influenced by internal and external factors (Bin Abdulrahman *et al.*, 2023). Meanwhile, the study of Herpratiwi & Tohir (2022) noted that learning motivation is the inner drive allows the students to persevere in their own learning goals and motivation is needed to sustain efforts and enthusiasm in learning. Moreover, Dogham *et al.*, (2022) also stated that one of the self-directed learning advantage includes increased motivation. This means that the students' motivation for learning strengthens their self-directed learning abilities.

#### Level of Students' Self-Directed Learning in terms of Planning and Implementing

Table 2 presents the level of students' self-directed learning in terms of planning and Implementing. The items "I can establish my learning goals" and "I set the priorities of my learning" have the highest mean of 3.90. The mean of the two items has a descriptive equivalent of High. In contrast, the item that states "I am good at arranging and controlling my learning time" has the lowest mean of 3.53 with a corresponding descriptive equivalent of High.

**Table 2**

*Level of Students' Self-Directed Learning in terms of Planning and Implementing*

<b>Item</b>	<b>SD</b>	<b>Mean</b>	<b>Description</b>
I can establish my learning goals.	0.96	3.90	High
I know what learning strategies are appropriate for me in reaching my learning goals.	0.93	3.79	High
I set the priorities of my learning.	0.94	3.90	High
Whether in the clinical practicum, classroom or on my own, I can follow my own plan of learning.	0.89	3.54	High
I am good at arranging and controlling my learning time.	0.92	3.53	High
I know how to find resources for my learning.	0.95	3.73	High
<b>Category Mean</b>	<b>0.68</b>	<b>3.73</b>	<b>High</b>

The level of students' self-directed learning in terms of planning and implementing is manifested with its category mean of 3.73 with its corresponding description, which is High. This means that the level of students' self-directed learning in terms of planning and implementing is manifested. This also means that students have a strong sense of self-directed learning skills in terms of planning and implementing. With this data, it is evident that students were generally confident in their ability to set learning goals, prioritize tasks, select appropriate learning strategies, manage time and tasks, and locate learning resources effectively. Meanwhile, this indicator has the standard deviation of 0.68. This indicates that the responses were closer to the mean. It also reflects the low variability of the responses. This means that most of the students have similar perceptions on their self-directed learning abilities.

This result is aligned to the study Altinpulluk et al. (2023) which determined the high level of self-directed learning skills among students. It was found out that students were able of organize their own learning through planning, conducting and evaluating their own learning progress. In addition, the same results also showed with the study of Khalid et al. (2020) who discovered high level of self-managing and implementing one's learning among students. Further, the study of Dogham et al. (2022) explained that the students' ability such as planning and implementing his or her own learning is one important characteristic of a good self-directed learning abilities. Further, The SDL abilities such as ability to plan and implement which are all required for a person to succeed in lifelong learning (Karatas et. al., 2021).

**Level of Students' Self-Directed Learning in terms of Self-Monitoring**

Table 3 presents the data on the level of students' self-directed learning in terms of self-monitoring. The item that has the highest mean which is 4.00 is "I understand the strengths and weaknesses of my learning", while the item "I can evaluate on my own my learning outcomes" has the lowest mean of 3.61. Both of these items have a descriptive equivalent of High.

**Table 3**

*Level of Students' Self-Directed Learning in terms of Self-Monitoring*

<b>Item</b>	<b>SD</b>	<b>Mean</b>	<b>Description</b>
I can connect new knowledge with my own personal experiences.	0.89	3.95	High
I understand the strengths and weaknesses of my learning.	0.84	4.00	High
I can monitor my learning progress.	0.96	3.64	High

I can evaluate on my own my learning outcomes.	0.97	3.61	High
<b>Category Mean</b>	<b>0.72</b>	<b>3.80</b>	<b>High</b>

The level of students’ self-directed learning in terms of self-monitoring is high as evident in the category mean of 3.80. This means the students self-directed learning in terms of self-monitoring is manifested. With its standard deviation value of 0.72, this indicates the homogeneity of the responses in this indicator. Thus, there is a less variability in how the respondents perceive the items above indicating that they are proficient with these abilities. Furthermore, it is evident that the students generally perceive themselves as a depth in self-monitoring aspects of self-directed learning. Specifically, they are proficient in tasks such as connecting new knowledge with personal experiences, understanding their learning strengths and weaknesses, monitoring own learning progress and evaluating learning outcomes.

These results are congruent to the studies of Zhao & Ling (2022) and Guo (2022). They both determined the high level of self-management such as self-monitoring among students. Zhao & Ling (2022) noted that self-monitoring as self-directed learning skill was essential in order to foster positive outcomes in education. Meanwhile, the high level of self-monitoring was evident due to some factors such as environment support and is an effective approach to enhance academic endeavor (Guo, 022). This is supported with the idea of Faulhaber (2023) which states that self-monitoring is a process into which an individual develops an independent functioning that enhances academic endeavor. Additionally, having self-monitoring ability in science learning is a prerequisite to develop and achieve academic and professional competence (Mirzawati et al., 2020; Wong et al., 2021).

**Level of Students’ Self-Directed Learning in terms of Interpersonal Communication**

Table 4 below presents the level of self-directed learning in terms of interpersonal communication. In this indicator, the item “I would like to learn the language and culture of those whom I frequently interact with” has the highest mean of 3.89 with a descriptive equivalent of High. In contrast, the item with the lowest mean of 3.49 is “I am able to express messages effectively in oral presentations”. This also has the descriptive equivalent of High.

**Table 4**  
*Level of Students’ Self-Directed Learning in terms of Interpersonal Communication*

Item	SD	Mean	Description
My interaction with others helps me plan for further learning.	0.83	3.77	High
I would like to learn the language and culture of those whom I frequently interact with.	0.98	3.89	High
I am able to express messages effectively in oral presentations.	1.01	3.49	High
I am able to communicate messages effectively in writing.	1.07	3.50	High
<b>Category Mean</b>	<b>0.73</b>	<b>3.66</b>	<b>High</b>

The overall mean of the students’ responses of this indicator is 3.66 with its descriptive equivalent of high. This means that the level of students’ self-directed learning in terms of interpersonal communication is manifested. This is supported by the high level of agreement or consistency of the respondents’ responses which is expressed by its standard deviation of 0.73. This indicates the degree of variability or dispersion of their responses around the mean. This suggests a widespread proficiency in learning through interactions, effective communication in both oral and written forms, and a genuine interest in understanding diverse languages and cultures. The consistent responses highlight a solid foundation in interpersonal skills, crucial for collaborative learning and cultural awareness.

The result of this study corroborates with the study of Abid et al. (2022). They determined that in the secondary schools of Pakistan, students exhibited high level of competence in their interpersonal communication skills. Further, it suggests that students’ perception of this skill can foster an improve attitude towards learning. Another study showing high level of students’ interpersonal communication is the of study of

Lubis *et al.* (2019). Their results indicate that students' interpersonal communication was advanced, with an achievement rate of 78%. In this connection, the notion of Howell (2021) and Rusman (2017) are relevant which states that interpersonal communication can be referred to the process of exchanging ideas, information and experiences between people and seen as one important factor in self-directed learning. Further, they generally emphasized that the process of students' learning is greatly influenced by the learners' interior and surrounding environment.

### Summary of the Level of Students' Self-Directed Learning

Table 5 summarizes the level of the students' self-directed learning. The indicator "*Learning Motivation*" has the highest mean with a descriptive equivalent of High. Meanwhile, among all the indicators, the "*Interpersonal Communication*" has the lowest mean with its description equivalent of High.

**Table 5**  
*Summary of the Level of Students' Self-Directed Learning*

Indicators	SD	Mean	Description
Learning Motivation	0.68	4.10	High
Planning and Implementing	0.68	3.73	High
Self-Monitoring	0.72	3.80	High
Interpersonal Communication	0.73	3.66	High
<b>Category Mean</b>	<b>0.62</b>	<b>3.82</b>	<b>High</b>

The level of the students' self-directed learning has an overall mean of 3.82 with a descriptive equivalent of High. This means that the level of the students' self-directed learning is manifested. Furthermore, this indicates that the variable, self-directed learning, is highly rated across the different indicators. It further implies that the students generally display the strength to motivate themselves, plan and implement their learning activities, monitor their progress and communicate effectively with other learners.

On the other hand, the dispersion or variation of the students' responses around the mean is evident with its overall standard deviation of 0.62. In this context, it is evident that there is a moderate consistency in the students' self-assessment in their self-directed learning abilities. While it is true that most of the students rate themselves similarly, there is still some variation.

The high mean score of 3.82 and moderate standard deviation of 0.62 indicate strong overall self-directed learning among students, encompassing motivation, planning, monitoring, and interpersonal communication. While most students rate themselves similarly in these abilities, the slight variation in responses suggests individual perspectives on their self-directed learning skills. This diversity could reflect nuanced experiences and perceptions among learners, contributing to a rich learning environment where different strengths and approaches are recognized.

This result is aligned with the study of Khalid, *et al.* (2020) who determined the high level of self-directed learning of students and stated that this is significant and has a positive correlation to their academic achievements. Added to, they highlighted that self-directed learning skills of students such as self-monitoring and planning, are essential for academic success. Meanwhile, the high level of self-directed learning skills of students is due to the well-structured learning environments, which in turn positively contribute to their attitude toward learning and enhances learning outcomes (Geng, *et al.*, 2019). Further, the study of Erdogan (2015) implied that motivation and planning are critical components that affect lifelong learning. These are the factors that are universally important across different educational contexts.

### Level of Parental Involvement in terms of Parental Encouragement

Table 6 shows the level of parental involvement in terms of parental encouragement. The item "*To follow the teacher's directions*" has the highest mean of 4.26 with a descriptive equivalent of Very High. This is followed by the item "*To believe that I can do well in school*" that has a mean of 4.15 with a descriptive equivalent of High. On the other hand, the item "*To explain my ideas to the teacher*" has the lowest mean of 3.18 with a descriptive equivalent of Moderate.

**Table 6**

*Level of Parental Involvement in terms of Parental Encouragement*

Item	SD	Mean	Description
When I do not feel like doing schoolwork.	1.05	3.47	High
When I have trouble organizing schoolwork.	1.03	3.40	High
To try new ways to do schoolwork when I am having a hard time.	1.08	3.46	High
To be aware of how I am doing with schoolwork.	1.05	3.70	High
When I have trouble doing schoolwork.	1.05	3.41	High
To look for more information about school subjects.	1.10	3.62	High
To develop an interest in schoolwork.	1.07	3.84	High
To believe that I can do well in school.	0.94	4.15	High
To stick with problems until I solve them.	1.05	3.56	High
To believe that I can learn new things.	0.93	4.08	High
To ask other people for help when a problem is hard to solve.	1.21	3.64	High
To explain my ideas to the teacher.	1.12	3.18	Moderate
To follow the teacher's directions.	0.88	4.26	Very High
<b>Category Mean</b>	<b>0.62</b>	<b>3.67</b>	<b>High</b>

The level of parental involvement in terms of parental encouragement has a category mean of 3.67 with a descriptive equivalent of high. This means that the level of students' parental involvement in terms of parental encouragement is evident. Meanwhile this indicator has a standard deviation of 0.62. This indicates that the responses of students are clustered around the mean. This further implies that while most students perceive a high level of parental encouragement, there is some variability in their perceptions.

Overall, based on the data, this suggests that parents are significantly involved in encouraging their children in various aspects of schoolwork through providing motivation and support. Mainly, it is evident that there is a high and consistent encouragement from parents for following teachers' directives, which indicates a strong emphasis on adherence to classroom rules and instructions that could foster structured and disciplined learning environment that can positively impact students learning behavior. Meanwhile, parents give less emphasis on fostering communication skills indicating that there is a moderate level of parental encouragement in this area. This further implies that students do not experience the same level of encouragement in terms of communicating their ideas to teachers as to the other items.

The result is aligned with the findings on the recent studies of Shoekand (2023), Bohane & Bohane (2023) and NH et al. (2022). These studies have found out the students have high level of parental encouragement. They concluded that having high level of parental encouragement helps students overcome challenges in school and thus, improved the academic behavior and performance of the students. With this notion, according to Smoskoska (2020), parental involvement such as consistent encouragement produced positive outcomes with regard to improving students' competence in school. This idea is also supported by (Lawrence & Barathi, 2019). They emphasized that parental encouragement as aspect of parental involvement plays a significant role in the formation of a student's holistic life. It is seen as an important stimulus that enable a child to face different challenges, not only in the aspect of the academe but in life as well.

**Level of Parental Involvement in terms of Parental Modelling**

Table 7 presents the level of parental involvement in terms of parental modelling. In this indicator, the item that got the highest mean of 4.27 is "Do not give up when things get hard". This item has a descriptive equivalent of Very High. This is followed by the item "Can learn new things" with a mean of 4.16 and a High descriptive equivalent. While the item "Can explain what they think to others" has the lowest mean of 3.38 with a descriptive equivalent of Moderate.

**Table 7**

*Level of Parental Involvement in terms of Parental Modelling*

Item	SD	Mean	Description
Like to learn new things.	0.95	4.15	High
Know how to solve problems.	1.00	3.82	High
Enjoy figuring things out.	0.93	3.76	High
Do not give up when things get hard.	0.95	4.27	Very High
Ask others for help when a problem is hard to solve.	1.07	3.67	High
Can explain what they think to others.	1.03	3.38	Moderate
Can learn new things.	0.93	4.16	High
Want to learn as much as possible.	0.89	4.06	High
Like to solve problems.	1.07	3.49	High
Try different ways to solve a problem when things get hard.	1.02	3.87	High
<b>Category Mean</b>	<b>0.62</b>	<b>3.86</b>	<b>High</b>

The level of parental involvement in terms of parental modelling is evident, with its category mean of 3.86 with a descriptive equivalent of high. This means that the level of parental involvement in terms of parental modelling is evident. This indicator also has the standard deviation of 0.62. This small value of standard deviation indicates the degree of variation or dispersion in the students' responses around the mean. This further suggests that there is moderate consistency in how students perceive parental modeling across these items. Overall, there is generally high agreement among students regarding the level of parental modeling.

The high mean score of 3.86 and low standard deviation of 0.62 indicate strong parental involvement through modeling positive behaviors among students. This suggests consistent perceptions of parents demonstrating traits like persistence, curiosity, and resilience, which are crucial for fostering a supportive learning environment. The minimal variability in responses underscores a solid consensus among students regarding the impactful role of parental modeling in shaping their attitudes and approaches to learning and problem-solving.

This is parallel to the findings of Kantova (2024) that students had higher parental modeling in their early teenage years. The study also indicates that students with higher parental involvement, such as parental modeling, have a higher probability of finishing their studies. Apart from this, high parental modeling is also evident in the senior high school students of the upper east region of Ghana and it was concluded that this is a significant factor in students' school behavior and academic performance (Ayimbila *et al.*, 2022). In support to this, Saa'da (2021) noted that when learners see their parents as being more involved in their academic endeavors, they will become more motivated. Therefore, in students' education, parents' attitudes towards schooling really matter. Moreover, according to Bradley *et al.* (2019), to influence success, parents must maintain positive relationships with their children. This positive attitude can be achieved by portraying positive behaviors that indirectly provide support in their child's academic life.

**Level of Parental Involvement in terms of Parental Reinforcement**

Table 8 provides the level of parental involvement in terms of parental reinforcement. In this indicator, all of the items have the descriptive equivalent of High, with the exemption of the item *“Want to learn new things”* with a descriptive equivalent of Very High which has the highest mean of 4.31. This is followed by the item *“Try to learn as much as possible”* that has a mean of 4.16. Meanwhile, the item *“Explain what I think to my teacher”* has the lowest mean of 3.48.



**Table 8**

*Level of Parental Involvement in terms of Parental Reinforcement*

<b>Item</b>	<b>SD</b>	<b>Mean</b>	<b>Description</b>
Want to learn new things.	0.89	4.31	Very High
Try to learn as much as possible.	0.83	4.16	High
Have a good attitude about doing my homework.	1.01	4.15	High
Keep working on homework even when I do not feel like it.	1.06	3.55	High
Ask the teacher for help.	1.01	3.87	High
Explain what I think to my teacher.	1.08	3.48	High
Explain to them what I think about school.	1.15	3.67	High
Work hard on homework.	1.12	3.94	High
Understand how to solve problems.	1.01	3.90	High
Stick with a problem until I solve it.	1.02	3.70	High
Organize my schoolwork.	1.01	3.90	High
Check my work.	1.11	3.93	High
Find new ways to do schoolwork when I get stuck.	1.05	3.77	High
<b>Category Mean</b>	<b>0.67</b>	<b>3.87</b>	<b>High</b>

The level of parental involvement in terms of parental reinforcement has a category mean of 3.87 with a High descriptive equivalent. This means that the level of parental involvement in terms of parental reinforcement is evident. The standard deviation of 0.67 indicates the homogeneity of the responses of this indicator since the students' responses were closely dispersed around the mean. Furthermore, the standard deviation value also tells us that there is relatively moderate consistency in how students perceive parental reinforcement. This means that while there is generally high agreement among students regarding the level of parental support, there is still some variability in these perceptions.

The results further imply that students generally perceive a high level of parental reinforcement across the items such as learning new things, working on homework, seeking help, problem-solving, and organization. This suggests that parents are actively reinforcing positive behaviors and attitudes related to academics, which can contribute to students' motivation and persistence. In addition, aside from the fact that students overwhelmingly perceive their parents as strongly reinforcing their curiosity and desire to explore new topics and skills, it is also evident that students perceive less parental reinforcement in encouraging them to articulate their thoughts and ideas to their teachers.

These findings are congruent the study of Ela Kizilkaya & Sari (2021) who found out that parental reinforcement is evident among the students. They noted that the use of parental reinforcements is effective in instilling appropriate learning behavior to the students. They believed that it is with the parents' guidance and aid that students could greatly experience success. This is also relevant to Indianti *et al.* (2019) who emphasized the importance of why parents need to incorporate positive reinforcement on their child especially on developing their child's academic well-being. According to this study, positive reinforcements provides clear expectations and internal motivation. Added to, applying parental reinforcement helps a child to understand adult expectations and behave appropriately in an environment (Saa'da, 2021).

**Level of Parental Involvement in terms of Parental Instruction**

Table 9 provides the level of parental involvement in terms of parental instruction. The item that has the highest mean in this indicator was "to follow the teacher's directions", 4.17, followed by the item "to work hard" with the mean of 4. 10. Both of these items have a descriptive equivalent of High. Meanwhile, the item "how to check homework as I go along" that has the lowest mean of 3.61, still with the descriptive equivalent of High.

**Table 9**

*Level of Parental Involvement in terms of Parental Instruction*

Item	SD	Mean	Description
to go at my own pace while doing schoolwork.	0.98	3.87	High
to take a break from my work when I get frustrated.	1.06	3.89	High
how to check homework as I go along.	0.97	3.61	High
how to get along with others in my class.	0.97	3.75	High
to follow the teacher's directions.	0.99	4.17	High
how to make my homework fun.	1.12	3.63	High
how to find out more about the things that I am interested.	0.94	3.86	High
to try the problems that help me learn the most.	1.01	3.83	High
to have a good attitude about my homework.	1.03	4.01	High
to keep trying when I get stuck.	0.99	3.80	High
to stick with my homework until I finish it.	0.98	3.82	High
to work hard.	1.06	4.10	High
to communicate with the teacher when I have questions.	1.05	3.84	High
to ask questions when I don't understand something.	0.96	3.97	High
to make sure I understand one part before going to the next.	1.11	3.89	High
<b>Category Mean</b>	<b>0.65</b>	<b>3.87</b>	<b>High</b>

The level of parental involvement in terms of parental instruction can be determined by its overall mean of 3.87 and the descriptive equivalent of high. This means that the level of parental involvement in terms of parental instruction is evident. The standard deviation of 0.65 indicates less variability in the responses of the students, as their responses are clustered around the mean. This further implies that generally, there is a uniform perception of parental involvement with some individual differences among the respondents. With the data above, shows that parents provide more emphasis on the importance of adhering to classroom instructions, which can enhance classroom discipline. However, it also shows that parents tend to focus less on teaching self-checking habits for homework to their students.

The results have shown that students perceive a significant level of involvement from their parents in guiding their academic activities. High scores across various items suggest that parents are actively engaged in various aspects of their children's education, from pacing their schoolwork to maintaining a positive attitude and working hard. This level of involvement likely contributes positively to students' academic performance and overall attitude towards learning.

The results jive with the study of the Zhang (2020) parental instruction through parent-child communication is evident the adolescent students. The study further revealed the quality of parent-child interaction is associated with how the students performed in school and suggests that this connection must be practiced and strengthened for the benefit of the students. Along with this is the study of Latipah et al. (2021) who found out that there was a significant and positive correlation between parental instruction and learning, and it was concluded that students' learning can be determined based on the level of involvement of parents in students' learning. In addition, it is through parental instruction, that students were able to obtain and learn effective learning strategies which is done through the healthy communication between parents and students (Smokoska, 2020).

**Summary of the Level of Parental Involvement**

Table 10 shows the summary on the level of parental involvement. The indicators "Parental Reinforcement" and "Parental Instruction" had the highest mean. Both of the indicators have a mean of 3.87 with the descriptive equivalent of High. On the other hand, although the indicator "Parental Encouragement" got the lowest mean of 3.67, it still has the descriptive equivalent of High.

**Table 10**  
*Summary of the Level of Parental Involvement*

Indicators	SD	Mean	Description
Parental Encouragement	0.62	3.67	High
Parental Modelling	0.62	3.86	High
Parental Reinforcement	0.67	3.87	High
Parental Instruction	0.65	3.87	High
<b>Category Mean</b>	<b>0.57</b>	<b>3.82</b>	<b>High</b>

The level of parental involvement has a category mean of 3.82 with a descriptive equivalent of High. This means that the level of parental involvement of students is evident. This indicator also has the low variability of the responses since its standard deviation is only 0.57, which is much closer to the mean. Further, this indicates the high consensus of the students as to their perception on the level of parental involvement they have. However, there are still variations on the students' perception. On the other hand, the data above also tells us that even though parents are particularly strong in reinforcing their children's positive behaviors and achievements, there may be slightly less emphasis on the part of encouraging students' learning.

The result further implies that parents are actively engaged in their children's education through encouragement, modeling, reinforcement, and instruction. The implications of such a high mean are significant, as it reflects a positive trend where parents are consistently supporting their children's academic and personal development. This is in consonance with the ideas of Yigzaw (2019), who determined the high level of parents' involvement and noted its importance in implementing the operation of educational system is seen as one key factor for its success. Meanwhile, Yahaya *et al.* (2020) highlighted the importance of contribution of parental involvement on a child's education. They have pointed out its primary significance on students' academic success and achievement in schools.

**Level of students' Self-Efficacy in terms of Academic Self-Efficacy**

Table 11 shows the level of students' self-efficacy in terms of academic self-efficacy. The item "I can get teacher's help when I get stuck on schoolwork" has the highest mean of 3.94 with a descriptive equivalent of High. Meanwhile, item "I can study a chapter for a test" has the lowest mean of 3.50 with a descriptive equivalent also of High.

**Table 11**  
*Level of students' Self-Efficacy in terms of Academic Self-Efficacy*

Item	SD	Mean	Description
I can get teacher's help when I get stuck on schoolwork.	0.94	3.94	High
I can study when there are other interesting things to do.	0.95	3.73	High
I can study a chapter for a test.	0.98	3.50	High
I can succeed in finishing all my homework every day.	1.06	3.52	High
I can pay attention during every class.	1.05	3.65	High
I can pass all subjects	1.16	3.58	High
I can make my parents satisfied with my schoolwork	1.07	3.79	High
I can pass a test	1.05	3.51	High
<b>Category Mean</b>	<b>0.69</b>	<b>3.65</b>	<b>High</b>

The level of students' self-efficacy in terms of academic self-efficacy has a category mean of 3.65 with a descriptive equivalent of High. This means that the level of students' self-efficacy in terms of academic self-

efficacy is manifested. The standard deviation of 0.69 across the category indicates a moderate level of variability in students' responses regarding their academic self-efficacy. This suggests that there are differences among students in how strongly they perceive their abilities across different academic tasks.

Based on the data above, it indicates that students feel highly confident in their ability to seek assistance from teachers when needed. However, while it is true that students generally feel confident in their academic abilities, studying a chapter thoroughly for a test might be perceived as more challenging compared to other tasks. Furthermore, generally, the results indicate a high level of students' self-efficacy in academic tasks. This means that students feel confident in their abilities in handling academic challenges such as seeking help from teachers, studying despite distractions, completing homework, and performing well in tests. Having high academic self-efficacy is crucial as it correlates positively with academic achievement, motivation, and persistence in learning.

These findings are parallel to the study of Hayat (2020) who observed high academic self-efficacy among the students. He highlighted that academic self-efficacy is essential in influencing academic performance and attitude in Science, emphasizing its role in shaping students' beliefs about their capabilities in mastering academic challenges. Yokoyama (2019) further supports this by demonstrating that high academic self-efficacy correlates positively with increased motivation and improved attitude to learn, which leads to better academic performance. This suggests that nurturing students' confidence in their abilities can enhance their motivation and attitude in learning, ultimately fostering better academic outcomes.

#### Level of students' Self-Efficacy in terms of Social Self-Efficacy

Table 12 presents the level of students' self-directed learning in terms of social self-efficacy. In this indicator, the item that has the lowest mean of 3.23 was "I can have a chat with an unfamiliar person" with the descriptive equivalent of Moderate. Conversely, the item that has the highest mean of 4.07 was "I can become friends with other children" with the descriptive equivalent of High.

**Table 12**  
*Level of students' Self-Efficacy in terms of Social Self-Efficacy*

Item	SD	Mean	Description
I can express my opinions when other classmates disagree with me.	1.04	3.51	High
I can become friends with other children.	0.90	4.07	High
I can have a chat with an unfamiliar person.	1.22	3.23	Moderate
I can work in harmony with my classmates.	1.01	3.52	High
I can tell other children that they are doing something that I do not like.	1.17	3.26	Moderate
I can tell a funny event to a group of children.	1.13	3.55	High
I do succeed in staying friends with other children.	1.01	3.63	High
I do succeed in preventing quarrels with other children.	0.96	3.39	Moderate
<b>Category Mean</b>	<b>0.70</b>	<b>3.52</b>	<b>High</b>

The level of students' self-directed learning in terms of social self-efficacy is summarized with its category mean of 3.52. This means that the level of students' self-directed learning in terms of social self-efficacy is manifested. Also, the standard deviation of 0.70 shows that the responses of the students is clustered around the mean. The SD suggests that there are significant differences among students in how they perceive their social abilities. The data above implies that students are confident in their ability to make friends in which this a fundamental aspect of social development that can provide emotional support and a sense of belonging. Contrary to this, the data also suggests that students feel less confident in initiating conversations with strangers and in asserting themselves when they disapprove of others' actions.

Generally, the results indicate that students feel confident in their abilities to perform social interactions effectively. It reflects a positive self-perception in social contexts, which are all critical in building and maintaining relationships, resolving conflicts, and participating in group activities along with their peers. It is

with high social self-efficacy that better peer relationships, improved communication skills, and a more supportive social environment in the school setting can be achieved. The manifestation of students' high level of social self-efficacy was also determined by the study of Liu (2020). This study further underscores the importance of social self-efficacy in motivating student participation in educational contexts. He suggests that fostering social self-efficacy can positively influence students' willingness to engage in learning activities and improve their overall educational outcomes. Additionally, incorporating high social self-efficacy into educational practices can benefit students of all achievement levels and create more inclusive, supportive and productive learning environment (Shah et al., 2024).

### Level of students' Self-Efficacy in terms of Emotional Self-Efficacy

Table 13 provides the level of students' self-efficacy in terms of emotional self-efficacy. The item "I do succeed in cheering myself up when an unpleasant event has happened" has the highest mean of 3.75 with the descriptive equivalent of High. Differing from this is the item "I do succeed in suppressing unpleasant thoughts" which has the lowest mean of 3.22 with a descriptive equivalent of High.

**Table 13**  
*Level of students' Self-Efficacy in terms of Emotional Self-Efficacy*

Item	SD	Mean	Description
I do succeed in cheering myself up when an unpleasant event has happened.	1.00	3.75	High
I do succeed in becoming calm again when I am very scared.	1.10	3.44	High
I can prevent myself to become nervous.	1.10	3.63	High
I can control my feelings.	1.04	3.52	High
I can give myself a pep talk when I feel low.	1.18	3.31	Moderate
I can tell a friend that I don't feel well.	1.00	3.27	Moderate
I do succeed in suppressing unpleasant thoughts.	1.09	3.22	Moderate
<b>Category Mean</b>	<b>0.69</b>	<b>3.49</b>	<b>High</b>

The category mean of 3.49, indicates the level of students' self-efficacy in terms of emotional self-efficacy, with a descriptive equivalent of High. This means that the level of students' self-efficacy in terms of emotional self-efficacy is manifested. Apart from this, the items with the highest and lowest mean values suggest, that, while there are students who feel most confident in their ability to self-soothe and recover emotionally after negative experiences, there are also students who feel less confident in managing intrusive thoughts and expressing their emotional state to others. On the other hand, the standard deviation (SD) of 0.69 across the category indicates a moderate level of variability in students' emotional self-efficacy responses. While the overall confidence in emotional management is high, the moderate SD suggests that there are notable differences among students in how strongly they perceive their abilities to manage emotions.

The result further indicates a generally high level of students' emotional self-efficacy, reflecting their confidence in managing various emotional challenges effectively. This suggests that students feel capable of cheering themselves up after unpleasant events, remaining calm when scared, preventing nervousness, and controlling their feelings. Emotional self-efficacy is crucial for the overall well-being of students as it enables them to cope with stress, regulate emotions, and maintain positive mental health. Having a high level of emotional self-efficacy signifies essential skills to navigate and cope with emotional experiences, which can contribute positively to their academic and personal lives. These findings corroborate with the study of Yu et al. (2022). They found out that students have strong beliefs in their ability to manage their emotions effectively (high emotional self-efficacy) and this enhances their academic outcomes as well. Moreover, the idea of Chang & Tsai (2022) strengthens this claim in which students with higher emotional self-efficacy tended to perform better academically than those who did not believe as strongly in their ability to regulate their emotions.

### Summary of the Level of students' Self-Efficacy

The 14 summarizes the level of students' self-efficacy. All of the indicators in this variable have a descriptive equivalent of high. The indicator "*Academic Self-Efficacy*" has the highest mean of 3.65. In contrast, the indicator "*Emotional Self-Efficacy*" has the lowest mean of 3.49. This indicates that students feel most confident in their academic abilities which includes studying, test-taking, and seeking help when needed. It is also evident that students feel slightly less confident in managing their emotions compared to their confidence in academic and social domains.

**Table 14**  
*Summary of the Level of students' Self-Efficacy*

Indicators	SD	Mean	Description
Academic Self-Efficacy	0.69	3.65	High
Social Self-Efficacy	0.70	3.52	High
Emotional Self-Efficacy	0.69	3.49	High
<b>Category Mean</b>	<b>0.56</b>	<b>3.55</b>	<b>High</b>

The level of students' self-efficacy is reflected in its category mean of 3.55 with a descriptive equivalent of High. This means that the level of students' self-efficacy is manifested. The standard deviation of 0.56 implies homogeneity in the students' responses which were also tightly clustered around the mean. This suggests that while there may be some differences among students in how they perceive their abilities within each indicator, the overall consensus is that self-efficacy is consistently high across the respondents. This indicates further a high degree of agreement among students regarding their capabilities, which can be beneficial for fostering a supportive and confident learning environment.

Based on the data above, it further implies a consistently high level of overall self-efficacy among students. This recommends that students perceive themselves as capable and confident across academic tasks, social interactions, and emotional regulation. These high self-efficacy levels are crucial as they contribute to students' ability to succeed academically, form healthy relationships, and manage their emotions and attitude effectively. The results jives with the study of Tabiliran *et al.* (2021), who proved the manifestation of high self-efficacy of their respondents. They also concluded that self-efficacy is associated with students' learning motivation attitude. Students who possessed higher self-efficacy felt confident in completing assigned tasks, which served as a powerful motivator for them to achieve greater success. Increased self-efficacy was also connected to accomplishing more life goals. Moreover, Moneva & Tribunalo (2020) found that when students feel efficient about completing tasks, they approach their work positively. On the other hand, if they doubt their abilities, it can affect their mood and how they engage with their surroundings. Implying that the level of efficacy of students has influences their overall attitude.

### Level of students' Attitude Towards Science in terms of Anxiety in Science

Table 15 shows the level of students' attitude towards science in terms of anxiety in science. The item "*I often think, "I cannot do this," when a science assignment seems hard*" has the highest mean of 2.90 with the descriptive equivalent of Moderate. This is followed by the item "*No matter how hard I try I cannot understand science*" with mean of 2.89 having a descriptive equivalent of Moderate. In contrast, the item "*It scares me to have to take a science class*" has the lowest mean of 2.56 with a descriptive equivalent of Low. This tells us that there are moderate levels of anxiety and self-doubt matters among students regarding science subject. Meanwhile, this also indicates that students generally have relatively low fear or anxiety in science classes.

**Table 15**
*Level of students' attitude towards Science in terms of Anxiety in Science*

Item	SD	Mean	Description
No matter how hard I try, I cannot understand science.	1.12	2.89	Moderate
I feel tense or upset when someone talks to me about science.	1.13	2.67	Moderate
I often think, "I cannot do this," when a science assignment seems hard.	1.12	2.90	Moderate
Working with science upsets me.	1.14	2.66	Moderate
It makes me nervous to even think about doing science.	1.17	2.74	Moderate
It scares me to have to take a science class.	1.16	2.56	Low
If I do not see how to do a science assignment right away, I never get it.	1.16	2.73	Moderate
<b>Category Mean</b>	<b>0.93</b>	<b>2.74</b>	<b>Moderate</b>

The level of students' attitude towards science in terms of anxiety in science is marked on its category mean which is 2.74 with a descriptive equivalent of Moderate. This means that the level of students' positive attitude towards science in terms of anxiety in science is moderately evident. The standard deviation (SD) of 0.93 for the category mean indicates a moderate level of variability in students' attitudes towards science in terms of their anxiety. Although, the responses were closer to the mean, the SD further suggests that there are individual differences among students in how they experience and perceive anxiety related to science.

Furthermore, the results imply that, generally, there is a moderate level of anxiety among students towards science. This also indicates that students experience some degree of uneasiness, tension, or self-doubt when faced with science-related tasks or discussions. A moderate level of anxiety in science can impact students' engagement, motivation, and performance in science-related activities.

The findings of this study is congruent to the study of Fia *et al.* (2022) who observed that anxiety in science subject is evident to the students. They further revealed that this attitude of students towards science reduced their interest, affect school attendance and may prevent them from pursuing science-related programs in the future. Added to, the students' anxiety in science was evident and mainly are related to its lessons, specifically to the difficulty of the lessons and exams (Özbuğutu, 2021). Moreover, the idea of D'agostin *et al.* (2020) that, anxiety, as an attitude towards science may negatively impact a students' performance is connected to these findings. According to England *et al.* (2019), anxiety of students in their science classes impacts their interest and motivation in learning. On the other hand, this kind of attitude maybe affect by the people that surrounds them. For instance, Caymaz and Aydin (2022) stated that the attitude of teachers and parents may also be factors that cause anxiety in science. Furthermore, another factor is that, when teachers' activities are not appropriately aligned with students' learning maturity in a subject, it can lead to students developing a negative perception and even a fear of the subject. Therefore, it is essential to understand how attitudes towards science are influenced by various factors to comprehend how this relationship impacts students' subject choices (Mao *et al.*, 2021).

### Level of students' Attitude Towards Science in terms of Enjoyment in Science

Table 16 presents the level of students' attitude towards science in terms of enjoyment in science. The item with the highest mean of 3.60 is "*Science is something that I enjoy very much*". The item "*I have a real desire to learn science*" has the second highest mean of 3.56. Both of these items have the descriptive equivalent of High. Conversely, the item "*When I hear the word "science," I have a feeling of dislike*" has the lowest mean of 3.03 with the descriptive equivalent of Moderate. Based on these data, it indicates that students generally have a strong liking for science and a genuine interest in learning it. However, it also suggests that while most students have a positive attitude towards science, there those who have a negative perception to the subject.

**Table 16**
*Level of students' attitude towards Science in terms of Enjoyment in Science*

Item	SD	Mean	Description
Science is something that I enjoy very much.	1.05	3.60	High
I do not do very well in science.	1.03	3.12	Moderate
I feel at ease in a science class.	0.94	3.22	Moderate
I would like to do some extra or unassigned reading in science.	0.98	3.20	Moderate
When I hear the word "science," I have a feeling of dislike.	1.09	2.65	Moderate
I would like to spend less time in school studying science.	1.04	2.95	Moderate
Sometimes I read ahead in our science book.	1.03	3.10	Moderate
It does not disturb or upset me to do science assignments.	1.01	3.30	Moderate
I would like a job that does not use any science.	1.11	3.03	Moderate
I enjoy talking to other people about science.	1.07	3.37	Moderate
I enjoy watching science programs on television.	1.08	3.49	High
I like the challenge of science assignments.	1.04	3.34	Moderate
The only reason I am taking science is that I have to.	1.06	3.24	Moderate
I have a good feeling toward science.	1.04	3.43	High
Science is one of my favorite subjects.	1.13	3.27	Moderate
I have a real desire to learn science.	1.05	3.56	High
<b>Category Mean</b>	<b>0.58</b>	<b>3.24</b>	<b>Moderate</b>

The level of students' attitude towards science in terms of enjoyment in science has the category mean of 3.24 with a descriptive equivalent of Moderate. This means that the level of students' positive attitude towards science in terms of enjoyment in science is moderately evident. Meanwhile, the standard deviation (SD) of 0.58 indicates a relatively low level of variability in students' attitudes towards enjoyment in science. Thus, there is homogeneity in the responses of the students as the SD is closely clustered around the mean. This also means that most students shared similar perceptions of their enjoyment in science, as it reflects a moderate enjoyment of science across the respondents.

The result further indicates a moderate level of enjoyment towards science among students. To be precise, there is a general positive attitude towards science and there is also room for improvement in how much students enjoy and engage with the subject. Moreover, a moderate enjoyment level can impact students' motivation to learn, participate in class, and pursue further studies in science.

These findings are parallel the study of Adlaon and Espejon (2022). They have discovered the moderate excitement of students when it comes to learning science. Further, they also emphasized that enhancing further learners' motivation leads to the development of a positive attitude towards science such as their enjoyment learning the subject. This is because according to Ainley (2017), motivation has an important role and act as a factor that contributes to a learner's attitude in science. In addition, learners' attitude and engagement towards science driven by motivation provides a big impact on their experience in learning the subject (Godec et al., 2018). Tanti et al. (2021) also have found out that the enjoyment in science is evident in their study. They highlighted the importance of enjoyment and interest in science as key factors influencing students' positive attitudes towards science among the students.

### Level of students' Attitude Towards Science in terms of Science in Society

Table 17 shows the level of students' attitude towards science in terms of science in society. In this indicator, the item "*Science is of great importance to a country's development*" has the highest mean of 3.90 with a descriptive equivalent of High. While the item "*Most of the ideas in science are not very useful*" has the lowest mean of 2.63 with the descriptive equivalent of Moderate. This implies high consensus among students regarding the significant role of science in societal advancement. Apart from this, it also indicates moderate or less agreement that most ideas in science are not useful.



**Table 17**

*Level of students' attitude towards Science in terms of Science in Society*

Item	SD	Mean	Description
Science is useful for solving the problems of everyday life.	1.06	3.86	High
There is little need for science in most of today's jobs.	1.00	3.62	High
Most people should study some science.	0.93	3.85	High
Science is of great importance to a country's development.	0.99	3.90	High
It is important to know science in order to get a good job.	0.99	3.60	High
You can get along perfectly well in everyday life without science.	1.11	3.23	Moderate
Most of the ideas in science are not very useful.	1.17	2.63	Moderate
<b>Category Mean</b>	<b>0.64</b>	<b>3.53</b>	<b>High</b>

The level of students' attitude towards science in terms of science in society is reflected from its category mean of 3.53 with a descriptive equivalent of High. This means that the students' positive attitude towards science in terms of how they perceived science in society is evident. The standard deviation (SD) of 0.64 for the category mean indicates a relatively low level of variability in students' attitudes towards science in society. This implies that there is a high degree of agreement or homogeneity of responses among students regarding the importance and utility of science in everyday life and societal progress.

In general, the result indicates positive attitude towards science in society among students. Furthermore, this suggests that students perceive science as useful, important for solving everyday problems, contributing to national development, and beneficial for career prospects. The results are parallel to the studies of El & Al (2021) and Jack (2018)

Who both found out that there is a high and positive attitude towards science in society and noted that science as part of the society is essential to its progress and development. On the other hand, Putri et al. (2024) revealed that it is with science that students could benefit and learn from that aids in providing greater opportunities for future generations. Moreover, understanding and learning science and its implication to our daily lives is necessary. Moreover, through the understanding of science concepts and the development of science-related skills such as investigation, scientific examination and application of scientific concepts, students may perform scientific researches that may benefit the wider community (Maranan, 2017).

**Summary of the Level of students' Attitude Towards Science**

Table 18 provides the summary on the level of students' attitude towards science. In this variable, the indicator "Science in Society" has the highest mean of 3.53 with the descriptive equivalent of High. This is followed by the indicator "Enjoyment in Science" which has the mean of 3.24 along with its descriptive equivalent of Moderate. While, the indicator "Anxiety in Science" has the lowest mean of 2.74 with a descriptive equivalent of High. This indicates that students generally perceive science as useful for solving everyday problems, essential for national development, and important for career prospects. Conversely, while its dominant that students perceived moderate enjoyment from learning science, in the moderate range, it also suggests that students experience some level of anxiety or apprehension towards science-related tasks or discussions.

**Table 18**

*Summary of the Level of students' Attitude Towards Science*

Indicators	SD	Mean	Description
Anxiety in Science	0.93	2.74	Moderate
Enjoyment in Science	0.58	3.24	Moderate
Science in Society	0.64	3.53	High
<b>Category Mean</b>	<b>0.43</b>	<b>3.40</b>	<b>High</b>

Meanwhile, the level of students' attitude towards science has the category mean of 3.40 with a descriptive equivalent of High. This means that the students' positive attitude towards science is evident. With its standard deviation of 0.43, this indicates the less variability on the students' responses as it is also tightly clustered around the mean. Moreover, this implies a high degree of consensus among students regarding their perceptions across anxiety, enjoyment, and societal relevance of science.

Furthermore, the results indicate that students' attitudes towards science corresponds to an overall positive outlook. This shows strong consensus among students regarding the value and relevance of science in both personal and societal contexts. The positive attitudes towards science are evident across enjoyment, societal importance, and despite moderate levels of anxiety.

This finding is supported by Lee and Kim (2018) and Latipah *et al.* (2020), who determined the students' positive attitudes towards the science subject and this also leads to active participation in the learning activities. In this connection, Rattu (2017), Rabgay (2018), and García *et al.* (2020) emphasized that positive attitudes towards science improve academic test scores, social skills, confidence, and understanding of scientific concepts. In addition, Kurniawan (2019) extended these insights by showing that positive attitudes also foster scientific thinking, a desire to learn science, and an interest in science-related careers. Over the years, numerous studies, including those by Darmawan (2020) and Kharuddin *et al.* (2021), have explored the link between students' attitudes and their achievement in science, consistently finding that positive attitudes are crucial for academic success. Collectively, these findings underscore the importance of fostering a positive attitude towards science to enhance students' engagement, performance, and overall development in science education.

### Relationship Between Variables

Table 19 shows the relationship between variables: parental involvement, students' self-directed learning, self-efficacy and attitude towards science.

Based on the table, parental involvement, students' self-directed learning and self-efficacy have positively correlated to the students' attitude towards science ( $p < 0.05$ ). In specific, parental involvement and students' attitude towards science showed weak positive correlation with its  $r$ -value of 0.427. Meanwhile, students' self-directed learning and students' attitude towards science indicate moderate positive correlation with its  $r$ -value of 0.572. Students' self-efficacy towards students' attitude towards science has an  $r$ -value of 0.443 also revealed weak positive correlation.

On the other hand, parental involvement and students' self-efficacy are also positively correlated and both are having significant relationship to the students' self-directed learning ( $p < 0.05$ ). With the  $r$ -value of 0.713, there is a strong positive correlation between parental involvement and students' self-directed learning. Also, students' self-efficacy and self-directed learning has an  $r$ -value of 0.722 showed strong positive correlation. Lastly, parental involvement and self-efficacy indicates moderate positive correlation with its  $r$ -value of 0.697.

The positive correlation between these variables indicates that as one variable increases, the others tend to increase as well. The results further indicate that higher levels of parental involvement, students' self-directed learning, and self-efficacy significantly enhance students' attitudes towards science. Additionally, elevated levels of parental involvement and students' self-efficacy are closely associated with higher levels of self-directed learning. Furthermore, increased parental involvement directly contributes to improved student self-efficacy.

**Table 19**  
*Relationship between Variables*

Variables Correlated	R	p-value	Remarks
Parental Involvement and Students' Attitude Towards Science	0.427	0.000	Significant
Students' Self-Directed Learning and Attitude Towards Science	0.572	0.000	Significant

---

Students' Self-Efficacy and Attitude Towards Science	0.443	0.000	Significant
Parental Involvement and Students' Self-Directed Learning	0.713	0.000	Significant
Students' Self-Efficacy and Self-Directed Learning	0.722	0.000	Significant
Parental Involvement and Students' Self-Efficacy	0.697	0.000	Significant

---

The results were related to the studies which have consistently highlighted the pivotal role of parental involvement in shaping students' attitudes towards science. Latipah *et al.* (2021) underscored a significant positive correlation between parental instruction and students' learning attitudes, emphasizing that parental engagement enhances students' interest and ability in science. This finding as well resonates with the National Science Teachers Association (NSTA), which advocates for parental involvement as a catalyst for nurturing scientific curiosity and competence among students. Moreover, Oluwatelure and Oloruntegbe (2016) further supported this framework by demonstrating that the extent of parental involvement has significant relationship with the nature of students' attitudes towards science subjects.

Meanwhile, the significant relationship of students' self-directed learning and their attitude towards science is also in aligned with the study of Premkumar *et al.* (2018) who underscored that individual characteristics, particularly attitudes towards a subject, are closely intertwined with self-directed learning. Fisher (2001), further substantiated this by proposing that self-directed learning itself cultivates positive attitudes towards the subject matter such as science. Moreover, Laine *et al.* (2021) articulated a conceptual framework wherein self-directed learning specifically in science education fosters a constructive attitude among students.

Meanwhile, the findings of Hayat (2020) and Yokoyama (2019) were also aligned with the results of this study. Hayat emphasizes that academic self-efficacy significantly influences performance in science, indicating a strong correlation between self-efficacy levels and attitudes towards learning the subject. This suggests that students who perceive themselves as capable and effective are more likely to approach science with a positive attitude. Yokoyama's study further supports this notion by highlighting that high self-efficacy enhances learners' motivation to engage with academic content, can foster a positive attitude towards learning in general.

Furthermore, Saa'da (2021) demonstrates a positive correlation between parental engagement and self-directed learning among Arab adolescents in Israel, emphasizing emotional support and academic-focused behaviors. On the other hand, Cook (2020) complements this by highlighting the parental role in nurturing and equipping children with essential skills for self-directed learning.

Furthermore, Dogham *et al.* (2022) found that students who exhibit readiness for self-directed learning tend to have self-efficacy levels ranging from average to above average. This readiness positively correlates with their overall self-efficacy, highlighting self-efficacy as a crucial component of self-directed learning preparation. Added to, Mirzawati *et al.* (2020) further strengthen this connection by demonstrating that higher levels of self-efficacy directly contribute to greater self-directedness in learning. Specifically, their findings indicated a substantial 23.1% contribution of self-efficacy to self-directed learning behaviors, affirming a positive and significant association between these constructs.

Finally, parental involvement significantly influences students' self-efficacy, as demonstrated by recent studies. Jose & D.P. (2023) found a positive correlation between perceived parental support and higher levels of self-efficacy among college students. Conversely, decreased parental support was linked to lower self-efficacy. Lv (2018) further explored this relationship, highlighting that both maternal and paternal involvement impact students' self-efficacy differently but significantly.

**Influence of Parental Involvement and Student's Self-Efficacy on the Students' Self-Directed Learning**

Table 20 shows the regression analysis on the Influence of Parental Involvement and Student's Self-Efficacy on the Students' Self-Directed Learning. The results showed that Parental Involvement and Students' Self-efficacy significantly predict Students Self-Direct Learning ( $p < 0.05$ ). The beta values ( $\beta = 0.441$ ,  $\beta = 0.484$ ) indicate that for every unit of increase of parental Involvement and Self-efficacy, Students' Self-Directed Learning will also increase by 0.441 unit and 0.484 unit, respectively.

**Table 20**

*Regression Analysis on the Influence of Parental Involvement and Student's Self-Efficacy on the Students' Self-Directed Learning*

Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t-stat	p-value	Decision @ $\alpha = 0.05$
	$\beta$	Standard Error	Beta			
(Constant)	0.419	0.172		2.432	0.016	
Parental Involvement	0.441	0.059	0.407	7.505	0.000	Rejected
Students' Self-Efficacy	0.484	0.060	0.439	8.094	0.000	Rejected
<i>Dependent Variable: Students' Self-Directed Learning</i>				<i>Adjusted R Square: 0.538</i>		
<i>F-ratio: 37.099</i>				<i>p-value: 0.000</i>		

The adjusted R-square value of 0.538 indicates that the model corresponds 53.8% of the variation in Students' Self-Directed Learning is attributed to Parental Involvement and Students' Self-efficacy. The coefficient of alienation, which is 46.2, suggests the extent to which other variables might explain the observed variance in Students' Self-Directed Learning.

A key finding by Wun (2023) highlights that parental involvement, characterized by emotional warmth and understanding, significantly enhances students' self-directed learning capabilities. This nurturing environment fosters a positive learning atmosphere, where students feel supported and encouraged. This kind of environment not only boosts their self-awareness and confidence but also instills a sense of responsibility towards their learning. Similarly, Farooq and Asim (2020) further corroborate these findings by emphasizing the predictive power of parental involvement on students' self-directed learning and reveals that a high extent of parental involvement is closely linked to a higher extent of self-directed learning among students.

Moreover, Liwanag and Galicia (2023) have proven the positive correlation between students' self-efficacy and their self-directed learning capabilities. In their findings, it indicates that self-efficacy is a substantial predictor of self-directed learning. Their study further emphasizes the necessity of enhancing self-efficacy among students to create better self-directed learning outcomes. In addition to this, Shohoudi et al. (2015) reinforced these findings by determining that self-efficacy is an excellent predictor of self-directed learning. They concluded that improving students' self-efficacy provides a strong foundation for promoting self-directed learning. The implication is that when students believe in their capacity to achieve and control their learning journey, they are more likely to engage in self-directed learning activities.

**Influence of Parental Involvement, Student's Self-Efficacy, and Self-Directed Learning on the Attitude Towards Science**

The data found in the table 21 presents the Regression Analysis on the Influence of Parental Involvement, Student's Self-Efficacy, and Self-Directed Learning on the Attitude Towards Science. The results revealed that Parental Involvement and Student's Self-Efficacy do not significantly predict Students' Attitude Towards Science ( $p > 0.05$ ). The variable, Students' Self-Directed Learning that significantly predicts Students'

Attitude Towards Science ( $p < 0.05$ ). Moreover, the beta value of ( $\beta = 0.360$ ) implies that for every unit increase of Students' Self-Self-Directed Learning, there is a corresponding increase in the Students' Attitude Towards Science by 0.360 units.

**Table 21**

*Regression Analysis on the Influence of Parental Involvement, Student's Self-Efficacy, and Self-Directed Learning on the Attitude Towards Science*

Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t-stat	p-value	Decision @ $\alpha = 0.05$
	$\beta$	Standard Error	Beta			
(Constant)	1.826	0.158		11.583	0.000	
Parental Involvement	0.013	0.059	0.017	0.221	0.825	Not Rejected
Students' Self-Efficacy	0.043	0.061	0.056	0.703	0.483	Not Rejected
Self-Directed Learning	0.360	0.056	0.520	6.406	0.000	Rejected

*Dependent Variable:* Attitude Towards Science      *Adjusted R Square:* 0.322  
*F-ratio:* 42.449      *p-value:* 0.000

The findings were apparent in the results of regression analysis where only 32.2% of the variance of Students' Attitude Towards Science were caused by three independent variables as indicated by the R square value of 0.322. This means that 67.8% of the variation can be attributed to other factors aside from the independent (exogenous) variables of this study.

The findings of this study is congruent to these studies which determined significant influence of students' self-directed learning to students' attitude towards science. In line with this, Faulhaber (2023), highlights that self-monitoring is an essential component of self-directed learning that stimulates independent functioning. Further, when students engage in self-directed learning, they develop crucial skills such as self-monitoring and self-assessment, which are aspects in shaping positive attitudes towards science. In addition, Mirzawati et al. (2020) and Wong et al. (2021) further emphasize that in the context of science education, self-directed learning enhances students' abilities to self-monitor and self-assess.

The findings of this study about parental involvement and students' self-efficacy, not having significant influence to the students' attitude towards science were not in consonance with the following studies which showed significant influence instead. For instance, Caymaz and Aydin (2022) highlight that parental attitudes can greatly affect students' anxiety towards science, an important indicator of their overall attitude towards the subject. When parents exhibit a negative or indifferent attitude towards science, it can unconsciously contribute to their children's anxiety and disinterest in the subject. Further, Bradley et al. (2019) found that students who have strong and positive relationships with their parents are more likely to achieve academic excellence. This suggests that the supportive and involved presence of parents not only enhances students' academic performance but also positively influences their attitude towards subjects like science.

On the other hand, Hacıeminoglu (2015) demonstrated a clear correlation, highlighting that higher levels of self-efficacy among students directly contribute to more positive attitudes towards science. This finding is further supported by Tuncer (2020), who expanded this relationship by showing that individuals with a stronger perception of self-efficacy tend to exhibit more favorable attitudes in science learning contexts.

**Test of the Hypothesized Models**

The figures below show the test of hypothesized models which are good fit and not fit. Figure 4 presents the combined influence of parental involvement, self-directed learning and self-efficacy to attitude towards science with the total variance of 12%. Parental involvement and self-efficacy with beta values of .01 and .04 respectively, do not significantly predict attitude towards science. However, self-directed learning having beta value of .36, significantly predicts attitude towards science. Meanwhile, self-efficacy has a variance of 16% due to influence of parental involvement with beta value of .69.

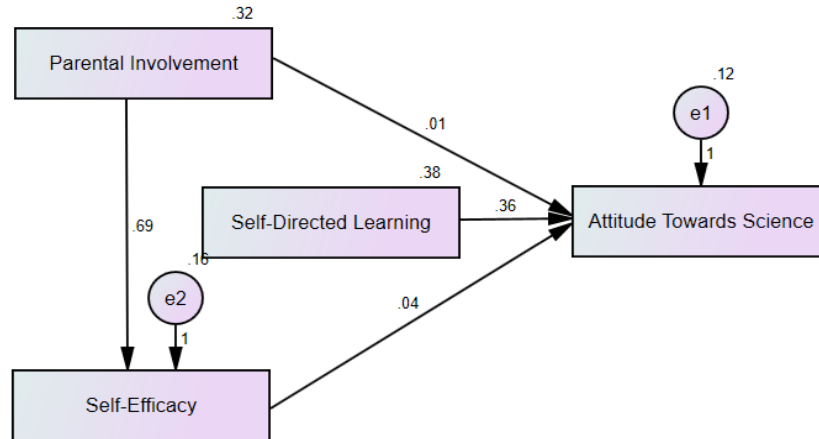


Figure 1. Model 1 of Attitude Towards Science

Table 22 presents the goodness of fit measures of model 1. In this model, the values of CMIN/DF=122.281, P-value=0.00, NFI=0.533, TLI=-0.406, CFI=0.531, GFI=0.767 and RMSEA=0.68. All the goodness-of-fit indices for Model 1 indicate that the model does not fit the data well. Each index fails to meet its respective criterion, thus, this model is not good fit model for attitude towards science.

**Table 22**

*Table 22. Goodness of Fit Measures of Model 1*

INDEX	CRITERION	MODEL 1 FIT VALUE
CMIN/DF	< 2.00	122.281
P – value	> 0.05	0.00
NFI	> 0.95	0.533
TLI	> 0.95	-0.406
CFI	> 0.95	0.531
GFI	> 0.95	0.767
RMSEA	< 0.05	0.68

Figure 5 shows the total of 12% variance of attitude towards science is explained by the influence of self-directed learning with beta value of .40. On the other hand, there is 16% variance of self-efficacy with the influence of parental involvement having beta value of .69. Moreover, the combined influence of parental involvement and self-efficacy is evident in the variance of 15% of self-directed learning with beta values of .44 and .48 respectively. The model is a good fit for the data; therefore, Parental Involvement and Self-Efficacy have indirect effect to Attitude Towards Science through Self-Directed Learning.

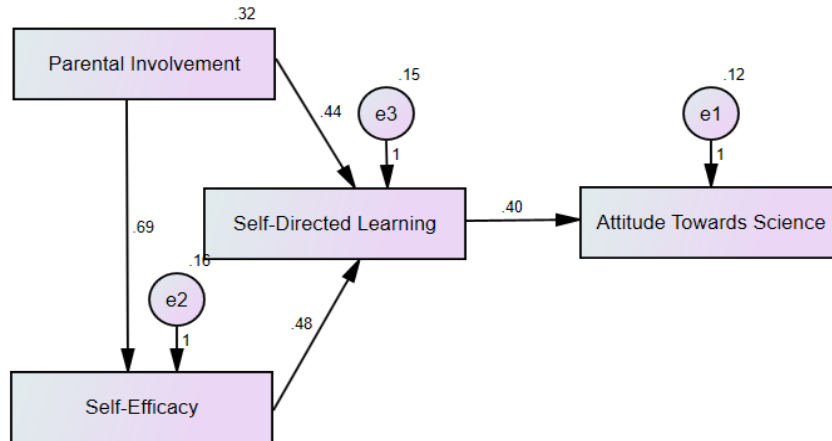


Figure 2. Model 2 of Attitude Towards Science

Table 23 shows the goodness-of-fit indices for Model 2. In this table, it shows that the values of CMIN/DF=0.388, P-value=0.678, NFI=0.999, TLI=1.007, CFI=1, GFI=0.999 and RMSEA=0. With the following values, this means that the model fits the data very well. Each index meets or exceeds its respective criterion, suggesting that Model 2 is good fit for the data.

**Table 23**

*Table 23. Goodness of Fit Measures of Model 2*

INDEX	CRITERION	MODEL 2 FIT VALUE
CMIN/DF	< 2.00	0.388
P – value	> 0.05	0.678
NFI	> 0.95	0.999
TLI	> 0.95	1.007
CFI	> 0.95	1
GFI	> 0.95	0.999
RMSEA	< 0.05	0.000

**Best Fit model of Attitude Towards Science**

Figure 6 shows the test of the best fit hypothesized model. As observed in the figure, the direct influence of self-directed learning and self-efficacy to attitude towards science resulted to the variance of 12% with the beta values of .36 and .05 respectively. Meanwhile, parental involvement and self-efficacy have influence to self-directed learning with the variance of 15% having beta values of .44 and .48 accordingly. More so, the influence of parental involvement to self-efficacy is evident with its variance of 16% with .69 beta value. Aside from this, it’s also presented in the figure the indirect influence of parental involvement and self-efficacy to attitude towards science through self-directed learning.

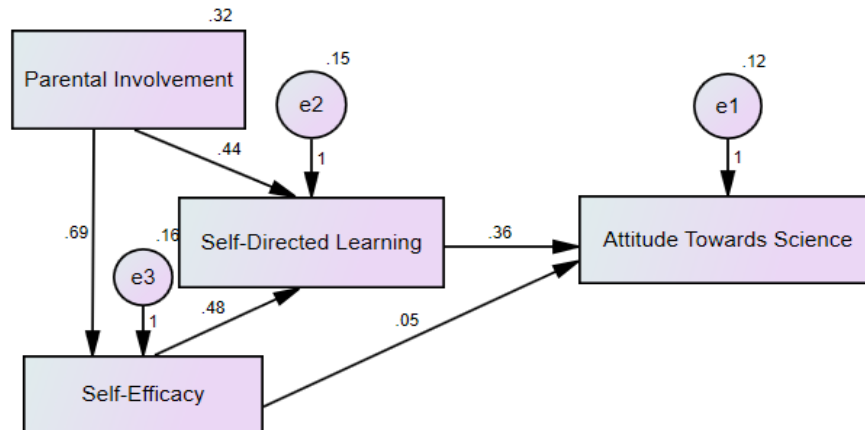


Figure 3. Model 3 of Attitude Towards Science

**Table 24**

*Table 24. Goodness of Fit Measures of Model 3*

INDEX	CRITERION	MODEL 3 FIT VALUE
CMIN/DF	< 2.00	0.049
P – value	> 0.05	0.824
NFI	> 0.95	1
TLI	> 0.95	1.011
CFI	> 0.95	1
GFI	> 0.95	1
RMSEA	< 0.05	0.000

Table 26 presents that the goodness-of-fit indices for model 3 were CMIN/DF=0.049, P-value=0.824, NFI=1, TLI=1.011, CFI=1, GFI=1 and RMSEA=0. Based on these indices, Model 3 shows an outstanding fit to the data across all criteria. Specifically, the CMIN/DF of 0.049 suggests an almost perfect fit, while P-value of 0.824 indicates that the model fits the data very well with no significant discrepancy. Further, the NFI of 1, TLI of 1.011, and CFI of 1 all indicate a perfect or even better than perfect fit, far exceeding the acceptable threshold of 0.90. The GFI of 1 also suggests a perfect fit and RMSEA of 0 confirms a perfect fit with no error of approximation. Therefore, Model 3 is an excellent fit for the data.

The results supported the concept and theories presented in the theoretical and conceptual framework of the study stating that students' self-directed learning (Fisher, 2001; Mentz & Van Zeyl, 2016; Premkumar et al., 2018; Laine et al., 2021) and self-efficacy (Erdem, 2015; Hacieminoglu, 2015; Tuncer, 2020) affect attitude towards science. Additionally, this study also proved that parental involvement (Thomas et al., 2019; Farooq & Asim, 2020; Saa'da, 2021) and self-efficacy (Shohoudi et al., 2015; Pishkar, 2016; Saeid, 2017; Mirzawati et al., 2020) influence self-directed learning. Moreover, self-efficacy is affected by parental involvement (Lv, 2018; Akinpelu, 2019; Abodunrin, 2021).

The results are in consonance with different researches. The results showed that Self-directed learning has been identified as a critical factor influencing students' attitudes towards science. Mentz and Van Zeyl (2016) underscore this connection by employing Guglielmino's Self-Directed Learning Scale (1983), emphasizing that SDL significantly contributes to fostering a positive attitude towards science. Their research suggests that when students take initiative in their learning process, they are more likely to develop a deeper interest and positive disposition towards science subjects. Supporting this notion is Premkumar et al. (2018) who found a significant relationship between students' individual characteristics, such as their attitude towards a subject, and their



propensity for SDL. According to their study, students who exhibit a positive attitude towards a subject are more inclined to engage in self-directed learning behaviors.

Moreover, the influence of self-efficacy on students' attitudes towards science is a well-documented area of research, with various studies highlighting the significant and positive relationship between these two. Adlaon and Espejon (2022) emphasize that enhancing learners' self-efficacy directly contributes to the development of a positive attitude towards science. Their findings suggest that when students believe in their abilities to succeed in science-related tasks, they are more likely to enjoy and engage with the subject, fostering a positive attitude. In par to this idea, Erdem's (2015) study delves into the relationship between self-efficacy and students' attitudes towards science, particularly in the context of chemistry. Erdem found that students with high self-efficacy not only perform better in science subjects but also exhibit a more positive attitude towards learning science. This positive attitude is crucial as it can lead to increased motivation and sustained interest in the subject.

Meanwhile, research by Thomas *et al.* (2019a) highlights that students who experience high levels of parental involvement exhibit greater engagement in self-directed learning activities. This involvement extends to every dimension of self-directed learning, indicating that parents' active participation in their children's education helps cultivate the skills and motivation necessary for students to take charge of their own learning process. In a related study, Thomas *et al.* (2019b) further elaborate on the influence of parental involvement, showing that parents can affect students' self-directed learning both directly and indirectly. Supporting these findings, Farooq and Asim (2020) found that the extent of parental involvement is a significant predictor of the degree of self-directed learning among students.

Saeid (2017) and Pishkar (2016), on the other hand, both identified a significant positive relationship between students' self-efficacy and their engagement in self-directed learning. Their research underscored that higher levels of self-efficacy empower students to take initiative in their learning processes. In addition, Saeid and Eslaminejad (2016) explored the specific connection between academic self-efficacy and students' readiness for self-directed learning. Their findings corroborated that students who perceive themselves as capable and competent academically are more likely to exhibit readiness and proficiency in self-directed learning endeavors.

Finally, based on the findings from various studies, parental involvement emerges as a significant factor influencing students' self-efficacy. Abodunrin (2021) emphasizes that parents' active engagement in their children's learning positively correlates with several dimensions of self-efficacy. This involvement likely includes direct encouragement, modeling of problem-solving skills, and providing supportive environments that nurture belief in one's capabilities. Further, Akinpelu (2019) underscores the role of social cognitive theory in understanding this relationship, highlighting how parental models and relationships shape students' perceptions of their own efficacy. When parents are actively involved in their children's education, they serve as influential models whose behavior and support can enhance students' confidence in their academic abilities.

#### IV. CONCLUSIONS

The findings from the study led the researcher to draw the following conclusions: (1) Students' self-directed learning is manifested; (2) Students' parental involvement is evident; (4) Students' self-efficacy is manifested; (5) Students' positive attitude towards science is evident; (6) There is a strong positive correlation between parental involvement and students' self-directed learning as well as students' self-efficacy towards self-directed learning. On the other hand, parental involvement and students' self-efficacy indicates moderate positive correlation including students' self-directed learning and attitude towards science. Moreover, the relationship between parental involvement to students' attitude towards science and students' self-efficacy to attitude towards science revealed weak positive correlation; (7) Parental involvement and students' self-efficacy are significant predictors on their attitude towards science; Students' self-directed learning is a significant predictor of their attitude towards science while parental involvement and students' self-efficacy do not significantly predict their attitude towards science; (8) The best fit model is the generated model 3 that indicates self-directed learning and self-efficacy have direct effect to attitude towards science. On the other hand, parental involvement and self-efficacy have indirect influence to attitude towards science through self-directed learning. Moreover, parental involvement has indirect effect to attitude towards science through self-efficacy.

#### ACKNOWLEDGEMENT

I, the researcher would like to express my profound thanks to the following individual who have made this research study successful.

Firstly, all the honor, glory, and thanks shall be credited to our almighty Creator. Without His unending love and mercy in my academic career, I wouldn't have surpassed the myriad trials I've faced throughout this journey. I had my doubts, but they did not stop me because I knew I was not alone in this battle. Through His abundant grace, I have emerged victorious.

Secondly, my sincerest thanks to the esteemed educators of St. Mary's College of Tagum, Inc., headed by the Dean of Graduate Education program, Perla C. Padro, Ph.D., for her encouraging words that made us competent researchers. I will always be grateful to my adviser, Neil Ryan B. Ado, Ph.D., for imparting his knowledge and ensuring that my paper reflects how competent and good he is. Thank you as well to the panelists, led by Ylcy B. Manguilimotan, Ph.D., Paulino P. Tado, Ph.D., Daphne M. Legaspino, Ph.D., Christine C. Undang, Ph.D. and Honey Lynne A. Boyles, Ed.D., for your appreciations, constructive criticisms and recommendations on improving the quality of this study. To the SMCTI Research Ethics Committee, headed by Dr. Socorro L. Neri, for their dedicated efforts in ensuring that my study follows ethical standards.

To Dr. Josephine L. Fadul, CESO V, the Schools Division Superintendent of the Division of Davao Oriental, thank you for allowing me to conduct the study. My heartfelt thanks to these respected School Heads for your consent and approval in allowing me, the researcher to conduct the study in your respective schools: Ma'am Helen Te, Ma'am Lorna D. Menor, Ma'am Merlita B. Sablada, and Ma'am Sally Yntig.

And finally, I would also like to express my overflowing gratitude to my family and friends for their unwavering support, both in moral, financial and emotional matters. I love you from the bottom of my hypothalamus.

## REFERENCES

1. Abid, N., Samuel, A., Ali, R., Shoab, A., & Warraich, W. Y. (2022). Students' interpersonal skills and its association with their academic achievement in secondary school of Pakistan. *International Journal of Evaluation and Research in Education (IJERE)*, 11(1), 143. <https://doi.org/10.11591/ijere.v11i1.21798>
2. Abutabenjeh, S., & Jaradat, R. (2018). Clarification of research design, research methods, and research methodology: A guide for public administration researchers and practitioners. *Sagepub*, 36(3).
3. Adlaon, M., & Espejon, J. L. (2022). Learners' attitude towards science on the use of modular learning. *Journal of Positive School Psychology* <http://journalppw.com> 2022, Vol. 6, No. 3, 6131–6139
4. Agustin, L., AW, S., & Rahayu, M. S. (2018). Konseling kelompok berbasis teknik self-management tazkiyatun nafsi : suatu intervensi psikologi dalam peningkatan self-direction in learning siswa. *Jurnal Psikologi*. <https://doi.org/10.24014/jp.v13i1.2399>
5. Ahmad, B. E., & Majid, F. a. A. (2010). Self-directed learning and culture: a study on malay adult learners. *Procedia - Social and Behavioral Sciences*, 7, 254–263. <https://doi.org/10.1016/j.sbspro.2010.10.036>
6. Ainley, M. (2017). Interest: Knowns, unknowns, and basic processes. *Springer EBooks*, 3–24. [https://doi.org/10.1007/978-3-319-55509-6\\_1](https://doi.org/10.1007/978-3-319-55509-6_1)
7. Akcay, Hakan & Yager, Robert & Iskander, Sрни & Turgut, Halil. (2010). Change in student beliefs about attitudes toward science in grades 6-9. Asia-Pacific Forum on Science Learning and Teaching. 11.
8. Akelaitis, A. V., & Lisinskiene, A. (2018). Social emotional skills and prosocial behaviour among 15–16-year-old adolescents. *European Journal of Contemporary Education*, 17( 1 ). <https://doi.org/10.13187/ejce.v17i1.168>
9. Akinpelu, M. A., Odeyemi, S. O., Olafusi, O. S., & Muhammed, F. Z. (2019). Evaluation of splitting tensile and compressive strength relationship of self-compacting concrete. *Journal of King Saud University - Engineering Sciences*, 31(1), 19–25. <https://doi.org/10.1016/j.jksues.2017.01.002>
10. AlMahdawi, M., Senghore, S., Ambrin, H., & Belbase, S. (2021). High school students' performance indicators in distance learning in chemistry during the COVID-19 pandemic. *Education Sciences*, 11(11), 672. <https://doi.org/10.3390/educsci11110672>
11. Althoff, R. R. (2010). Dysregulated children reconsidered. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(4), 302–305. <https://doi.org/10.1097/00004583-201004000-00004>
12. Antonella D'Agostino, Francesco Schirripa Spagnolo, & Salvati, N. (2020). Studying the relationship between anxiety and school achievement: evidence from PISA data. *INDIGO (University of Illinois at Chicago)*. <https://doi.org/10.31124/advance.12459470>
13. Anthony, C., & Ogg, J. (2019). Parent involvement, approaches to learning, and student achievement: Examining longitudinal mediation. *School Psychology*, 34(4), 376–385. <https://doi.org/10.1037/spq0000282>
14. Ashcraft, M. H. (2019). Models of math anxiety. *Routledge EBooks*, 1–19. <https://doi.org/10.4324/9780429199981-1>
15. Asim, I., & Farooq, Dr. M. S. (2021). Teaching early years children during COVID-19 through digital technologies. *Journal of Early Childhood Care and Education (JECCE)*, 5(1). <https://doi.org/10.30971/jecce.v5i1.1022>

16. Aşıksoy, G., & Islek, D. (2017). The impact of the virtual laboratory on students' attitude in a general physics laboratory. *International Journal of Online Engineering*, 13(04), 20. <https://doi.org/10.3991/ijoe.v13i04.6811>
17. Aslam, A., & Ali, M. S. (2017). Effect of self-efficacy on students' achievement in science: a case of secondary school students in Pakistan. *European Journal of Education Studies*, 3(11), 220-234.
18. Astalini, A., Kurniawan, D. A., & Putri, A. D. (2018). Identifikasi sikap implikasi sosial dari IPA, ketertarikan menambah waktu belajar IPA, dan ketertarikan berkarir dibidang IPA siswa SMP se-kabupaten muaro jambi. *Tarbiyah: Jurnal Ilmiah Kependidikan*, 7(2). <https://doi.org/10.18592/tarbiyah.v7i2.2142>
19. Astalini, A., Kurniawan, D. A., Kurniawan, N., & Anggraini, L. (2019a). Evaluation of student's attitude toward science in Indonesia. *Open Journal for Educational Research*, 3(1), 1–12. <https://doi.org/10.32591/coas.ojer.0301.01001a>
20. Astalini, A., Kurniawan, D. A., Kurniawan, N., & Anggraini, L. (2019b). Evaluation of student's attitude toward science in Indonesia. *Open Journal for Educational Research*, 3(1), 1–12. <https://doi.org/10.32591/coas.ojer.0301.01001a>
21. Astuti, N. H., Rusilowati, A., & Subali, B. (2021). STEM-Based learning analysis to improve students' problem solving abilities in Science subject: A literature review. *Journal of Innovative Science Education*, 9(3), 79–86. <https://doi.org/10.15294/jjise.v9i2.38505>
22. Ayimbila, E. A., Awuni, J., Azangeo, P. A., & Pappoe, A. N. M. (2022). Parental involvement in monitoring students' academic performance. *British Journal of Education*, 10(10), 83–108. <https://doi.org/10.37745/bje.2013/vol10n1083108>
23. Bagnall, R. G., & Hodge, S. (2017). Contemporary adult and lifelong education and learning: An epistemological analysis. *Palgrave Macmillan UK EBooks*, 13–34. [https://doi.org/10.1057/978-1-137-55783-4\\_2](https://doi.org/10.1057/978-1-137-55783-4_2)
24. Bajracharya, A. R., Bajracharya, S. R., Shrestha, A. B., & Maharjan, S. B. (2018). Climate change impact assessment on the hydrological regime of the Kaligandaki Basin, Nepal. *Science of the Total Environment*, 625, 837–848. <https://doi.org/10.1016/j.scitotenv.2017.12.332>
25. Bandura, A., & Adams, N. E. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research*, 1 (4), 287-310.
26. Bartolome, M. T., Mamat, N., & Masnan, A. H. (2017). Parental involvement in the Philippines: A review of literatures. *Southeast Asia Early Childhood Journal*, 6, 41–50. <https://doi.org/10.37134/saecj.vol6.5.2017>
27. Basereh, N., & Pishkar, K. (2016). Self-directed learning and self-efficacy belief among Iranian EFL learners at the advanced level of language proficiency. *Journal of Applied Linguistics and Language Research*, 3(1), 232-240.
28. Basith, A., Syahputra, A., & Ichwanto, M. (2020). Academic self-efficacy as predictor of academic achievement. *ResearchGate*, 9(1), 163-170. <https://doi.org/10.23887/jpi-undiksha.v9i1.24403>
29. Bayrakçı, M. (2007). Social learning theory and its educational applications. *Sakarya University Journal of Education Faculty*, 14, 198-210.
30. Bhandari, P. (2022). What is quantitative research? | Definition, Uses & Methods. <https://www.scribbr.com/methodology/quantitative-research/>
31. Bohane, L. L., & Bohane, N. (2023). A study of the effect of parental encouragement on academic achievement of 9th grade students. *International Journal of Creative Research Thoughts*, 11(5).
32. Bordhan, S. (2014). Parental attitude towards schooling of their children. *Journal of All India Association for Educational Research*, Vol, 26(1), 1-13. <http://www.aiaer.in/ejournal/vol26114/P3.pdf>
33. Borres, J. V. (2017). Learning environment, parental involvement and attitudes of students towards mathematics. *Tinaw*, 1(1). <https://ejournals.ph/article.php?id=13481>
34. Bradley, R. H., Pennar, A. L., Fuligni, A. J., & Whiteside-Mansell, L. (2019). Assessing the home environment during mid- and late-adolescence. *Applied Developmental Science*, 23(1), 22–40. <https://doi.org/10.1080/10888691.2017.1284593>
35. Britner, S. L. (2008). Motivation in high school science students: A comparison of gender differences in life, physical, and earth science classes. *Journal of Research in Science Teaching*, 45(8), 955–970. <https://doi.org/10.1002/tea.20249>
36. Caño, C. J., Cape, M. G., Cardoso, J. M., Miot, C., Pitogo, G. R., & Merin, C.M. (2016). Parental involvement on pupils' performance: Epstein's framework. *The Online Journal of New Horizons in Education* - October 2016 Volume 6, Issue 4
37. Cao, J. W. (2021). Research on ideological and political education of international students in China in the new period. *Journal of Taiyuan City Vocational and Technical College*, 8, 175-177.
38. Caymaz, B., & Aydin, A. (2022). An investigation of secondary school students' anxiety and motivation levels towards science course in terms of some variables. *International Journal of Psychology and Educational Studies*, 8(3), 13–27. <https://doi.org/10.52380/ijpes.2021.8.3.189>
39. Chang, Y.-C., & Tsai, Y.-T. (2022). The effect of university students' emotional intelligence, learning motivation and self-efficacy on their academic achievement—online English courses. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.818929>

40. Cheng, S., Kuo, C., Lin, K. C., & Lee-Hsieh, J. (2010a). Development and preliminary testing of a self-rating instrument to measure self-directed learning ability of nursing students. *International Journal of Nursing Studies*, 47(9), 1152–1158. <https://doi.org/10.1016/j.ijnurstu.2010.02.002>
41. Cheng, S., Kuo, C., Lin, K. C., & Lee-Hsieh, J. (2010b). Development and preliminary testing of a self-rating instrument to measure self-directed learning ability of nursing students. *International Journal of Nursing Studies*, 47(9), 1152–1158. <https://doi.org/10.1016/j.ijnurstu.2010.02.002>
42. Chi, S., Wang, Z., Liu, X., & Zhu, L. (2017b). Associations among attitudes, perceived difficulty of learning science, gender, parents' occupation and students' scientific competencies. *International Journal of Science Education*, 39(16), 2171–2188. <https://doi.org/10.1080/09500693.2017.1366675>
43. Cook, M. (2020). The reality of home-based learning. *Journal of School Administration Research and Development*, 5(S2), 86–92. <https://doi.org/10.32674/jsard.v5is2.2841>
44. Coşkun, Y.D. & Demirel, M. (2012). Üniversite Öğrencilerinin Yaşam Boyu Öğrenme Eğilimleri. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 42, 108-120
45. Darmawan, D. (2020). The quality of human resources, job performance and employee loyalty. *International Journal of Psychosocial Rehabilitation*, 24(3), 2580–2592. <https://doi.org/10.37200/ijpr/v24i3/pr201903>
46. Davidovitch, N., & Dorot, R. (2023). The effect of motivation for learning among high school students and undergraduate students—a comparative study. *International Education Studies*, 16(2), 117. <https://doi.org/10.5539/ies.v16n2p117>
47. Dogham, R., Elcokany, N. M., Ghaly, A. S., Dawood, T. M. A., Aldakheel, F. M., Llaguno, M. B. B., & Mohsen, D. M. (2022a). Self-directed learning readiness and online learning self-efficacy among undergraduate nursing students. *International Journal of Africa Nursing Sciences*, 17, 100490. <https://doi.org/10.1016/j.ijans.2022.100490>
48. Du, F. (2013). Student perspective of self-directed learning. *International Journal for the Scholarship of Teaching and Learning*, 7(2), Article 24, 1-16.
49. Ela Kizilkaya, A., & Sari, H. (2021). Effectiveness of the reinforcement parent education program designed for parents of children with autism spectrum disorder on supporting positive behaviours. *Asian Journal of Education and Training*, 7(2), 103–114. <https://doi.org/10.20448/journal.522.2021.72.103.114>
50. El Takach, S., & Al Tobi, A. (2021). Teachers and students' perceptions of science and scientists: A comparative study. *International Journal on Social and Education Sciences (IJonSES)*, 3(1), 126-160. <https://doi.org/10.46328/ijonSES.28>
51. Elementary school students' attitude toward Science and related variables. (2016). *The International Journal of Environmental and Science Education*. <https://doi.org/10.12973/ijese.2016.288a>
52. England, B. J., Brigati, J. R., Schussler, E. E., & Chen, M. M. (2019). Student anxiety and perception of difficulty impact performance and persistence in introductory biology courses. In S. L. Eddy (Ed.), *CBE—Life Sciences Education*, 18(2), ar21. <https://doi.org/10.1187/cbe.17-12-0284>
53. Epstein, J. L. (1987). Parent involvement. *Education and urban society*, 19(2), 119–136. <https://doi.org/10.1177/0013124587019002002>
54. Erdem, E. (2015). The relationship between self-efficacy and attitudes of chemistry teacher candidates. *Problems of education in the 21st century*. Volume 63, 2015 (p62-70).
55. Erdogan, D. G. (2015). Factors affecting lifelong learning inclinations of prospective teachers. *Procedia - Social and Behavioral Sciences*, 197, 2000-2005. [https://www.researchgate.net/publication/322023704\\_Factors\\_Effecting\\_Lifelong\\_Learning\\_Inclinations\\_of\\_Prospective\\_Teachers](https://www.researchgate.net/publication/322023704_Factors_Effecting_Lifelong_Learning_Inclinations_of_Prospective_Teachers)
56. Faulhaber, M. E., Lee, J. E., & Gentile, D. A. (2023). The effect of self-monitoring limited social media use on psychological well-being. *Technology, Mind, and Behavior*, 4(2). American Psychological Association (APA). <https://doi.org/10.1037/tmb0000111>
- 57.
58. Fia, S. D., Ayarkwa, C. F., & Obuobi-Ayim, T. (2022). Causes, effects and management of science anxiety among senior high school students in old tafo municipality of Ghana. *Open Journal of Psychology*, 2(1), 46–57. <https://doi.org/10.31586/ojp.2022.384>
59. Fisher, R. (2001). Philosophy in primary schools: fostering thinking skills and literacy. *Reading*, 35, 67–73. <http://dx.doi.org/10.1111/1467-9345.00164>
60. Froiland, J. M., & Worrell, F. C. (2017). Parental autonomy support, community feeling and student expectations as contributors to later achievement among adolescents. *Educational Psychology*, 37(3), 261–271. <https://doi.org/10.1080/01443410.2016.1214687>
61. Gan, Z. (2004). Attitudes and strategies as predictors of self-directed language learning in an EFL context. *International Journal of Applied Linguistics*, 14(3), 389–411.
62. Garbacz, S. A., Herman, K. C., Thompson, A. M., & Reinke, W. M. (2017). Family engagement in education and intervention: Implementation and evaluation to maximize family, school, and student outcomes. *Journal of School Psychology*, 62, 1–10. <https://doi.org/10.1016/j.jsp.2017.04.002>

63. García, M. J. M., Kirsch, W., & Leite-Méndez, A. E. (2020). Learning and collaboration in pre-service teacher education: Narrative analysis in a service learning experience at Andalusian public schools. *Teaching and Teacher Education*, 96, 103187. <https://doi.org/10.1016/j.tate.2020.103187>
64. Geng, S., Law, K. M., & Niu, B. (2019). Investigating self-directed learning and technology readiness in a blended learning environment. *International Journal of Educational Technology in Higher Education*, 16(1). <https://doi.org/10.1186/s41239-019-0147-0>
65. Gholami, H. (2016). Self Assessment and Learner Autonomy. *Theory and Practice in Language Studies*, 6(1), 46-51.
66. Godec, S., King, H., Archer, L., Dawson, E., & Seakins, A. (2018). Examining student engagement with science through a bourdieusian notion of field. *Science & Education*, 27(5–6), 501–521. <https://doi.org/10.1007/s11191-018-9988-5>
67. González, A., Fernández, M. C., & Paoloni, P. (2016). Hope and anxiety in physics class: Exploring their motivational antecedents and influence on metacognition and performance. *Journal of Research in Science Teaching*, 54(5), 558–585. <https://doi.org/10.1002/tea.21377>
68. Gruchel, N., Kurock, R., Bonanati, S., & Buhl, H. M. (2022). Parental involvement and Children's internet uses - Relationship with parental role construction, self-efficacy, internet skills, and parental instruction. *Computers & Education*, 182, 104481. <https://doi.org/10.1016/j.compedu.2022.104481>
69. Guo, L. (2022). The effects of self-monitoring on strategy use and academic performance: A meta-analysis. *International Journal of Educational Research*, 112, 101939. <https://doi.org/10.1016/j.ijer.2022.101939>
70. Hacieminoglu, E. (2016). Elementary school students' attitude toward science and related variables. *International Journal of Environmental and Science Education*, 11(2), 35-52
71. Halim, L., Rahman, N. A., Zamri, R., & Mohtar, L. (2017). The role of parents in cultivating children's interest towards science learning and careers. *Journal of Sciences*, 39(2), 1-7.
72. Hakan Altınpulluk, Hakan Kılınc, Gökhan ALPTEKİN, Yusuf Yıldırım, & Onur Yumurtacı. (2023). Self-directed learning and intrinsic motivation levels in MOOCs. *Open Praxis*, 15(2), 149–161. <https://doi.org/10.55982/openpraxis.15.2.556>
73. Hayat, A. A., Shateri, K., Amini, M., & Shokrpour, N. (2020). Relationships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: a structural equation model. *BMC Medical Education*, 20(1). <https://doi.org/10.1186/s12909-020-01995-9>
74. Herpratiwi, H., & Tohir, A. (2022). Learning interest and discipline on learning motivation. *International Journal of Education in Mathematics, Science and Technology*, 10(2), 424–435. ISTES Organization. <https://doi.org/10.46328/ijemst.2290>
75. Herron, J., & Hennessey, M. N. (2019). Evaluation of student's attitude toward science in Indonesia. *Open Journal for Educational Research*, 3(2), 39–52. <https://doi.org/10.32591/coas.ojer.0302.01039h>
76. Herrera, L., Al-Lal, M., & Mohamed, L. (2020). Academic achievement, self-concept, personality and emotional intelligence in primary education. analysis by gender and cultural group. *Frontiers in Psychology*, 10(10). <https://doi.org/10.3389/fpsyg.2019.03075>
77. Hill, M., Peters, M. a. K., Salvaggio, M. R., Vinnedge, J., & Darden, A. (2020). Implementation and evaluation of a self-directed learning activity for first-year medical students. *Medical Education Online*, 25(1). <https://doi.org/10.1080/10872981.2020.1717780>
78. Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84.
79. Howell, E. L., & Brossard, D. (2021). (Mis)informed about what? What it means to be a science-literate citizen in a digital world. *Proceedings of the National Academy of Sciences*, 118(15). <https://doi.org/10.1073/pnas.1912436117>
80. Humaira, S.A. & Hurriyyah, I. A. (2018). Students perspectives towards self- directed learning out of classroom. *Advances in Social Science, Education and Humanities Research*, 145, 6-11.
81. I. Ikediashi, D., O. Ogunlana, S., & Boateng, P. (2014). Determinants of outsourcing decision for facilities management (FM) services provision. *Facilities*, 32(9/10), 472–489. <https://doi.org/10.1108/f-06-2012-0047>
82. Jack, G. U. (2018). Assessing senior secondary students' attitude and experiences towards science and technology in Jalingo Metropolis, Taraba State, Nigeria. *Global Research in Higher Education*, 1(1), 32. <https://doi.org/10.22158/grhe.v1n1p32>
83. Jaiswal, S. K., & Choudhuri, R. (2017). A review of the relationship between parental involvement and student's academic performance. *The International Journal of Indian Psychology*, 4(3), 110-123.
84. Jose, J. E., & D.P., D. (2023). Perceived parental support and self-efficacy among college students. *The International Journal of Indian Psychology*, 11(2), April-June. <https://doi.org/10.25215/1102.108>
85. Jun, W. (2023). A study on the influence mechanisms of parental involvement on students' self-directed learning abilities. In *Applied & Educational Psychology*, 4(10). <https://doi.org/10.23977/appep.2023.041003>
86. Kang, L., Li, C., Chen, D., & Bao, X. (2024). Parental involvement, academic self-efficacy, and depression on academic performance among Chinese students during COVID-19 pandemic. *Psychology Research and Behavior Management*, Volume 17, 201–216. <https://doi.org/10.2147/prbm.s447485>

87. Kantova, K. (2024). Parental involvement and education outcomes of their children. *Applied Economics*, 1–16. <https://doi.org/10.1080/00036846.2024.2314569>
88. Kapur R. (2018). Factors Influencing the Student 's Academic Performance in Secondary Schools in India.
89. Karatas, Z., Uzun, K., & Tagay, Ö. (2021). Relationships between the life satisfaction, meaning in life, hope and covid-19 fear for Turkish adults during the COVID-19 Outbreak. *Frontiers in Psychology*, 12(1). <https://doi.org/10.3389/fpsyg.2021.633384>
90. Khalid, Alshehri, A. S., Alkhalifah, K. M., Ahmed Bandar Alasiri, Aldayel, M. S., Alahmari, F. S., Alothman, A. M., & Alfadhel, M. (2023). The relationship between motivation and academic performance among medical students in riyadh. *Cureus*, 15(10). <https://doi.org/10.7759/cureus.46815>
91. Khalid, M., Bashir, S., & Amin, H. (2020). Relationship between self-directed learning (SDL) and academic achievement of university students: A case of online distance learning and traditional universities. *Bulletin of Education and Research*, 42(2), 131-148. <https://files.eric.ed.gov/fulltext/EJ1281053.pdf>
92. Khan, H., Rehmat, M., Butt, T. H., Farooqi, S., & Asim, J. (2020). Impact of transformational leadership on work performance, burnout and social loafing: a mediation model. *Future Business Journal*, 6(1), 1–13. Springeropen. <https://fbj.springeropen.com/articles/10.1186/s43093-020-00043-8>
93. Kharuddin, A. F., & Ismail, N. A. (2017). Graphing calculator exposure of mathematics learning in a partially technology incorporated environment. *EURASIA Journal of Mathematics, Science & Technology Education*, 13(6), 2529-2537.
94. Kharuddin, A. F., Ibrahim, K. M. Y. K., Mustafa, Z., Azid, N., & Kharuddin, D. (2021). An international comparative study of student's attitude towards science in four Asian countries. *International Journal of Academic Research in Business & Social Sciences*, 11(4). <https://doi.org/10.6007/ijarbs/v11-i4/9695>
95. Knowles, M. (1975). Self-directed learning: a guide for learners and teachers. New York: Cambridge Book Co.
96. Koç, S.E. (2019). The relationship between emotional intelligence, self-directed learning readiness and achievement. *International Online Journal of Education and Teaching (IOJET)*, 6(3). 672-688 <http://iojet.org/index.php/IOJET/article/view/568>
97. Kurniawan, D. A., Astalini, A., Darmaji, D., & Melsayanti, R. (2019). Students' attitude towards natural sciences. *International Journal of Evaluation and Research in Education (IJERE)*, 8(3), 455. <https://doi.org/10.11591/ijere.v8i3.16395>
98. Lacap, M. P. (2015). The scientific attitudes of students major in science in the new teacher education curriculum. *Asia Pacific Journal of Multidisciplinary Research*, 3(5), 7-15.
99. Laine, S., Mikko Myllymäki, & Hakala, I. (2021). Raising awareness of students' self-directed learning readiness (SDLR). <https://doi.org/10.5220/0010403304390446>
100. Langat, A. C. (2015). Students' attitudes and their effects on learning and achievement in mathematics: a case study of public secondary schools in Kiambu County, Kenya. Unpublished Master's Thesis, Nairobi: Kenyatta University.
101. Lamb, M. (2002). Explaining successful language learning in difficult circumstances. *Prospect: An Australian Journal of TESOL*, 17(2), 35-52.
102. Latipah, E. (2021). How are the parents involvement, peers and agreeableness personality of lecturers related to self-regulated learning? *European Journal of Educational Research*, 10(1), 413–425. <https://doi.org/10.12973/eujer.10.1.413>
103. Laura, S. (2020). An investigation of parental involvement and student academic achievement in middle school. *Masters Theses*. 4786.
104. Lawrence, A.A., & Barathi, C. (2016). Parental encouragement in relation to academic achievement of higher secondary school students.
105. Lee, S., & Kim, S. (2018). Scientific knowledge and attitudes toward science in south korea: does knowledge lead to favorable attitudes? *Science Communication*, 40(2), 147–172. <https://doi.org/10.1177/1075547017753189>
106. Liu, F., Black, E., Algina, J., Cavanaugh, C., & Dawson, K. (2010). The validation of one parental involvement measurement in virtual schooling. *Journal of Interactive Online Learning*, 9(2)
107. Liu, I.-F. (2020). The impact of extrinsic motivation, intrinsic motivation, and social self-efficacy on English competition participation intentions of pre-college learners: Differences between high school and vocational students in Taiwan. In *Learning and Motivation*, 72, 101675. <https://doi.org/10.1016/j.lmot.2020.101675>
108. Liu, S., Wang, X., Zou, S., & Wu, X. (2022). Adolescent problematic internet use and parental involvement: The chain mediating effects of parenting stress and parental expectations across early, middle, and late adolescence. *Family Process*. <https://doi.org/10.1111/famp.12757>
109. Liwanag, M. F., & Galicia, L. S. (2023). Technological self-efficacy, learning motivation, and self-directed learning of selected senior high school students in a blended learning environment. *Technium Social Sciences Journal*, 44, 534–559. <https://doi.org/10.47577/tssj.v44i1.8980>
110. Lovelace, M. D., & Brickman, P. (2013). Best practices for measuring students' attitudes toward learning science. *CBE- Life Sciences Education*, 12(4), 606–617. <https://doi.org/10.1187/cbe.12-11-0197>
111. Lubis, K., Daharnis, D., & Syukur, Y. (2019). Interpersonal relationships of students in junior high school. *International Journal of Research in Counseling and Education*, 3(2), 103. <https://doi.org/10.24036/00112za0002>

112. Lv, B., Zhou, H., Liu, C., Guo, X., Liu, J., Jiang, K., Liu, Z., & Luo, L. (2018). The relationship between parental involvement and children's self-efficacy profiles: A person-centered approach. *Journal of Child and Family Studies*, 27(11), 3730–3741. <https://doi.org/10.1007/s10826-018-1201-6>
113. Ma, H., Kao, J., Kao, R., & Cho, C. (2020). How to shape the employees' sustainable work attitude: the moderating effect of supervisor attitudes. *Sustainability*, 12(20), 8331. <https://doi.org/10.3390/su12208331>
114. Mahoney, G., & Nam, S. (2011). The parenting model of developmental intervention. In *International review of research in developmental disabilities* (pp. 73–125). Elsevier BV. <https://doi.org/10.1016/b978-0-12-386495-6.00003-5>
115. Maison, Kurniawan, D. A., & Zain, M. S. (2021). Students' attitudes in science learning: Comparison between public and private junior high schools. *Journal of Educational Research and Evaluation*, 5(4), 568-579. <https://ejournal.undiksha.ac.id/index.php/JERE>
116. Malinauskas, R., & Malinauskiene, V. (2020). The relationship between emotional intelligence and psychological well-being among male university students: The mediating role of perceived social support and perceived stress. *International Journal of Environmental Research and Public Health*, 17(5), 1605. <https://doi.org/10.3390/ijerph17051605>
117. Mao, W., Cui, Y., Chiu, M. M., & Lei, H. (2021). Effects of game-based learning on students' critical thinking: A meta-analysis. *Journal of Educational Computing Research*, 59(8), 07356331211007098. <https://doi.org/10.1177/07356331211007098>
118. Mao, P., Cai, Z., He, J., Chen, X., & Fan, X. (2021). The relationship between attitude toward science and academic achievement in science: a three-level meta-analysis. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.784068>
119. Marañón, M. J. S., Alegria, J. S., Alfonso, R. M., Cabatas, L. A., Cruz, K. J. A. D. la, Peña, Q. B. D. la, Deocampo, R. A. M., Embino, P. G., Espelogo, J. T., Grande, J. T., Hinoguin, L. J. T., Intig, A. M. R., Mancia, S. C., Martesano, P. A. P., Nalaunan, F. A. P., Reverial, J. H. S., Villanueva, J. P., Bacosa, R. P., Castañeda, D. M., ... Patrata, A. G. (2021). Student's performance and parent's involvement in distance learning: a correlational study. In *International Journal of Multidisciplinary: Applied Business and Education Research*, 2(10), 850–857. <https://doi.org/10.11594/ijmaber.02.10.01>
120. Martin, A. J. (2017). How to maintain the balance between boundaries and freedom in secondary school parenting. "The Conversation", Articles on parents' role in education. <https://theconversation.com/au/topics/parents-role-in-education-40410>
121. Mataka, L. M., & Kowalske, M. G. (2015). The influence of PBL on students' self-efficacy beliefs in chemistry. *Chemistry Education. Research and Practice*, 16(4), 929–938. <https://doi.org/10.1039/c5rp00099h>
122. Mboniyirivuze, A., Yadav, L. L., & Amadalo, M. M. (2021). Students' attitudes towards physics in Nine Years Basic Education in Rwanda. *International Journal of Evaluation and Research in Education (IJERE)*, 10(2), 648. <https://doi.org/10.11591/ijere.v10i2.21173>
123. McGrew, K. S. (2009). CHC theory and the human cognitive abilities project: Standing on the shoulders of the giants of psychometric intelligence research. *Intelligence*, 37(1), 1–10. <https://doi.org/10.1016/j.intell.2008.08.004>
124. McNeal, R. B. (2014). Parent involvement, academic achievement and the role of student attitudes and behaviors as mediators. *Universal Journal of Educational Research*, 2(8), 564–576. <https://doi.org/10.13189/ujer.2014.020805>
125. Memiş, A., & Kandemir, H. (2019). The relationship between the study habits and attitudes and metacognitive reading comprehension self-awareness, reading comprehension, reading attitudes. *World Journal of Education*, 9(4), 133. <https://doi.org/10.5430/wje.v9n4p133>
126. Mentz, E., & van Zyl, S. (2016). Introducing cooperative learning: students' attitudes towards learning and the implications for self-directed learning. *Journal of Education*, 64. <https://doi.org/10.17159/i64a04>
127. Miao, C., Humphrey, R. H., & Qian, S. (2017). A meta-analysis of emotional intelligence and work attitudes. *Journal of Occupational and Organizational Psychology*, 90(2), 177-202.
128. Middleton, J. A., & Spanias, P. A. (1999). Motivation for achievement in mathematics: Findings, generalizations, and criticisms of the research. *Journal for Research in Mathematics Education*, 30(1), 65–88. <https://doi.org/10.2307/749630>
129. Miedema, S. (2021). A postlude on adequate methodologies for comparative research regarding the relation of Religion/Worldview and education. *Religion & Education*, 48(4), 477–489. <https://doi.org/10.1080/15507394.2021.2006545>
130. Mirzawati, N., Neviyarni, N., & Rusdinal, R. (2020). The relationship between self-efficacy and learning environment with students' self-directed learning. *Jurnal Aplikasi IPTEK Indonesia*, 4(1), 37–42. <https://doi.org/10.24036/4.14343>
131. Mirzawati, N., Neviyarni, N., & Rusdinal, R. (2020). The relationship between self-efficacy and learning environment with students' self-directed learning. *Jurnal Aplikasi IPTEK Indonesia*, 4(1), 37–42. <https://doi.org/10.24036/4.14343>
132. Mohammad, S. M. (2016). Sentiment analysis: detecting valence, emotions, and other affectual states from text. In *Emotion measurement* (pp. 201-237). Woodhead Publishing.
133. Moneva, J. & Tribunalo, S. (2020). Students' level of self-confidence and performance tasks. 5. 42-48.

134. Montes, L. H., Ferreira, R., & Rodríguez, C. (2018). Explaining secondary school students' attitudes towards chemistry in Chile. *Chemistry Education. Research and Practice*, 19(2), 533–542. <https://doi.org/10.1039/c8rp00003d>
135. Morris, T. H. (2018). Adaptivity through self-directed learning to meet the challenges of our ever-changing world. *Adult Learning*, 30(2), 56–66. <https://doi.org/10.1177/1045159518814486>
136. Musengamana, I. (2023). A systematic review of literature on parental involvement and its impact on children learning outcomes. *OALib*, 10(10), 1–21. <https://doi.org/10.4236/oalib.1110755>
137. Musengimana, J., Kampire, E., & Ntawiha, P. (2021). Factors affecting secondary schools students' attitudes toward learning chemistry: a review of literature. *Eurasia Journal of Mathematics, Science and Technology Education*, 17(1), em1931. <https://doi.org/10.29333/ejmste/9379>
138. Newell, A. D., Zientek, L. R., Tharp, B. Z., Vogt, G. M., & Moreno, N. P. (2015). Students' attitudes toward science as predictors of gains on student content knowledge: benefits of an after-school program. *School Science and Mathematics*, 115(5), 216–225. <https://doi.org/10.1111/ssm.12125>
139. Nurul Hanifah Putri, Yusuf, A., Nabila Gresita Aulyana Putri Prayuga, & Nabilla Puteri Syafira. (2024). Learning theory according to humanistic psychology and its implementation in students. *Progres Pendidikan*, 5(1), 64–70. <https://doi.org/10.29303/prospek.v5i1.542>
140. Oluwatelure, T. A., & Oloruntegbe, K. (2008). Effects of parental involvement on students' attitude and performance in science. *ResearchGate*, 4(1). [https://www.researchgate.net/publication/242233101\\_Effects\\_of\\_parental\\_involvement\\_on\\_students'\\_attitude\\_and\\_performance\\_in\\_science](https://www.researchgate.net/publication/242233101_Effects_of_parental_involvement_on_students'_attitude_and_performance_in_science)
141. Oswald, D. P., Zaidi, H. B., Cheatham, D. S., & Brody, K. G. D. (2017). Correlates of parent involvement in students' learning: Examination of a national data set. *Journal of Child and Family Studies*, 27(1), 316–323. <https://doi.org/10.1007/s10826-017-0876-4>
142. Özbuğutu, E. (2021). An investigation into anxiety about the science lesson through a mixed model. *Journal of Education and Learning*, 10(1), 104. <https://doi.org/10.5539/jel.v10n1p104>
143. Özüdoğru, G. (2021). Problems faced in distance education during Covid-19 Pandemic. *Participatory Educational Research*, 8(4), 321–333. <https://doi.org/10.17275/per.21.92.8.4>
144. Park, S., Stone, S., & Holloway, S. D. (2017). School-based parental involvement as a predictor of achievement and school learning environment: An elementary school-level analysis. *Children and Youth Services Review*, 82, 195–206. <https://doi.org/10.1016/j.childyouth.2017.09.012>
145. Patall, E. A., Cooper, H., & Robinson, J. C. (2008). Parent Involvement in Homework: A Research Synthesis. *Review of Educational Research*, 78(4), 1039–1101. <https://doi.org/10.3102/0034654308325185>
146. Pedrona, L. M. L. (2021). Science-related factors affecting students' attitude towards science and their academic performance. (Doctoral Dissertation). Retrieved from [https://www.academia.edu/44317132/Science\\_Related\\_Factors\\_Affecting\\_Students\\_Attitude\\_towards\\_Science](https://www.academia.edu/44317132/Science_Related_Factors_Affecting_Students_Attitude_towards_Science)
147. Pintrich, R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *J Educ Psychol*. 2003;95(4): 667.
148. Pisa, N., Viviers, W., & Rossouw, R. (2017). Enhancing Industrial Cluster Formation Through the Realistic Export Opportunities of the TRADE-DSM. *South African Journal of Economics*, 85(3), 386–404. <https://doi.org/10.1111/saje.12138>
149. Pomerantz, E. M., & Grolnick, W. S. (2017). The role of parenting in children's motivation and competence: What underlies facilitative parenting? In: A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and Application* (p. 566–585). The Guilford Press.
150. Premkumar, K., Vinod, E., Sathishkumar, S., Pulimood, A. B., Umaefulam, V., Prasanna Samuel, P., & John, T. A. (2018). Self-directed learning readiness of Indian medical students: a mixed method study. *BMC Medical Education*, 18(1). <https://doi.org/10.1186/s12909-018-1244-9>
151. Price, P., Jhangiani, R., & Chiang, I.-C. (2020, October). *Correlational Research*. BC Campus. Retrieved July 21, 2022, from <https://opentextbc.ca/researchmethods/chapter/correlational-research>
152. Putri, A. L., Pranata, O. D., & Sastria, E. (2024). Students perception of science and technology in science learning: a gender comparative study. *Jurnal Pijar Mipa*, 19(1), 44–50. <https://doi.org/10.29303/jpm.v19i1.6153>
153. Qualter, P., Pool, L. D., Gardner, K. J., Ashley-Kot, S., Wise, A., & Wols, A. (2015). The emotional self-efficacy scale. *Journal of Psychoeducational Assessment*, 33(1), 33–45. <https://doi.org/10.1177/0734282914550383>
154. Rabgay, T. (2018). The effect of using cooperative learning method on tenth grade students' learning achievement and attitude towards biology. *International Journal of Instruction*, 11(2), 265–280. <https://doi.org/10.12973/iji.2018.11218a>
155. Raidal, S., & Volet, S. (2009). Preclinical students' predispositions towards social forms of instruction and self-directed learning: a challenge for the development of autonomous and collaborative learners. *Higher Education*, 57(5), 577–596. <https://doi.org/10.1007/s10734-008-9163-z>
156. Ratelle, C. F., & Duchesne, S. (2017). The role of parents in supporting adjustment to school: A motivational perspective. In: F. Guay, H. W. Marsh, D. M. McInerney, & R. G. Craven, *International advances in self-research. Self-Driving positive psychology and well-being* (p. 167–197). IAP Information Age Publishing.



157. Rattu, J. A. (2017). PENILAIAN KOMPETENSI SIKAP PADA MAHASISWA JURUSAN PPKN FIS UNIMA. *Jurnal Civic Education*, 1(1), 9. <https://doi.org/10.36412/ce.v1i1.490>
158. Ravitch, D. (2016). The death and life of the great American school system: How testing and choice are undermining education. New York, NY: Basic Books. Retrieved from <https://tampub.uta.fi/bitstream/handle/10024/102137/GRADU-1507560787.pdf?sequence=1>
159. Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychol. Bull.* 138, 353–387.
160. Rusman. (2017). Belajar dan Pembelajaran Berorientasi Standar Proses Pendidikan. Jakarta: Kencana.
161. Saa`da, N. (2021). Parental involvement and self-regulated learning: The case of Arab learners in Israel. *Journal of Interdisciplinary Studies in Education*, 10(2), 1-26. <https://ojed.org/jise>
162. Saa`da, S. (2021). Parental involvement and self-regulated learning: the case of Arab learners in Israel. *Journal of Interdisciplinary Studies in Education*. Volume 10, Issue 2 (2021), pp. 1-26.
163. Saeid, N., & Eslaminejad, T. (2016). Relationship between student's self-directed-learning readiness and academic self-efficacy and achievement motivation in students. *International Education Studies*, 10(1), 225. <https://doi.org/10.5539/ies.v10n1p225>
164. Šafranĵ, J. (2019). The effect of meta-cognitive strategies on self-efficacy and locus of control of gifted in foreign language learning. *Research in Pedagogy*, 9(1), 40–51. <https://doi.org/10.17810/2015.90>
165. Sahin, S. & Mete, J. (2021) A brief study on descriptive research: Its nature and application in Social Science <https://www.iaj.in/index.php/ijrah/article/download/38/37>
166. Sari, S. M., & Indianti, W. (2019). Effectiveness of positive reinforcement to improve discipline through caregiver. *Proceedings of the 2nd International Conference on Intervention and Applied Psychology (ICIAP 2018)*. <https://doi.org/10.2991/iciap-18.2019.10>
167. Scarpellini, F., Segre, G., Cartabia, M., Zanetti, M., Campi, R., Clavenna, A., & Bonati, M. (2021). Distance learning in Italian primary and middle school children during the COVID-19 pandemic: a national survey. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-11026-x>
168. Schunk, D. H., & Ertmer, P.A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. *Handbook Self-Regul Elsevier*. 2000:631–49.
169. Seeram E. An Overview of Correlational Research. *Radiol Technol*. 2019 Nov;91(2):176-179. PMID: 31685592.
170. Sheokand, A. (2023). Effect of parental encouragement on academic achievement of senior secondary students. *International Journal of Multidisciplinary Education and Research*, 8(2), 87-89
171. Shah, S. I. H., Nazir, F., & Fazal, S. (2024). Developing social self-efficacy and self-esteem through cooperative learning in social studies classrooms. *Academy of Education and Social Sciences Review*, 4(2), 137–148. <https://doi.org/10.48112/aessr.v4i2.730>
172. Shao, Y., & Kang, S. (2022). The link between parent–child relationship and learning engagement among adolescents: the chain mediating roles of learning motivation and academic self-efficacy. *Frontiers in Education*, 7. <https://doi.org/10.3389/educ.2022.854549>
173. Shin, S., Lee, J., & Ha, M. (2016). Influence of career motivation on science learning in korean high-school students. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(5). <https://doi.org/10.12973/eurasia.2017.00683a>
174. Shohoudi M, Zandi Kh, Faridi MR, Fathi G, Safari Z. (2015) Relationship of teaching efficiency with academic self-efficacy and self-directed learning among english language students: university students' perspectives. *Educ Res Med Sci*.2015; 4(2): 68-77.
175. Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, 34(1), 8–12. Research gate. <https://doi.org/10.1097/NUR.0000000000000493>
176. Sileyew, K. J. (2019). Research design and methodology. *Text Mining - Analysis, Programming and Application*, 7, 1–12. Researchgate. <https://doi.org/10.5772/intechopen.85731>
177. Smoskoska, L. (2020). An investigation of parental involvement and student academic achievement in middle school. Master theses. <https://thekeep.eiu.edu/cgi/viewcontent.cgi?article=5788&context=theses>
178. Steiner, D., & Mendelovitch, M. (2017). I'm the same teacher": The attitudes of science and computer literacy teachers regarding integrating ICT in instruction to advance meaningful learning. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(5), 1259-1282.
179. Strandbu, Å., Stefansen, K., Smette, I., & Sandvik, M. (2019). Young people's experiences of parental involvement in youth sport. *Sport Education and Society*, 24(1), 66–77. <https://doi.org/10.1080/13573322.2017.1323200>
180. Sulabo, Leahni F. (2013). Parental Involvement, Student Achievement, and Attitude towards Mathematics. Philippine Normal University.
181. Sunitha NH, Lata Pujar, & Vinuta Muktamath. (2022). Influence of parental encouragement on academic achievement of college students. *Pharma Innovation*, 11(6S), 2152–2156. <https://doi.org/10.22271/tpi.2022.v11.i6saa.13400>
182. Tabiliran, J. P., Dagami, A. T., & Navales, K. J. (2021). The self-efficacy and academic motivation of the graduating college students during the COVID-19 pandemic in the Philippines. *IJARIE*, 7(3), 2128-2139.

183. Tahmassian, K. & Jalali-Moghadam, N. (2011). Relationship Between Self-Efficacy and Symptoms of Anxiety, Depression, Worry and Social Avoidance in a Normal Sample of Students. *Iranian journal of psychiatry and behavioral sciences*, 5, 91-98.
184. Tan, L. (2014). Correlational study. In W. F. Thompson (Ed.), *Music in the social and behavioral sciences: An encyclopedia* (pp. 269-271). Thousand Oaks: SAGE Publications.
185. Tanti, T., Kurniawan, D. A., Kurniawan, N., & Anggraini, L. (2021). Attitudes toward Science Based on Analysis and Correlation: Learning Enjoyment & Leisure Interest on Science. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 11(1). <https://doi.org/10.30998/formatif.v11i1.5142>
186. Tezer, M., Aşıksoy, G. Y., Aşıksoy, G. Y., & Aşıksoy, G. Y. (2015). Engineering students' self-efficacy related to physics learning. *Journal of Baltic Science Education*, 14(3), Continuous. <https://doi.org/10.33225/jbse/15.14.311>
187. Thomas, M. S., Crosby, S., & Vanderhaar, J. (2019). Trauma-Informed practices in schools across two decades: An interdisciplinary review of research. *Review of Research in Education*, 43(1), 422–452. <https://doi.org/10.3102/0091732x18821123>
188. Thuba, E., Kathuri, J. N., & Mariene, J. (2017). Effects of home - based parental involvement practices in promoting quality of education in public day secondary schools in igembe sub county, meru county - kenya. *International Journal for Innovation Education and Research*, 5(8), 43–63. <https://doi.org/10.31686/ijer.vol5.iss8.783>
189. Tiboron, G. M. B., Decano, Dr. R. S., & Buladaco, M. V. M. (2021). Procrastination attitude of the senior high school students in modular distance learning modality. *International Journal of Research and Innovation in Social Science*, 05(06), 303–308. <https://doi.org/10.47772/ijriss.2021.5613>
190. Torres, L. H., Al-Lal, M., & Mohamed, L. A. (2020). Academic achievement, self-concept, personality and emotional intelligence in primary education. Analysis by Gender and Cultural Group. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.03075>
191. Tuncer, F. F. (2020). The spread of fear in the globalizing world: The case of COVID-19. *Journal of Public Affairs*, 20(4). <https://doi.org/10.1002/pa.2162>
192. Türk-Kurtça, T., & Kocatürk, M. (2020). The role of childhood traumas, emotional self-efficacy and internal-external locus of control in predicting psychological resilience. *International Journal of Education and Literacy Studies*, 8(3), 105-115.
193. Tus, J. (2020). The influence of study attitudes and study habits on the academic performance of the students. *International Journal of All Research Writings*, 2(4), 11. <https://www.ijarw.com>
194. Valcan, D. S., Davis, H., & Pino-Pasternak, D. (2017). Parental behaviours predicting early childhood executive functions: A meta-analysis. *Educational Psychology Review*, 30(3), 607–649. <https://doi.org/10.1007/s10648-017-9411-9>
195. Wagiran, W., Pardjono, P., Suyanto, W., Sofyan, H., Soenarto, S., & Yudiantoko, A. (2019). Competencies of future vocational teachers: perspective of in-service teachers and educational experts. *Cakrawala Pendidikan: Jurnal Ilmiah Pendidikan*, 38(2), 387–397. <https://doi.org/10.21831/cp.v38i2.25393>
196. Wang, C., & Liou, P. (2017). Students' motivational beliefs in science learning, school motivational contexts, and science achievement in Taiwan. *International Journal of Science Education*, 39(7), 898–917. <https://doi.org/10.1080/09500693.2017.1310410>
197. Williamson, S. (2017). Student evaluation of the usefulness of the self-rating scale of self-directed learning tool in the fdsc in health and social care course. *Journal of Healthcare Communications*, 02(04). <https://doi.org/10.4172/2472-1654.100089>
198. Wong, F., Tang, A. H. L., & Cheng, W. (2021). Factors associated with self-directed learning among undergraduate nursing students: A systematic review. *Nurse Education Today*, 104, 104998. <https://doi.org/10.1016/j.nedt.2021.104998>
199. Wu, Y.-T., & Tsai, C.-C. (2006). University students' internet attitudes and internet self-efficacy: A Study at three universities in taiwan. *CyberPsychology & Behavior*, 9(4), 441–450. <https://doi.org/10.1089/cpb.2006.9.441>
200. Xiao, S., Yao, K., Wang, T. (2019). The relationships of self-regulated learning and academic achievement in university students. PHECSS 2018, SHS Web of Conferences, 60, 001003.
201. Yahaya, A., Maakip, I., Voo, P., Yusuf, M. Y. M., & Ramli, N. A. (2020). Effects of self-regulated learning, parental involvement and homework on academic achievement of school students. *International Journal of Academic Research in Progressive Education and Development*, 9(2). <https://doi.org/10.6007/ijarped/v9-i2/7419>
202. Yapo, F., Tabiliran, J., Dagami, A., Navales, K., Tus, J. (2021). The self-efficacy and academic motivation of the graduating college students during the covid-19 pandemic in the philippines. *International journal of advance research and innovative ideas in education*. 7. 2021. 10.6084/m9.figshare.14784885.v1.
203. Yazdani, A., Neumann, W. P., Imbeau, D., Bigelow, P., Pagell, M., & Wells, R. (2015). Prevention of musculoskeletal disorders within management systems: A scoping review of practices, approaches, and techniques. *Applied Ergonomics*, 51, 255–262. <https://doi.org/10.1016/j.apergo.2015.05.006>
204. Yigzaw, G.S. (2019). The role of parents in improving the behavior of school's students in Azena primary school, Ethiopia. *International Journal of Educational Research Review*, 4(3), 342-357.

- 
205. Yokoyama, S. (2019). Academic self-efficacy and academic performance in online learning: a mini review. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.02794>
  206. Yorganci, S. (2017). Investigating students' self-efficacy and attitudes towards the use of mobile learning. *Journal of Education and Practice*, 8.
  207. Yu, J., Huang, C., He, T., Wang, X., & Zhang, L. (2022). Investigating students' emotional self-efficacy profiles and their relations to self-regulation, motivation, and academic performance in online learning contexts: A person-centered approach. *Education and Information Technologies*, 27(8), 11715–11740. <https://doi.org/10.1007/s10639-022-11099-0>
  208. Zhang, Y. (2020). Quality matters more than quantity: Parent–Child communication and adolescents' academic performance. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.01203>
  209. Zhao, R., & Ling, T. (2022). Latent profile analysis of university students' self-management and self-monitoring in the links among motivation, engagement, and wellbeing. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1023920>
  210. Zheng, A., Tucker-Drob, E. M., & Briley, D. A. (2019a). National gross domestic product, science interest, and science achievement: a direct replication and extension of the Tucker-Drob, Cheung, and Briley (2014) Study. *Psychological Science*, 30(5), 776–788. <https://doi.org/10.1177/0956797619835768>
  211. Zheng, A., Tucker-Drob, E. M., & Briley, D. A. (2019b). National gross domestic product, science interest, and science achievement: a direct replication and extension of the Tucker-Drob, Cheung, and Briley (2014) Study. *Psychological Science*, 30(5), 776–788. <https://doi.org/10.1177/0956797619835768>