Research Paper   **Open Accsess**

STEM Students' Motivation, Interest, and Career Direction Amid New Normal Education: A Narrative Inquiry Research

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Abstract

The abrupt transition of learning modalities and the global health crisis brought by the COVID-19 pandemic have reshaped the learners' experiences and insights, particularly in STEM (Science, Technology, Engineering, and Mathematics) education. Hence, this study was conducted to explore the stories of senior high school STEM learners on how the new normal education impacted their motivation, interest, and career direction using a narrative inquiry research design. Purposive sampling was used to select twelve participants from a public senior high school offering the STEM strand. A Semi-structured interview guide, which underwent expert judgment, was used to collect data. After securing consent forms, in-depth interviews were conducted via online platforms. Data collected were transcribed, coded, categorised, and thematised, applying Polkinghorne's analysis of narratives. Results illustrated that students' (a) motivation has declined, causing discouragement in STEM activities, however, their passion and goals kept them eager; (b) interest was elevated by their constant commitment to STEM endeavours, yet less enthusiasm has become evident; (c) career direction was still definite as fuelled by relevance, though some have restructured theirs due to the drastic change of circumstances. Furthermore, students devised adaptive strategies to further enrich themselves in STEM undertakings such as improving STEM identity, fostering STEM competence and habits, reorganisation of tasks, and peer collaboration. The findings of this study led to the creation of an action plan to further improve the STEM learning experiences of students amid the radical educational change. This research employed a holistic perspective as it considers the nature, aspect, and meaning of students' narratives.

Keywords: Narrative inquiry; Motivation; Interest; Career direction; STEM strand; Senior high school; New normal education; Philippines

Introduction

The COVID-19 outbreak has drastically changed the learning delivery of educational institutions in the Philippines, affecting almost 28 million students due to the closing of schools and the abrupt transition and implementation of new learning modalities (Tria, 2020). The conventional in-person classes have immediately shifted to distance learning in order to ensure the safety of students, teachers and education staff, as well as to prevent the further spread of the virus.

However, the impacts of the pandemic have been severely felt by students, creating significant learning gaps which led to a decline in their academic achievement, particularly in literacy and numeracy skills (George et al., 2021; Pokhrel & Chhetri, 2021). In the same vein, it was reported that depression, stress, and anxiety created obstacles to students' learning, hence raising the need to address mental health issues exacerbated by the pandemic (Silva et al., 2021). Furthermore, students from low-socioeconomic (SES) households had limited

or no access to relevant technology tools required for distance learning (Pokhrel & Chhetri, 2021). With that, a large percentage of senior high school students who reported that they had planned to attend a four-year college dropped to below 50%, as their plans of going to college have been derailed by family, financial, and health complications (Point, 2022). While the reopening of schools has commenced, many challenges are still felt. Thus, a time for educational reinvention is desperately needed.

The STEM strand focuses on the significant connections that exist in the disciplinary concepts of science, technology, engineering, and mathematics (Bolds, 2017), enabling learners to foster a culture of efficiency, productivity, and innovation. This further promotes the increased use of scientific and technological breakthroughs to improve various sectors, including production, health, education, energy, and infrastructure systems, and others (NEDA, 2017). After finishing the track, the graduates are expected to pursue careers aligned with the objectives of STEM to become scientists, doctors, researchers, engineers, agriculturists, automation and robotics professionals, software developers, information system analysts, etc. To realise these targeted goals, learners are immersed in an extensive STEM-focused curriculum employing instructional designs centred on project, problem, and design-based pedagogies. Developing STEM competencies has been regarded as an essential goal to nurture literacies that will help to solve the pressing problems brought about by the dynamic changes in twenty-first-century knowledge-based economies.

The senior high school STEM curriculum is designed to develop learners' knowledge and skills utilising more innovative approaches that emphasise the attainment of critical thinking, creativity, communication, problem-solving, self-direction, and scientific literacy (Sarac, 2018). This is intended to generate competent professionals equipped with 21st-century skills, who can contribute to the advancement of the country's economic, social, and environmental aspects. STEM education is seen as a powerful driver that can address the complexities brought about by global challenges (Kelley & Knowles, 2016). In turn, the demand for STEM graduates has significantly increased, as these individuals are believed to acquire compounded talents across STEM disciplines, enabling them to understand and deal with real-world crises (Yata et al., 2020). STEM education has also been affected by the crucial effects posed by the COVID-19 pandemic. It has hampered the recruitment, continuous growth, and motivation of students as the future STEM professionals (Forakis et al., 2020). In response, senior high schools offering a STEM strand have devised intervention plans to continue the education among students, allowing them to maximise STEM learning. However, the lack of physical interaction and laboratory exposure elicited difficulties at their end. This is true for subjects that require intensive laboratory work using science equipment and tools (Byrnes et. al., 2020). Moreover, critical topics in sciences that enhance engineering studies have posed considerable issues due to the abrupt switch of modalities, as engineering is dependable on the practical application of information, which is highly relied on in-person classes and laboratory work (Baltà-Salvador et al., 2021). Such situations impacted students' behaviour which led to a lack of motivation, interest, and enthusiasm in their strand (Marzoli et al., 2021).

Students' career direction is reflected in their chosen strand in senior high school. During these training and formative years, they develop their motivations to guide them along their chosen path. Motivation, as a prime construct of learning, is a significant aspect towards achieving a goal (Hariri et al., 2020). In a study conducted among STEM students at a public academic institution in Lipa City, Batangas it was found that their primary motivation is their achievement, in which they gain satisfaction when they successfully achieve something in science

learning (Albalate et al., 2017). Meanwhile, a study at a public secondary school in Zambales, Philippines, revealed that the motivation for STEM students to pursue their strand is influenced by their future career goals (Rafanan et al., 2020). Furthermore, a study carried out in a technical school in Iligan City, showed significant findings that senior high school learners engaged in remote learning are still motivated to learn science because they are aware of its use and importance in their daily life affairs (Aque et al., 2021).

Another factor that shapes students' outlook in STEM education is interest. Interest, as a construct in research studies, is mostly understood as a phenomenon that emerges from an individual's interaction with their environment (Silvia, 2016). The implementation of different modalities has affected students' interest towards their current situation. In a study conducted at a private school in Dasmarinas, it was shown that Grade 12 students preferred the online distance learning modality in science subjects due to its convenience and flexibility, hence, raising students' interest in interaction, collaboration, and creativity (Pinar, 2021). Also, a parallel study conducted in four secondary schools found that remote learning enhanced students' self-efficacy and developed an interest in STEM career (Thisgaard & Makransky, 2017). In contrast to these advantages, another study conducted among students indicated that in-person classes are still the most preferred modality for learning, since remote learning led to unclear instructions and directions, difficulty in group dynamics, trouble in retaining information (Tareen & Haand, 2020), and lower academic achievement (Francis et al., 2019). Additionally, a study conducted in public institutions from a foreign country revealed that the attitude and interest of students towards STEM learning in distance learning were negative and low, respectively (Vance et al., 2015).

Several studies have explored the effects of COVID-19 pandemic on STEM education, particularly among STEM students. A recent study in Zambia revealed a significant decrease in the performance of Grade 12 students in STEM subjects considering the context of the pandemic, resulting in the immense drop in national achievement (Sintema, 2020). Another study, which was conducted in the United States, stated that most STEM students were observed to have less emotional engagement and participation in science amidst remote learning. This contributed to their perception of science value (Wester et al., 2021). Although they were not greatly worried about the impacts of the pandemic on their chosen career paths, most of them had negative reactions to the abrupt shift in learning modalities, as this affected their acquisition of STEM skills (Desrochers et al., 2020).

Despite these significant findings mentioned, the majority of the studies conducted on STEM education were based on foreign context, hence, lacking significance in terms of localisation in the Philippines. With that, they may not be applicable and relevant in the local context. Also, some of which were conducted prior to or during the COVID-19 pandemic, hence, data may not be pertinent to the current situation.

Therefore, this study was conducted to gain an in-depth understanding of senior high school STEM students' motivation, interest, and career direction amid the new normal education, through their shared stories of narratives. This may serve as a foundation for creating action plans to further enrich the STEM learning experience of students. Furthermore, this may also serve as a basis for future studies to further explore STEM students' perspectives, beliefs, and perception on STEM education during the new normal education.

Research Objectives

This narrative inquiry research study was conducted to explore the senior high

school STEM students' motivation, interest, and career direction amid the new normal education. Specifically, this study sought answers to the following:

1. Determine how the new normal education affected senior high school STEM students in terms of:
   1.1 motivation,
   1.2 interest, and
   1.3 career direction.

2. Ascertain the adaptive strategies devised and employed by senior high school STEM students to enrich themselves in STEM undertakings amid new normal education.

3. Construct a plan of action that may help to elevate the motivation, interest, and career direction of senior high school STEM students amid new normal education.

Methodology

Research Design

Narrative research was used as the research design of the study. Narrative research or inquiry-based study is a relatively contemporary qualitative methodology that focuses on life stories as the essence of people-oriented sciences (Ntinda, 2019). This design was employed as an applicable research design since the present study attempted to explore the senior high school STEM students' experiences. It focused on their individual stories and personal narratives regarding how their motivation, interest and career direction were impacted during distance learning amid new normal education. Using the students' experiences as a research approach promotes critical reflection, as well as a sense of voice and self, which could be multilayered and understood deeply (Hickson, 2015).

Participants and Sampling

The participants in this study consisted of twelve students from a public senior high school offering the Science, Technology, Engineering, and Mathematics (STEM) strand in one city schools division in the Philippines. Purposive sampling was used to select the participants of the study. This is a non-probability sampling technique in which the researcher relies on their sound judgment when choosing members of the population to participate in the data collection. This method was used as it provided cost-effectiveness and time-effectiveness sampling procedures for selecting samples, which are essential at the present times in which the resources are currently limited and social interactions are hindered (Etikan, 2016).

Research Instrument

A researcher-made semi-structured interview guide was used as the main data collection instrument of the study, aiming to obtain the senior high school STEM students' stories on how the new normal in education affected their motivation, interest, and career direction. The tool, consisting of 22 questions, was ensured to be aligned to the objectives of the study.

To ensure the validity and alignment of contents, the research instrument underwent to expert validation. Three experts from the fields of education sciences, English language, and research and statistics were invited to serve as validators of the research instrument. After the aforementioned validation process, the research instrument was tested to a small sample (n=3) consisting of individuals who were not the main participants of the study. This step aimed to obtain feedback for possible revisions and adjustments. After which, the research instrument was administered to a larger sample group (n=12).

Data Collection

Permission to conduct the study was secured before the actual data collection. Once approval was granted, informed consent documents stating the purpose and nature of the study, procedure, participation, risks, and confidentiality was secured from the identified participants. Provided that they

agreed to participate, they were asked to fill out their direct consent.

In-depth interviews were conducted among selected senior high school STEM students to explore their motivation, interest, and career direction amid the new normal education. The interviews were scheduled according to the participants' availability. Phone calls, Messenger calls, Google meet or Zoom meeting were used as online interview platforms, depending on the participants' convenience and preference. The interview protocol followed the three serial in-depth interviews developed by Seidman (1998). This procedure addressed the personal narratives and experiences of students in distance learning. It involves an interview segment that explores the influence of the new normal in education on their motivation, interest, and career direction. This also encompasses an examination of their adaptive strategies to navigate STEM pursuits despite the challenges. The third interview integrates the information gathered from the preceding sessions to articulate the unique stories of each participant.

During the interview, predetermined questions were asked. The participants were allowed to answer in their own words. Since this was a semi-structured interview, the researcher had the flexibility to ask additional questions to ensure clarity and in-depth understanding. Each interview session lasted for about 45-60 minutes. The interviews were audio-recorded and kept with meticulous attention to ethical standard and confidentiality.

Data Analysis

The research utilised Polkinghorne's Analysis of Narratives (1995) to analyse the data gathered from the audiotaped interviews. Polkinghorne's approach underscores the creation of concepts that establish a categorical identity based on specific details obtained from the collected data. The process commenced by scrutinising life narratives to identify shared concepts. Subsequently, coding frameworks were developed to organise the data into clusters of common themes. Additionally, these grouped data sets underwent further scrutiny to pinpoint characteristics that designated them within specific categories. Ultimately, the themes resulting from this analysis contribute to a cohesive narrative. Moreover, a member-checking procedure was implemented to validate the trustworthiness of the data.

Results and Discussion

The Effect of New Normal Education to Senior High School STEM Students

1. *In terms of Motivation*

Abrupt change leads to discouragement

Though education is pursued through different learning modalities, the abrupt transition, from conventional in-person classes to distance learning, caused discouragement and pessimism in students to continue their successful undertakings in STEM affairs. Students' mental health and psychosocial well-being were greatly impacted by the COVID-19 pandemic, as they were stuck at their homes limiting the social interaction they needed for continuous learning, peer engagement, and participation in various activities. In the same vein, they struggled immensely as distance learning modalities were new to them, requiring significant adjustment and massive coping (Selco & Habbak, 2021). This dramatic situation elicited a passive mindset among senior high school STEM students. The newness of learning delivery, its rapid implementation, unfamiliarity with its nature, and the struggle for survival during the pandemic decreased their enthusiasm and zeal rooted in significant amounts of stress, uncertainty, and discomfort (Minichiello et al., 2022).

"I still want to pursue my strand and achieve my goals, but what is happening around us makes me scared, doubtful, puzzled, and uncertain. It is like, I totally lost my drive and felt discouraged to continue the usual things I do." – Participant A

"Learning STEM is better if classes are still conducted in-person. However, we must follow certain protocols to ensure safety and protection, but distance learning makes me unmotivated. I do not necessarily appreciate STEM learning in this modality." – *Participant H*

Passion and goals keep the eagerness

Despite being unmotivated towards STEM learning amid the new normal education, their inherent drive, rooted in their passion and goals, keeps them eager to move forward and pursue their education. Though faced with anxiety, uncomfortable situations at home, and inexperience with distance learning, their strong desire and commitment to their dreams allow them to maximise their abilities and enrich their engagement towards STEM learning. Still, many students have become committed and dependable on their education to embrace future opportunities (Cromley & Kunze, 2021).

"Despite all the hassles and bustles brought about by the current situation, what really strengthens me is my strong will to reach for my dreams and achieve my goals" – *Participant B*

"I still think that I should continue my studies as long as I can because this can be a way to achieve my dreams and goals in life." – *Participant D*

2. In terms of Interest

Constant commitment to STEM endeavours heightens interest

Senior high school STEM students still show heightened interest in STEM learning as it piques their curiosity, significance, and enthusiasm in science, mathematics, and other related disciplines. Most of the students have a strong inclination towards STEM, as evident by their active participation and vigorous engagement in STEM endeavours, hence promoting a positive outlook towards STEM education. Despite being uncertain, their constant commitment to STEM

undertakings allows them to maximise their learning effectively. As interest towards STEM continuously grows, students develop enjoyment, motivation, and good learning habits. Furthermore, some students even mentioned that the interest comes from their aspirations to become STEM professionals who can contribute to nation-building. Hence, students still express high levels of satisfaction and interest in STEM learning (Paechter & Maier, 2010) despite the pandemic and distance learning modality.

"Though the pandemic hit differently, and it is very challenging to study, my interest in science subjects, as well as technology and engineering things, did not change. This paves the way for me to still pursue STEM" – *Participant J*

"I still become more interested in STEM, particularly in becoming a professional under it. I really find its relevance fascinating, especially during these trying times that only STEM knowledge and skills can help us to overcome the virus." – *Participant G*

Less enthusiasm due to uncertainties

Despite the continued STEM learning through distance learning modality, it is inevitable to experience less enthusiasm due to the turn of events, particularly in the trying times of the pandemic, in which everything seems uncertain. This has led to the diminishing fervour in STEM learning experiences as senior high school STEM students struggle to cope with the new normal education amid anxiety, isolation at home, mental health cases, and emotional breakdowns. Such circumstances were normal since everyone subjected to unusual situations needs time for recalibration and adjustments. Moreover, students find joy in face-to-face classes when compared to other learning modalities such as online distance learning (Wladis et al., 2015).

"I still want to pursue STEM learning, but the enjoyment becomes lesser. Perhaps,

this is because of the saddening situation we face nowadays, where everything seems unsure." – Participant E

3. In terms of Career Direction
Certainty in STEM career path

Senior high school STEM students remained steadfast in determining and assuring their career path despite the drastic change of circumstances brought about by the COVID-19 pandemic. They retained their innate drive to pursue their STEM career directions rooted in their personal aspirations and goal setting that they carried even before the pandemic (Rafanan et al., 2020). Their dreams and goals serve as the genuine purpose to hold to their STEM career paths, hence, strengthening decision-making, personal outlook, and determination.

"If I try to imagine myself doing a different career or entering a different profession, it may be just felt wrong. Regarding my career direction, the new normal does not necessarily affect my decision towards my career path. As a matter of fact, I feel more eager to achieve my STEM goals." – Participant L

"Ever since, I want to be a doctor. I knew it even when I was a child. The pandemic may have changed some of our plans, but my career direction remains solid." – Participant D

Strengthened STEM career choice

Senior high school STEM students' career direction is powered by a lot of influences – family, peers, interests, and media. Family, having a personal connection to the student's lives and well-being, shapes their STEM career direction. Peers also contribute as they serve as strong allies to give encouragement and advice. Personal interest gains greater value as it deepens on one's career direction, rooted in personal gains, satisfaction, and drive. Media, on the other hand, poses a significant influence on one's choices, decisions, and selections. The

influences coming from these factors help the learners to mold and shape their career choices, and later on, recalibrate their directions.

"My family helps me to build my career path. They give me advice, which can truly help me to fulfil my ambitions." – Participant F

"As I watch the series Grey's anatomy, I cannot help but to picture myself wearing a white gown and doing the same things that the doctors do in the series. I am truly much inspired with that." – Participant K

"Still, it all boils down to my personal interest. Despite the motivations and adviceI received, I still consider what I want because this can truly satisfy my being, aspirations, and goals." – Participant B

Redefining career paths

The widespread impact of COVID-19 pandemic has changed the decisions of some senior high school STEM students to recalibrate and redefine their career directions. Some of them were inspired to take on a career due to the present context they are in, as well as the new adaptations they experienced. Other STEM students, though still adhered to STEM endeavours, discovered new interests and developed new skills, which changed their sense of mindsets regarding their career paths (Santos, 2020). Nonetheless, all professions are good to make the community and the larger society a better place to live.

"I love to be in the STEM profession, that is why I took STEM strand. However, with the current scenario we have in our family in which our socio-economic status has declined, I tend to change my career direction and consider the path which is more practical for us." – Participant C

"Seeing the vulnerable healthcare system in our country during the pandemic, it pushed me to take on a career path leading to a

positive change of that and that is being a medical officer. I want to contribute in providing a better healthcare system for the Filipino people." – Participant H

Senior High School STEM Students' Adaptive Strategies to Enrich Themselves in STEM Undertaking amid New Normal Education

Developing STEM identity

STEM identity is defined as the way individuals make the concept of fitting in within STEM fields, making meaning of science experiences and how the community structures possible meanings (Hughes et al., 2013). In such a case, the senior high school STEM students develop their STEM identities as they solidify their aspirations and goals towards STEM career path. They think of themselves as not just passive learners, but dynamic individuals who contribute to the success of science learning. Henceforth, the senior high school STEM students continuously engage themselves in activities and immerse themselves in various undertakings which deepens their interest and elevate their attitude towards STEM. Furthermore, STEM identity has been shown to have a powerful role in an individual's success in educational environments, as well as on their career goals.

"Though implemented in distance learning modalities particularly online, I always join webinars about various topics in sciences. I also immerse myself in STEM research activities through science investigatory projects and inquiry-based undertakings." – Participant A

Fostering STEM competence and habits

Senior high school STEM students participated and engaged in activities to continuously develop their knowledge, skills, talents, and habits which are deemed necessary in STEM learning. They enhanced different facets and aspects of themselves towards the attainment of STEM competence

and habits to acquire inquiry, creativity, persistence, and science literacy. This can be totally achieved as students continuously grow in an extensive learning environment in which STEM is inculcated as a way of life. Moreover, such competence and skills are significant for STEM workplace in the future (McGunagle & Zizka, 2020).

"I continuously engage myself in STEM through the learning endeavours I participated in. In this way, I can develop different skills and enhance my knowledge on STEM as an integrated discipline which is essential in solving problems in the country." – Participant C

Reorganisation of tasks

It is no less than a fact that being a senior high school student in a STEM strand entails a lot of challenges as tasks continuously pile up. A different sense of hard work, responsibility and discipline is required. Senior high school STEM students reorganised their tasks through exhibiting self-directed learning practices, management procedures, and independent learning accountabilities. The new normal education allows the students to nurture their organisation practices to promote responsible learning in order to put time for everything in the logical sequence of priorities. In the case of STEM endeavours, the students were able to give emphasis and consider the importance of STEM learning especially when one finds its relevance in the nature and purpose of life affairs. Nonetheless, the organisation becomes the foundation of clear thoughts and a proper mindset.

"I was able to develop good time management techniques so I can finish all my tasks depending on its schedule and level of importance. Since I am enrolled in the STEM strand, I get to reorganise my tasks so I can give priority on it as it requires a lot of understanding." – Participant G

Peer collaboration

Collaboration is one of the 21st century skills that learners shall achieve to thrive in the knowledge and skill-based society. Collaboration is a significant scheme to attain participation, engagement, inclusivity, and cooperation. In the case of senior high school STEM students, they participate and join club activities, interact with their peers regularly, engage in group dynamics, and perform socialisation to develop a good definition of collaboration. Despite the limitations of new normal education as intensified by the COVID-19 pandemic, the students still maximise the development of harmonious relationship with their peers. Research shows that building a sense of community among students improves student learning, retention, and student satisfaction, hence, improving their overall learning experiences (Fuller et al., 2015).

"Working with my peers allows me to develop my collaborative skills. This also makes me practice my communication skills so I can express myself well. Additionally, it helps me learn more and develop other skills needed, as peers allows us to improve through their encouragements and constructive comments." – Participant D

Conclusions

Based on the results of the study, the researchers deduced the following conclusions:

1. The COVID-19 pandemic has made drastic impacts on the motivation, interest, and career direction of senior high school STEM students. The transition from conventional in-person classes to distance learning modality has caused discouragement to them. However, their passion and goals keep them eager to move forward and continue learning. Despite the uncertainties, their interest towards STEM endeavours was propelled by their constant commitment, yet less enthusiasm has become evident. Nonetheless, senior high school STEM students were still able to become definite of their career directions fuelled by interest and motivation. Yet, some students recalibrated and redefined their career goals due to the current circumstances.

2. Though some senior high school STEM students became unmotivated and lost interest in STEM learning amid new normal education, they were able to devise strategies on how to raise their motivation, interest, and career direction. Students improved their STEM identity through seeing themselves flourishing in STEM profession. They fostered STEM competency and habits through engaging and participating in various activities. They reorganised their tasks and exhibited proper time management to allocate time for their STEM endeavours. They maximised peer collaboration through constant interaction with others during activities and events.

3. A plan of action is proposed to develop the STEM learning experience of senior high school students amid new normal education. It hopes to bring positive and beneficial impacts towards their motivations, interests, and career directions.

Programmes, Projects, and Activities	Objectives	Duration and Persons Involved	Success Indicators
STEM Students' Counselling	To assess the possible struggles and challenges of senior high school STEM students and provide necessary actions for their welfare.	Monthly Senior high school STEM students STEM coordinator School administrator	100% senior high school STEM students showed improvement in terms of their well-being, thereby increasing their

Programmes, Projects, and Activities	Objectives	Duration and Persons Involved	Success Indicators
		Parents Guidance counsellors	motivation towards STEM learning
Career Guidance Orientations	To orient, guide and direct senior high school STEM students and their parents on their career path and help them decide on their future directions based on their interests, talents, and skills.	Quarterly Senior high school STEM students STEM coordinator School administrator Parents Teacher guidance designate STEM advocates and professionals	100% senior high school STEM students were oriented, guided, and directed on their STEM career path
Establishing strong support system	To encourage senior high school STEM students to become more engaged in STEM learning through support systems.	Weekly Senior high school STEM students STEM coordinator School administrator Parents Peers Other stakeholders	100% senior high school STEM students were given support in whatever capacity they needed
Allocation of resources to support STEM education amid new normal education	To provide resources (financial, human, material) in students' learning in order to uplift STEM education amid new normal education	Yearly Senior high school STEM students STEM coordinator School administrator Parents Stakeholders	100% partners and linkages provide support through allocation of resources to enhance the STEM learning experiences of students
STEM Month Culminating Activity	To provide avenue of showcasing senior high school STEM students' talents, skills, and competence through various activities	Quarterly Senior high school STEM students STEM coordinator School administrator STEM clubs	100% senior high school students participated in STEM month culminating activity, thereby raising their motivations and increasing their interests towards STEM endeavours

Recommendations

In view of the results of this study, these recommendations are hereby suggested.

1. Schools may provide opportunities to allow senior high school STEM students to explore and develop their motivation, interest, and career direction in STEM learning amid new normal education. They may be achieved through the provision of programmes, projects, and activities to help them cope and adapt to the new normal education.

2. Learners may continue growing and developing their knowledge, skills, talents, and habits aligned with the thrust of STEM education. This may help them become motivated, interested, and eager on their career pathways.

3. Family, peers, and teachers may provide a support system to cater to the mental and psychosocial needs of students either on matters concerning home and school. This

may help to sustain their motivations to learn and their interests steadfast.

4. Future researchers may conduct parallel studies investigating other factors of STEM learning concerning the effects of new normal education.

The proposed action plan may be considered for implementation to further develop the STEM learning experience of senior high school students amid new normal education.

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