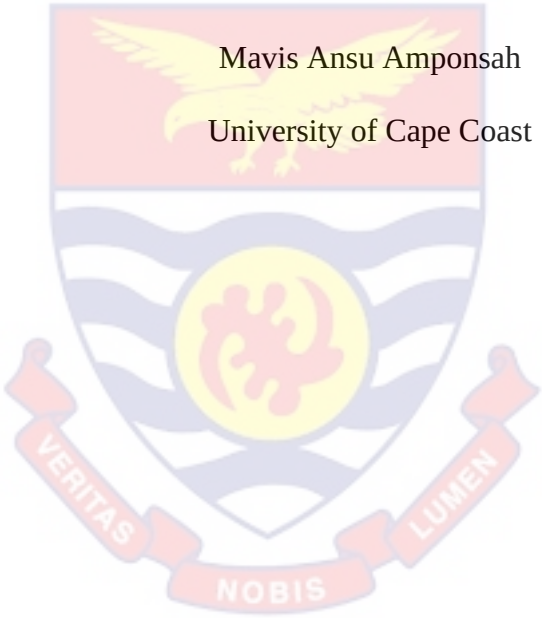
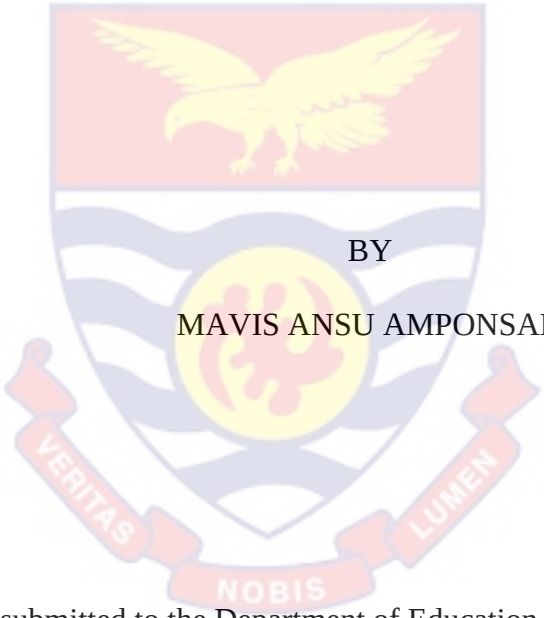


UNIVERSITY OF CAPE COAST

IMPACT OF INSTRUCTIONAL SCAFFOLDING AND STUDENTS' PSYCHOLOGICAL CAPITAL ON SENIOR HIGH SCHOOL STUDENTS' SELF-REGULATED LEARNING AND NEED SATISFACTION



BY

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Thesis submitted to the Department of Education and Psychology of the Faculty of Educational Foundations, College of Education Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of a Doctor of Philosophy degree in Educational Psychology

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ABSTRACT

The study examined teachers' instructional scaffolding and students' psychological capital on self-regulated learning and need satisfaction of students in in 15 selected Senior High Schools in the Bono Region of Ghana. The positivist philosophy was employed. A set of structured self-administered questionnaires were used for data collection. Multi-stage sampling techniques were adopted to sample 510, of which 455 were complete for analysis. The analysis of data was done using the partial least squared structural equation modelling (Hair et al., 2014) The study found that instructional scaffolding and students' psychological capital has a significant positive impact on students' self-regulated learning and need satisfaction. Also, it was found that need satisfaction positively impacts students' self-regulated learning. The study also revealed that psychological capital and need satisfaction mediate the relationship between instructional scaffolding and students' self-regulated learning. Finally, it was found that need satisfaction partially mediates the relationship between psychological capital and students' self-regulated learning. The study recommended that, stake holders, more importantly school management should create an ambiance to facilitate implementation of instructional scaffolding in teaching, activation of students' psychological capital and satisfaction of students' psychological needs to pave way for self-regulated learning.

KEYWORDS

Metacognitive learning

Zone of proximal development

Resilience

Self determination

Motivational belief

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DEDICATION

To my Children

Queenster Adoma Owusu and Emmanuel Kyere Owusu

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LIST OF ABBREVIATIONS

AD	Anno Damini
ANCOVA	Analysis of Covariance
EAP	English for Academic Purpose
EPL	Embedded Platform Lab
FMRI	Functional Magnetic Resonance Imaging
GPA	Grade Point Average
HOTS	High Order Thinking Skills
IELTS	International English Language Testing System
IS	Instructional Scaffolding
KR	Kuder Richardson
MMDA	Metropolitan, Municipal District Authority
NS	Need Satisfaction
PISA	Program for International Student Assessment
PLS-SEM	Partial Least Square Structural Equation Modelling
SDT	Self Determination Theory
SPM	Statistical Parametric Mapping
SPSS	Statistical Package for the Social Science
SRL	Self-Regulated Learning
UCC	University of Cape Coast
WEBT	Web-Based Pedagogical Tool
ZPD	Zone of Proximal Development

CHAPTER ONE

INTRODUCTION

Quality education is an essential factor in the development and progress of any society. As such, it is imperative that educational systems are designed to meet the educational needs of students. Students all over the world are expected to acquire social and contemporary built-up skills that prepare them for further education or for the world of work. Meeting these goals and needs of students requires more than just providing them with a curriculum, but, the use of appropriate and effective instructional methods and strategies are critical core requirements to provide quality education. Likewise, the psychological resources and mindset of the students are equally critical for effective transfer of learning, the acquisition of knowledge and attainment of instructional objectives.

To this end, the present study argues that teachers' use of instructional scaffolding for classroom interaction and students' level of psychological capital they take to the learning environment could interact to contribute to meeting the needs of senior high school students in Ghana. The interaction of these variables would ultimately imbibe in students the capacity to engage in self-regulated learning through a mediating mechanism of their need satisfaction.

Teacher instructional scaffolding would provide students with the support they need to learn and grow, while psychological capital enables them to overcome challenges and persist in their academic pursuits (Zimmerman, 2000). Moreso, the development of psychological capital enhances self-regulated learning, which involves the use of strategies to actively manage and

monitor one's learning process. Given that self-regulated learning involves ability to self-engage in planning, setting goals, monitoring progress, and evaluating performance (Zimmerman, 2000), it is arguable that students who have high levels of psychological capital are more likely to be self-regulated learners.

Background to the Study

Several people and interested groups have requested educators and educational institutions in Ghana to employ efficient learning methods to teach students. In an attempt to identify the most successful teaching methods and approaches, various studies have been carried out where teachers were asked to reflect on their own teaching strategies and their impact on the learning experiences of students (Burch, 2007). A fruitful and rewarding learning environment, active and purposive engagement of students is needed to self-regulate their learning processes. Self-regulated learning is an important factor that contributes to academic success of students (Ratelle et al., 2007). The process of self-regulated learning can be either top-down or bottom-up, depending on the situation and the learning goal (Boekaerts & Corno, 2005). Top-down self-regulation takes place when students are self-directing in order to reach their objectives. In this case, personal interest, values, expected satisfaction and rewards usually motivate the self-regulation behaviour of the student. The bottom-up self-regulation occurs when the learning environment provides the mechanisms to facilitate self-regulated learning. In the current study, attention was on both top down and bottom-up self-regulation dynamics to explore the extent to which teacher instructional scaffolding during

interaction and psychological capital of the student provide the mechanism through their "need satisfaction" for effective self-regulated learning.

The need for achievement and competence describes a desire for a meaningful and mastery experience in different academic circumstances (González-Cutre et al., 2016; Orkibi & Ronen, 2017). The need for understanding explains the need of students to align themselves with significant others and be recognized as group members (Van Den Broeck et al., 2010; Orkibi & Ronen, 2017). As the needs of students are met, they improve their learning and become highly motivated and autonomous (Sierens et al., 2009). When the learning atmosphere supports independence, provides liberty of control, supports ability through structure and supports involvement through affiliation, engagement in self-regulated learning is extremely possible (Grolnick & Raftery-Helmer, 2015; Liu et al., 2014).

Stressing educational activities focused on student relationships and enhancing social interaction may affect learning strategies and intrinsic motivation. It may also allow learners, deeper education, and greater personal progress in classrooms and beyond. According to Gillet et al. (2019) and Sulea et al. **(**2015**),** the main elements of the student community are; The psychological needs of students, their school engagement, interest in schooling and actions in school activities changes determine their success in school.

For students' self-regulated learning to flourish and meet their needs, the teacher's use of instructional scaffolding and students' application of psychological capital in the form of student motivation and self-evaluation, should help them plan, set goals, monitor, and evaluate their own progress. There is some evidence that giving people information about how to control

their learning and meet their needs can help them be more self-regulated and also meet their needs (Dignath & Büttner, 2008). Students should be able to take responsibility for keeping track of their own progress and that of others. Another example of a self-regulated learning strategy is direct support

Teachers can teach students how to regulate their learning by increasing the complexity of the study and learning strategies (Cleary & Zimmerman, 2004), encouraging them to control their learning process, or adjusting their cognition and effort to the demands of the learning tasks (Pintrich & De Groot, 1990). If teachers provide students with support, guidance and feedback, they will create an educational environment that can satisfy the students' psychological needs and increase their study engagement (Rahmadani et al., 2019). Building high-quality relationships with students (satisfying their need for relatedness), teachers can help students to develop their psychological capital (You, 2016), which, in turn, would develop necessary skills and attitudes to meet academic requirements (Carmona-Halty et al., 2019). Psychological capital of teachers increases positive emotions of students (Probst et al., 2017), and positive emotions enhance students' motivation and use of learning strategies (You, 2016). The development of students' psychological capital is significant for psychological need satisfaction (Luthans & Youssef, 2007; Verleysen et al., 2015) which, in turn, can promote students' self-regulated learning.

Self-regulation is a capacity that can be developed and the development of self-regulated learning skills in students require the role of the student, the teacher and the learning environment (Taylor & Ntoumanis, 2007). Alexander and Wade (2000) indicated that self-regulated learning can

be promoted by encouraging students to be part of the learning decisions to engage in appropriate and meaningful learning tasks, and the availability of effective learning approaches. During self-regulated learning, instead of students merely memorizing or applying the information, they need to actively think about how the content can be tested and utilised (Jones, 2017). Thus, the student has to think strategically about what is necessary to be recalled or deleted from the content information during leaning. In this study therefore, the psychological capital of the student and teacher instructional scaffolding during interaction would be essential in providing the restitution that is needed for effective self-regulated learning, through the "need satisfaction" of the student.

Instructional scaffolding is a teaching device that allows more mature people to optimize their ability to less qualified students. Teachers may use scaffolding techniques in different ways, for example, by tracking participating students, providing input and motivating students to obtain the appropriate assistance (Cho & Cho, 2016). Scaffolding is an educational help that allows students to work at their best. Briefly, it is a learning appraisal technique (Boud & Falchikov, 2005). Students can generate high-quality inquiries with supportive instructional scaffolding (Bates et al., 2020; Chin & Brown, 2002).

The degree to which teachers seek to encourage scaffolding among learners help to decide the learning experience and the progress of students. Lack of effort to encourage the interaction in scaffolding can lead to negative learning experiences, such as abandoning courses. Lee and Choi (2011) found that the dropouts of students in their content reviews had been attributed to

lack of attempts by teachers to practise scaffolding procedures to facilitate interactions. The more instructors promote interaction through timely response on the productivity of students, encourage them to be involved in interactive activities and support for struggling learners, the greater the likelihood of students continuing to engage in learning (Cho & Cho, 2016).

Young (2006), and Zydney et al. (2012), indicated that not all teachers understand how student experiences with their peers are encouraged. Many educational researchers and practitioners, therefore, recommended that scaffolding procedures be employed to facilitate interactions based on the findings from questionnaire, interviews and literary reviews (Rovai, 2007; Young, 2006). For instance, in a survey of 199 students, through scaffolding, Young (2006) found that when their teachers interacted regularly with the students, they were engaged in class activities and received prompt feedback. Hogan and Pressley (2017) **t**erm this as practice scaffolding.

Again, given the critical role of self-regulatory learning in academic performance (Rotgans & Schmidt 2009; Schloemer & Brenan 2006; Schun, 2005), it is important that efforts and relevant strategies to equip students to self-regulate their learning experiences be encouraged. Dignath (2008) observed that self-regulating students have a higher likelihood of academic success and are optimistic about their future and also stress the importance of self-regulation for life-long learning. Learners with higher self-regulatory learning skills are more academically driven and demonstrate successful capacity to learn with little support (Pintrich, 2004). Such learners are encouraged and self-motivated to evaluate their learning tasks by reflecting on

their activities and setting goals for learning (Oates, 2019) making them successful in furthering their education.

The ability of students to learn and use effective learning strategies would directly support their potential to engage in self-regulatory learning. Teachers teaching students the best strategies and providing them with rewarding learning environment and interaction are critical for self-regulated learning to take place (Dignath, 2016). Given that self-regulated learning involves the learner actively taking control and management of his or her own learning process, there is the need for personal and psychological resources on the part of the student for the process to be effective. In this study, attention will be on psychological capital of students as personal and psychological resources that have implications for self-regulated learning. Self-regulated learning generally includes the ideas, feelings, and actions of students that relate to the achievement of learning objectives (Dignath & Werf, 2012).

As a global personal resource, psychological capital has the potential to support students' self-regulated learning (Siu et al., 2014). Students who possess psychological capital are more goal-oriented and thus, intrinsically motivated to study and, ultimately, to exert greater effort in their learning (Siu et al., 2014).

Luthans et al. (2007) explained that psychological capital signifies one's encouraging evaluation of situations and likelihood for achievement based on inspired determination and persistence. With this, psychological capital is made up of an individual's self-efficacy, hope, optimism, and resilience. Self-efficacy is about the individual's ability to do something and do it better (confidence); hope is about persistence towards aims or the

transferral path to aims purposely to succeed; optimism is about the individual's constructive acknowledgment about succeeding whether now or the future; and resilience is about the individual's ability in the face of difficulty, to withstand one's exertions to attain success (Luthans et al., 2007) and Wernsing (2014) indicated that psychological capital is regarded as a fundamental concept because the components together have influence than the effects of the individual components. Important for practice is the impression that psychological capital can be established and enhanced through training programmes (Dello Russo & Stoykova, 2015; Luthans et al., 2007; Lupsa et al., 2019).

Brown et al. (2016) then also Zhu and Mok (2018) indicated that teachers should offer students clear knowledge on effective methods and provide formative input on learning. Zhu and Mok (2018) also reported that established response is a treasured organiser of self-regulatory learning, particularly when it is precise and decisive, and it is viewed by students as useful for learning. Forming numerous learning prospects and organising the learning atmosphere to help students to exercise, simplify intellectual and metacognitive styles are procedures to promote self-regulatory learning for students (Schweder & Raufelder, 2019).

Dignath et al. (2012) lectured that creating a positive learning environment that promotes student autonomy is not enough for students, but teaching students how to take control in the learning process, and providing them with a workable framework. This, according to Sierens et al. (2009), brings about self-sufficiency, which encourages the dedication of students to self-regulatory learning, while the system imparts on them how to apply self-

regulatory procedures. Effective instructional approaches that improve the relation between students and teachers, as well as unique evaluation strategies, can also affect student self-regulation (Rotgans & Schmidt, 2009).

Research suggests that learners are successful in and beyond education when they participate in educationally efficient forms of self-regulated learning (Perry et al., 2008). Regrettably, various students across a broad spectrum of ages and contexts do not adapt their learning to educationally productive avenues (Winne, 2003).

Early researchers such as Many et al. (1996), Perry et al. (2008) and Turner (1995) using a mixed classroom approach shows that children build academically successful modes of self-regulatory learning in complex meaningful activities, have opportunities to select and evaluate learning processes and items, handle the challenging tasks involved and assess their own learning processes. Research further shows that teachers' support for self-regulated learning includes scaffolding and other training techniques which ensure students gain independent knowledge and strategic knowledge to take appropriate decisions and improve their capacity by trying to accomplish hard work (Perry et al. 2008; Vandekamp, 2000; Wharton-McDonald et al., 1997). The exercises direct and incorporate healthy evaluation methods to inspire and not force students to learn (Perry et al., 2008).

The need for achievement and competence describes a desire for a meaningful and mastery experience in different academic circumstances (González-Cutre et al., 2016; Orkibi & Ronen, 2017). The need for understanding and being understood explains the need of students to align themselves with significant others and be recognized as group members (Van

Den Broeck et al., 2010; Orkibi & Ronen, 2017). Assert that, as the needs of students are met (need satisfaction), they improve their learning and become highly motivated and autonomous (Sierens et al., 2009). That is when the learning atmosphere supports independence, provides liberty of control, supports ability through structure, supports involvement through affiliation, engagement in self-regulated learning is extremely possible (Grolnick & Raftery-Helmer, 2015; Liu et al., 2014).

Educational activities focused on student relationships and enhancing social interaction may affect learning strategies and intrinsic motivation positively. It will allow learners, deeper education and greater personal progress in classrooms and beyond. According to Gillet et al. (2019) and Sulea et al. (2015), the main elements of the student community are; The psychological needs of students, their school engagement, interest in schooling and actions in school activities changes or determines their success in school.

The foregoing discussion suggests that need satisfaction closely enhance students' study engagement and employment of personal resources, like psychological capital to facilitate their self-regulated learning. Psychological capital and need satisfaction cannot develop in a vacuum; they are likely developed through foresighted actions of the teacher, such as instructional scaffolding to promote self-regulated learning among students (Ali, 2021).

Statement of the Problem

The ability of students to self-regulate is essential in their academic performance (Rotgans & Schmidt 2009; Schloemer & Brenan 2006; Schun, 2005) and self-regulation for life-long learning (Dignath, 2008). Empirical

evidence suggests self-regulating students have a higher likelihood of academic success as a result of being optimistic about their future (Dignath, 2008). Given the importance of self-regulated learning, it is important that various personal student factors, teacher and school factors, as well as psychological elements that could enhance self-regulated learning capabilities in students be identified to help in the design of intervention strategies.

As a tutor at the college of education, I have observed that our students lacked the ability to engage in meaningful self-regulated learning. Personal discussions with teachers and students in senior high schools in the Bono region where I teach also led to the same observation, that the students across the levels lacked the capacity to self-regulate their learning. The observations made at both the senior high school and the college of education were that, whenever the teachers are engaged in other school activities and are not present in class to direct students' learning, the students do not take personal initiatives to engage in meaningful learning activities. They become aimless and sometimes, rather get involved in noise making and disruptive behaviours.

Studies in other jurisdictions indicated that factors such as instructional scaffolding, psychological capital (Probst et al., 2017) and psychological need satisfaction (Luthans & Youssef, 2007; Verleysen et al., 2015) of students are essential elements in developing the capacity of students to self-regulate their learning. It has been suggested that the development of students' psychological capital is essential for the fulfilment of psychological needs, such as the desire for autonomy, competence and relatedness (Luthans & Youssef, 2007; Verleysen et al., 2015) which, in turn, can promote students' self-regulated learning (e.g., Rotgans & Schmidt, 2009). Furthermore,

instructional scaffolding has also been identified as crucial factor in promoting psychological capital of students, and both instructional scaffolding and psychological capital are essential tools for the fulfilment of psychological need satisfaction among students (Combs et al. (2009); Nguyen et al., 2020; Perry et al., 2008).

Meanwhile, most of these studies have been done, largely outside Africa (e.g., Dignath, 2016; Liu et al., 2014; Sierens, Vansteenkiste et al., 2009; You et al., 2014; Zhu & Mok, 2018), and so do not provide context specific evidence to support appropriate policy and practical interventions in Ghana. There is a dearth of research on these important factors in the Ghanaian context, especially, in senior high school students in Ghana. It is important to have context-specific empirical evidence to inform policy and intervention strategies to promote self-regulated learning behaviour among students in senior high schools.

Also, the few studies related to these factors were also done in isolation (Appiah-Kubi, 2020; Ortega-Maldonado & Salanova, 2017; Nguyen & Henderson, 2020), and do not provide a comprehensive understanding of how instructional scaffolding, psychological capital and psychological need satisfaction interact to promote self-regulated learning in students. This calls for further studies to examine how these variables interact and their direct and indirect roles in promoting self-regulated learning among senior high school students in Ghana. This would help in obtaining comprehensive context-specific empirical evidence on these issues for interventions to boost students' learning and acquisition of essential psychological resources in life. This study examined the mediating roles of psychological capital and need satisfaction in

the relationship between teacher instructional scaffolding and self-regulated learning of students, and employed a second-generation analytical approach that simultaneously evaluated the nature of interaction among these variables.

Purpose of the Study

The purpose of this study was to examine the impact of instructional scaffolding and Students' psychological capital on senior high school students self-regulated learning and need satisfaction in Bono Region

Specifically, the study sought to investigate:

1. Teachers' instructional scaffolding on psychological capital Senior High Schools students.
2. Teachers' instructional scaffolding on need satisfaction Senior High Schools students.
3. Teachers' instructional scaffolding on self-regulated learning of Senior High Schools students.
4. Psychological capital on need satisfaction of Senior High Schools students.
5. Psychological capital on self-regulated learning of Senior High School students.
6. Need satisfaction on self-regulated learning of Senior High Schools students.
7. Psychological capital on the relationship between instructional scaffolding and students' self-regulated learning.
8. Need satisfaction on the relationship between instructional scaffolding and students' self-regulated learning.

9. Need satisfaction on the relationship between psychological capital and self-regulated learning of Senior High Schools students.

Research Hypotheses

1. H_0: Teachers' instructional scaffolding will not significantly impact psychological capital of Senior High School students

   H_1: Teachers' instructional scaffolding will significantly impact psychological capital of Senior High School students:
2. H_0: Teachers instructional scaffolding will not significantly impact need satisfaction Senior of High School students

   H_1: Teacher instructional scaffolding will significantly impact need satisfaction of Senior High School students
3. H_0: Instructional scaffolding will not significantly impact self-regulated learning of Senior High Schools students.

   H_1: Teacher instructional scaffolding will significantly impact self-regulated learning of Senior High Schools students.
4. H_0: Psychological capital will not significantly impact need satisfaction of Senior High School students.

   H_1: Psychological capital will significantly impact need satisfaction of Senior High School students.
5. H_0: Psychological capital will not significantly impact self-regulated learning of Senior High School students.

   H_1: Psychological capital will significantly impact self-regulated learning of Senior High School students.
6. H_0: Psychological capital will not significantly impact need satisfaction of Senior High School students.

$H_{1:}$ Psychological capital will significantly impact need satisfaction of Senior High School students.

7. H_0: Need satisfaction will not significantly impact self-regulated learning of Senior High Schools students.

   $H_{1:}$ Need satisfaction will significantly impact self-regulated learning of Senior High Schools students.

8. H_0: Psychological capital will not significantly mediate the relationship between instructional scaffolding and students' self-regulated learning.

   $H_{1:}$ Psychological capital will significantly mediate the relationship between instructional scaffolding and students' self-regulated learning.

9. H_0: Need satisfaction will not significantly mediate the relationship between instructional scaffolding and students' self-regulated learning.

   $H_{1:}$ Need satisfaction will significantly mediate the relationship between instructional scaffolding and students' self-regulated learning.

Significance of the Study

The significance of this study is multifaceted. Firstly, the findings would make some suggestions to the Ministry of Education, Ghana Education Service, National Council for Curriculum and Assessment and other stake holders on the need for instructional scaffolding to be properly implemented and psychological capital to be embedded in the senior high school curriculum and ensure they efficiently and effectively use.

Again, it would contribute to the existing body of knowledge in the area of how psychological capital and instructional scaffolding serve as pre-requisite for quality education, particularly in senior high schools in Ghana.

The study will also provide valuable insights into the factors that influence student need satisfaction and self-regulated learning, which could inform more effective instructional design and implementation. Additionally, the study's focus on instructional scaffolding and psychological capital as predictors of student outcomes has potential implications for teacher training and development programmes. By identifying the factors that are most impactful in promoting student need satisfaction and self-regulated learning, the study could help educators better understand how to provide effective instructional support and cultivate positive student mind-sets.

Furthermore, the study's focus on Ghanaian senior high schools makes it particularly valuable in the context of educational research, as there is limited research on student need satisfaction and self-regulated learning in the Ghanaian setting. By shedding light on the unique impact of the variables in the study, when seen as a nomological system, could also help inform policy decisions to improve educational outcomes in the country. One of the potential consequences of inadequate instructional scaffolding among teachers lead to the low satisfaction and poor performance of senior high students in Ghana. This is because students require the right level of scaffolding and support from their teachers to enable them to engage in self-regulated learning and meet their educational needs.

Additionally, when student’s psychological capital are not activated, they may be less motivated and effective, leading to disengaged students and inadequate learning outcomes. To address these issues, there is a need for schools and educational policymakers in Ghana to prioritize strategies that enhance teachers' activation of students’ psychological capital, as well as

improving instructional scaffolding in the classroom. It will also help school management to ensure students follow through the learning process to self-regulate their learning by ensuring favourable environment and flexible teaching timetable.

Delimitation of the study

The study was delimited to second year students in Senior High Schools in the Bono Region and not any other student in Ghana. The choice was based on the fact that third years are always pre-occupy by examination anxiety and wasn't feasible to use them as it may seem interference to them. The first years on the on the hand were new on the environment and managing adjustment and adaptation, also they may have less experience and exposure to express their views.

The study was delimited to descriptive analytical survey as well as quantitative design and not any other scientific design, this was researchers' preference for variation as most studies in the area were quasi-experimental with small sample size and also considering the nature of the sample which align well with qualitative design for those study.

Again, the study was delimited to Partial Least Square Structural Equation Modelling (PLS-SEM) for analysis using SmartPLS 4.0 software. The tool was appropriate in that it allows for estimation of complex models with many constructs, indicator variables and structural path without imposing distributional assumptions on the data. Again, it's a causal-predictive approach to PLS-SEM that emphasises prediction in estimating statistical models whose structures are designed to provide causal explanations (Becker et al. 2018a).

The study was delimited to some specifically adapted scales namely; Instructors' Use of Scaffolding Strategies. Psychological Capital, Short Self-Regulation Questionnaire and lastly Basic Need Satisfaction in General Scale (measuring psychological needs) and not any other scales available for similar constructs because they were considered best for the variables.

Limitations

The study was constrained in terms of local-based literature. However, other studies around the world were reviewed to make a case for the variables and issues captured in the study. Again, the study was not free from methodological errors in as much as quantitative measures was employed to quantify the attributes under consideration as well as the use of research assistants. However, efforts were put in place to be meticulous in computation. The research assistants were given enough coaching with regard to the questionnaires administration to minimise their effects on the study findings.

The instrument for the study were basically foreign base and some administered in an online classroom setting, however, they were restructured to suit the local and physical classroom setting

With regards to implication, the findings of the study might not be generalised to all students in Ghana but to only those that were used for the study within the study area as data was the individuals view and perception. However, the findings could be used as an inference point in other areas different from the study area in order to guide discussions in similar construct areas.

Operational Definition of Terms

Instructional scaffolding: is a type of teaching or instructional assistance offered in support of learning by teachers and peers to a student.

Psychological capital: is the positive psychological state of student's development centred on self-efficacy, optimism, and resilience in learning situations.

Self-regulated learning: refers to students' ability to understand and control one's learning situation.

Need Satisfaction (Psychological needs): is learner's need for autonomy, competence, and relatedness in the learning situation.

Organisation of the Study

The study consisted of five chapters. Discussion of the background to the study, sets out the problem under study, and states the purpose of the study, the objectives, the research hypothesis the significance of the study, the delimitation of the study and limitation were all done in Chapter One. Chapter Two covered the review of literature related to various aspects of the study. It described the theoretical, conceptual and empirical framework within which the study is situated. Chapter Three dealt with the research methods employed for the study. It described the research design, population, sample and the sampling procedure, the instrument used in data collection, how it was administered and ended with how data was be analysed. Chapter. Chapter Four presented results and discussion of the findings. Finally, Chapter Five summarised the research process; conclusions and recommendations for policy, practice and further research are also present in Chapter Five.

CHAPTER TWO

LITERATURE REVIEW

Introduction

Within the context of this literature review, the theories that underpin the present study will be methodically validated and the presumed interrelationship among teachers' instructional scaffolding, students' psychological capital, self-regulated learning, and need satisfaction. The review further seeks to provide an in-depth explanation of the nature and scope of these concepts of interest, empirically examine the existing relationships among the variables concern based on preceding scholarly works. It will finally propose a conceptual framework that guides the study's logical focus.

Theoretical Framework

This study is moored on self-determination theory (SDT), sociocultural theory and the model of self-regulated learning.

Self-Determination Theory

The conception of the Self Determination Theory (SDT) dates far back to the year 1985. It was further modified in the year 2000 to cover all aspects of individual's motivation and personality. The Theory of Self-Determination suggests that for human operation and development, there must be three fundamental psychological requirements namely; autonomy (volitional feeling), skill of competence (effectiveness) and relatedness. This is to say, they are very important (Deci & Ryan, 2000), and are needed to support the intrinsic motivation of people to engage in certain behaviours. Self-determination Theory is an organismic theory of optimal human motivation,

which has stood the test of time for the past three decades and has widely received support from a range of study programmes, particularly at primary and secondary school levels (Sheldon & Biddle, 1998).

According to Deci and Ryan (1985), autonomy takes place when people feel that their behaviour is caused by themselves. However, autonomy here is not independence or full freedom, but an internal acceptance and commitment to a motivated conduct. Supporting autonomy means choosing and providing a meaningful justification where choices can be made (Filak & Sheldon, 2003). Competence on the other hand, occurs when the behaviour is effective. Skill is synonymous to self-efficacy and can be seen if one takes on difficult tasks and masters them. According to the Self-Determination Theory, competence support means trusting and providing sensitive mentoring and feedback on the ability of students to face challenges. Relatedness occurs when one feels linked or understood by others. This brings about the self-determination structure which is considered to be more general, surrounding interpersonal and group relationships. This structure is similar to the need for belongingness and support connectivity. The implication of this structure is seen in accepting, respecting, and caring for others (Filak & Sheldon, 2008).

The Self-determination Theory posits that psychological wellbeing can be enhanced, and students can achieve their maximum academic potential, by satisfying the three prerequisites or components of the SDT. In contrast, students do not thrive when these requirements are not met (Reis et al., 2000; Sheldon et al., 2001). Earlier research has also provided a mountain of evidence in support of satisfaction and accomplishment critically impacting psychological needs through the SDT; however, it appears studies

on the relationship between the psychological needs of students and their achievement in particular areas or subject matter have received little attention through the lenses of the Self-determination Theory. Similarly, Self-Determination Theory suggests that fulfilling the three fundamental psychological needs will somehow strengthen employee motivation, leading to important outcomes such as efficiency, especially tasks involving creativity, cognitive flexibility and conceptual understanding (Gagné & Deci, 2005).

In view of this, fundamental psychological need satisfaction is strongly defined within Self-Determination Theory as "the development, integrity and wellbeing are few nutrients that the living body needs" (Deci & Ryan, 2000, p. 326). These three fundamental requirements, including autonomy requirements, the need to be related and the need to feel competent (psychological capital) are incorporated in the need satisfaction. This implies that meeting these needs facilitate the internal motivation to promote students' well-being and control the school environment towards the achievement of educational goals (Schultz et al., 2015). The SDT further provides for some eventualities that regulate people's motivation.

According to the SDT, internal and external possibilities are the factors responsible for controlling people's motivation to perform an act. Internally, self-motivation occurs when employees are engaged in activities that make them feel that those activities will either benefit them personally or intrinsically motivate them (Deci & Ryan, 2000). Externally, other motivational factors may drive their needs to perform an act. It is therefore prudent to recognise the primary factors which, despite demanding working

conditions, improve people's motivation to perform an act. Drawing inferences from this position as asserted by Deci and Ryan (2000), it can be deduced that students' characteristics could be the essential factors influencing their motivation and these factors may potentially buffer their characteristics against the negative forces in the school environments. Therefore, if students are motivated through acquisition of their needs, they can sail through unfavourable academic settings to achieve their educational goals.

The suitability of the Theory of Self-Determination to this study is drawn from its ability to explain how people's need satisfaction and motivation optimise the functioning of their psychological growth. According to the theory, psychological growth is achieved when the social environment provides a supportive system for the achievement of psychological needs. Hence, the theory connects the psychological capital and students' need satisfaction to explain the interconnection between these variables of interest to promote higher educational outcomes. In furtherance, Ryan and Deci (2000) opined that the theory of self-determination is an approach that focuses primarily on motivating people and satisfying needs, which is a fundamental component of human motivation. Students' need satisfaction is a function of human motivation which invariably influences a person's psychological capital.

Sociocultural Theory

The foundation of instructional scaffolding as a student assistance method, sterns from Vygotsky's (1962) sociocultural theory and learners' conception of a zone of proximal development (ZPD). The sociocultural theory asserts that social interaction enhances the development of cognition. From

this, Vygotsky coined the definition of the teaching practice or strategy "scaffolding". This, the scholar defined as the role of teachers and others to support the development of learners and as well provide them with supporting structures to reach their next stage or level (Raymond, 2000). Instructional scaffolding is a process by which a teacher provides support for students so that they can improve learning and help master tasks. The teacher builds on students' prior experience and knowledge (relevance previous knowledge) as they methodically pick up new skills, which is relevant to this notion for modern successful teaching and learning. The Vygotsky concepts on supporting independence include a second layer for instructional scaffolding. This mechanism for support; zone of proximal development (ZPD), differs from what the students are able to do independently, and what the students can do through adult support and scaffolding.

Vygotsky registered his conviction that instructional scaffolding and application o the ZPD allowed children to learn successfully in every discipline. Lev Semenovich Vygotsky conceived the concept of a zone of proximal development (ZPD) in the late 1920s and continued to refine it until his demise in 1934. The scholar contends that when content is taught outside of the current level of skill and knowledge, the ZPD activation process is initiated. This stimulates the motivation of a student to learn more about the content, thus, propelling the learner to work beyond his/her present level of skill. Learning and growth support students by shifting their cognitive involvement from the teacher to other students (Fisher & Frey, 2007). Vygotsky thought it would not be ideal to learn in isolation, rather, learning as an interaction with classmates and other participants in the lesson guides the

social process. Kang and Im (2013) found a substantial explanation of the perceived learning of students and their course satisfaction through scaffolding experiences between students and their instructors. Furthermore, Kim et al. (2011) found that instructors predict the perception of social presence of their students through scaffolding interactions for quality teaching and learning. However, other studies indicate that successful scaffolding interaction between teachers and students does not occur automatically during their learning but through various procedures (Cho and Kim, 2013; Hrastinski, 2008; Hew et al., 2010; Khine, Yeap & Lok, 2013)

As students move from being educated directly by the teacher to being able to solve problems independently and network themselves with other student and classmates, it becomes essential for the teacher to develop his/her skills in order to provide substantial support for students to champion their own learning. This theory therefore extends a clarion call on all individuals to develop and contribute in a highly interactive, solution-oriented and effective way to make the process effective. This means that existing classrooms should provide ample opportunities to practice these participation skills for its important so that students will have leadership abilities that are fully aligned with interdependency requirements at work. In brief, it is anticipated that teachers would create conducive atmosphere to pave way for more opportunities to benefit students. It can also help them connect well with their peers during the learning process and will train them in leadership with less direction. By this, the role of self-regulated learning is released through the teacher's instructional scaffolding.

According to Vygotsky (1962), development cannot be detached from its social and cultural environment, making Vygotsky's idea of mediation which made a significant contribution to the knowledge of learners' development the only means of exploring mental processes. Psychological capital, in which self-efficacy is highly influenced by cognition (Bandura, 1997), makes it cognitive variable. This implies that teachers who must promote learners' competences and skills development through the application of scaffolding must understand the needs and interest of the learners which translate into learner's need satisfaction at the end of the lesson. Bandura also developed the self-efficacy theory from the Socio-cultural Theory which emphasizes the collaboration between the teacher and the learner in constructing knowledge and skill to promote students' self-regulated learning.

Against this background, Vygotsky's Socio-cultural Theory provides the basis for understanding the role of scaffolding in promoting or stimulating students' self-regulated learning as well as their motivation to learn. The concept of students' self-regulated learning, which is need motivated, is elaborated by the idea that when content is taught outside the current level of skill and knowledge, the ZPD activation process is initiated to stimulate the motivation of a student to learn more about the content. The Socio-cultural Theory further emphasise the role of scaffolding in propelling the learners to work beyond their present level of skill and competencies. As part of the drive of this study, the theory provides an interrelation amongst teachers' instructional scaffolding, students' self-regulated learning and need satisfaction. Further, Vygotsky (1962) emphasized that the only means of exploring learners' mental processes is to promote their knowledge

development which is a function of their social and cultural environment, hence, the significant contribution to the social cognitive theory.

Self-Regulated Learning Models

Zimmerman, one of the most prolific SRL authors developed three Self-Regulated Learning Models (Panadero & Alonso-Tapia, 2014). The first model, known as the Triadic SRL Analysis, shows three forms of Self-Regulated Learning: interaction-environmental, behaviour and human level. This model describes how Self-Regulated Learning can be viewed in the triadic social-cognition model of Bandura. The second model connotes that the Self-Regulated Learning has cyclical phases, which explain the interrelation between metacognitive and motivational processes at the individual level. This model is usually known as Zimmermann's model. These sub processes were presented in each stage but were not included in the figure until 2003 (Zimmerman & Campillo, 2003). Finally, the model experienced several tweaks in Zimmerman and Moylan (2009), including new metacognitive and volitional performance strategies. The third Zimmerman model, called the Multi-Level Model, which was recently developed, represents the three phases in which students acquire self- regulatory skills (Zimmerman, 2000). This study utilizes the Cyclical Phases model, which describes the Self-Regulated Learning process.

Zimmerman's Cyclical Phases Model

The cyclical Self-Regulated Learning model (Zimmerman, 2000) is organised into three phases: forethought (first), performance (second) and self-reflection (third).

Forethought Phase

This is the initial stage during which the students approach the task with the aim of analysing it, evaluating their ability to do it successfully and setting goals and plans on how to do it. To achieve a proper planning and performance of this task, the interest and orientation of the task play a critical role. The students undertake two main tasks in this phase. First, they analyse the task features by creating an initial picture of how it should be done. The second is to analyse the value the task has, its motivation and effort under these conditions, and its attention during the execution. The self-regulation cycle starts with task analysis, according to Zimmerman and Moylan (2009), where this is split up into smaller pieces, with the individual performance strategies chosen according to previous knowledge and/or experience (Winne, 2001). The objectives and strategic planning which are key conditions for self-regulation are established in this period. When establishing their objectives, the students consider two key variables: the assessment criteria and the level of performance they want (Winne & Hadwin, 2013).

Criteria for evaluation are the standards for evaluating performance. The problem is that students do not know these criteria; it is often the case that teachers do not always explicitly state how the tasks are to be evaluated. When this happens, students find it difficult to set suitable goals. Research which has demonstrated positive impact on learning by explicitly identified assessment criteria (Panadero & Jonsson, 2013) supports this approach. Secondly, the desired level of performance for students influences the setting

of targets, which interacts with assessment criteria (Pintrich & de Groot, 1990).

A student knows for one specific task he or she needs to make a lot of effort to achieve an excellent performance. The student's interest in this task however is not very high and the achievement is not an objective. Even if the teacher communicates the evaluation criteria, this student does not appreciate the activity so much that he or she can put in the necessary effort for an excellent level. For strategic planning, an action plan is developed by selecting the strategies needed to succeed. Planning is a key process of self-regulation and a good predictor of success (Zimmerman, 2008). The students spending more time planning was, therefore, crucial to their greater achievement. It is also a major differentiation between experts and novices (Dabbagh & Kitsantas, 2005). Further, task analysis is essential for self-regulation in planning. The implementation of the schedule nevertheless depends on the motivation of the students to achieve the objectives.

Within the forethought, the beliefs, values, interests, and objectives are the individual variables that produce and keep the motivation for a task. The interaction of these variables gives rise to the motivation for a job. Expectations of self-efficacy are convictions of personal ability to do a task. For example, if a student considers himself unable to motivate him or herself, he or she will lose motivation and will not make any effort to predict his or her failure (Pajares, 2008). On the contrary, if the expectations of self-efficacy are high, the students are more motivated to use the strategies needed to face the difficulties during the performance. The expectations of good results are in the fact that, a given task is successful. Like self-efficacy,

students with low results will not make the necessary effort to succeed if they have low results expectations. While self-effectiveness and expectations of results could appear to be the same, this is a common misunderstanding as points out by Pajares (2008). It should be considered that different characteristics of the two variables. The task value on one hand is the importance of the task for the individuals' purpose of the students. If students understand that the task is useful, they are motivated to carry it out, learn from it and develop more learning strategies. Therefore, teachers should mention or help students to understand the usefulness in increasing their motivation when they initiate an activity. Meanwhile teachers are to do a job, with activated emotion (Hulleman et al., 2008; Renninger & Hidi, 2011). The personal meaning giving to a task by a person or situation when activated by the task characteristics can activate the interest.

The orientation towards the goal of students' belief in the aim of their training is another important variable for motivation. Zimmerman explicitly included this in his model. In any event, there should be a common ground, even if it is a general judgment of their knowledge, based on experience, that goal guidelines affect self-regulation. Students with learning objectives can be demonstrated by strategies that encourage deeper learning, advanced reflection, a rapid recovery from faults and are part of tasks (Grant & Dweck, 2014).

Performance phase

The performance is carried out in this phase. It is important during performance that the students maintain their concentration and use suitable learning strategies for two reasons. First, their motivation does not decline,

secondly, their advancement towards their objectives is monitored. Both involve different actions and processes which differ based on the model of self-regulation. According to Zimmerman and Moylan (2009), self-observation and self-control are the two key processes during performance and several strategies can be followed to work successfully. One condition for controlling the task process is for students to have a clear understanding of the adequacy and quality of their activities, so they can continue if it's accurate and if not change it. Self-monitoring, also known as metacognitive monitoring or self-surveillance, is the first type of measurement which is a counterpart to criteria that evaluate the quality of the process (Winne & Hadwin, 2013). The process is similar to self-assessment, according to Panadero and Alonso-Tapia (2013), only when the job is over, and the task takes place during performances self-assessment. In this way, standards can be set to evaluate the final "self-evaluation of the product" and standards can be found for the performance of the process' self-evaluation work.

Another type of action, which promotes self-observation, is the recording of oneself which codes the actions performed. It then constitutes an external strategy to monitor and reflect once the task is completed. Students can know things that had previously been undetected with self-records. For example, registering how long it takes to read a text will help them to understand how long it takes. It is important to remember that a cognitive overload can occur during performance that prevents all actions carried out from being registered (Kostons et al., 2010).

It is not effortless to maintain the concentration and interest during performance, as a series of strategies is required. If students understand the

task clearly, they can employ strategies in order to accomplish the task. By highlighting a text during reading, for example, you can recall the most important sections. Similarly, students can use self-learning that is automatic orders or descriptions of the job they are doing. Verbalisation also improves learning and is essential for self- regulation. Students can also use pictures that use mental images to arrange and focus their attention on learning and memorization (Zimmerman & Schunk, 2001). Pictures are more interesting because they allow students to view situations and can be used as well.

Again, students should use time management to view all aspects of their task. If students do not manage their time, their performance will be affected, particularly if they start feeling that there is insufficient time to complete the task their results can decrease, because they cannot feel that they will succeed. Time management is therefore conducted using strategies to monitor the execution of a task at a specified time (Dembo & Seli, 2008).

A structured learning environment is necessary to maintain attention and interest in a task (Corno, 2001), and this can be achieved by the creation of a less distracted environment that enables learning. One strategy to avoid is distractions, for example, not sitting next to a classmate who speaks during class. Again, gathering all needed materials before starting the task is another strategy for enhancing concentration and efficiency. Students learning blocks can be resolved by searching for help. To improve or sustain their interest, students can use incentives. This is done through self-directed messages, which tell you about the goal or the challenge that you want to solve (Corno, 2001). "I'm going to find a way to resolve this problem," for example, or "I'm not distracted; this exercise must be understood." All are actions that regulate

motivation and indirectly affect performance on the normal basis but in a crucial way when the students face challenges (Wolters, 2003).

Self-Reflection phase

After the performance strategies if students do not progress, they are likely to stop doing the job. However, they can overcome this difficulty if they use self-reflection. Self-reflection is taking time to think about, meditate on, evaluate and give serious thought to one's behaviour, thought, attitude, motivation and desire to enhances the sense of progress by praising one another and rewarding oneself. If the strategies are used when one goal is achieved, they maintain a high willingness and interest to activate other strategies and to advance the work (Corno, 2001). The process by which students assess their performance is self-assessment. It consists of self-assessment and cause. Self-assessment is a student's performance assessment based on evaluation criteria and modulated by their performance level objective (Panadero, 2017).

Evaluation criteria can be established with the help of the teacher, so that students can evaluate their work more accurately and know how to correct mistakes. Unfortunately, students are often unaware of these criteria and wait until the teachers give them the job to judge the quality of their work. This is not an independent assessment of the students, but the students directly ascribe their success or failure, based on teachers' feedback. When there is no chance or they are not able to reflect on their correct answers and errors, then the teachers should be allowed to think about their mistakes if they want their students to learn how to assess themselves (Andrade & Valtcheva, 2009).

The self-assessment should be stressed not only on the basis of the criteria for assessment, but also on the objectives that students establish at task start and the level of achievement that they wish to achieve (Winne, 2011). This enables the students to evaluate their work differently based on their goals and their performance levels, with the same criteria and similar quality of their products. The desired standards or evaluation levels form the basis of the student's self-evaluation and are influenced by the evaluation criteria that can be determined in three ways (Bandura & Cervone, 1986). First, based on a students' analysis of the skills (objective criterion), second, on the basis of the previous levels of performance (progress criterion) and third, by a comparison of the performance of others (social comparison criterion). The goals set during the previous phase obviously affect directly the standards against which the students assess their work and whether they consider their success or not (Winne & Hadwin, 2013).

Consequently, criteria (or required levels of performance) affect students' responsibilities (Zimmerman & Moylan, 2009). For example, if a student makes progress and uses the progress criterion, they will interpret their performance positively. However, he/she will concentrate on how well the other ones have done, which is a less adaptive way for interpreting their failure or success, if she chooses a criterion for social comparison. Causality is the explanation students give for their success or failure in a task.

The use of athletic skills and more typical academic skills are special features of Zimmerman's empirical research. Several studies, in particular the Multilevel and Cyclical phase models, have been conducted to test various aspects of the models of Zimmerman. The work carried out by Bernhard

Schmidt and colleagues is another important piece of research on Zimmerman's model. Schmidt has developed a self-regulated learning (SRL) model based on the model of Zimmerman with changes in phase names and sub processes included Kuhl's model (Schmitz & Wiese, 2006). The importance of self-monitoring for Self-Regulated Learning is highlighted in this theoretical proposal (Schmitz & Perels, 2011). As a result, the model connects students' self-regulated learning to their need satisfaction since the need satisfaction variable is motivation driven.

Conceptual Framework

Psychological Capital (PsyCap)

Luthans et al. (2007) define psychological capital (PsyCap) as the constructive psychological state of an individual's development, which involves hope, efficacy, resilience, and optimism. They emphasise that these components can be nurtured and enhanced to facilitate both personal and organisational growth. Avey et al. (2009) also elaborate on psychological capital as the positive psychological resources inherent in individuals. These psychological resources include self-efficacy, enable people or students to overcome challenges, resilience on the other hand allow them to recoil from difficulties, optimism, entails positive expectations for the future, and hope drives their motivation to establish and pursue goals.

Avey et al. (2011) again suggested that psychological capital (PsyCap) incorporates an individual's positive psychological state characterized by self-belief in their abilities, a proactive mindset to persevere through challenges, the capacity to recover from setbacks, and a positive outlook towards the future. Larson and Luthans (2006) explained that

psychological capital comprises an individual's positive psychological resources, namely self-efficacy, hope, resilience, and optimism, which collectively contribute to their overall psychological well-being and performance. Similarly, Avey et al. (2010) assert that psychological capital denotes an individual's positive psychological state, consisting of hope, efficacy, resilience, and optimism, and highlights that its cultivation and nurturing facilitate personal growth, well-being, and performance.

Psychological capital is open to development and is related to improved performance, it can be objectively measured not just for psychological capital's level but also for its impact (Luthans & Youssef-Morgan, 2021). That is, allowing psychological capital to estimate return on investment (Luthans & Youssef, 2004). The impact that an investment in human resources, i.e., an intervention by Psychological Capital, has on the bottom line can therefore be quantified and compared with other investment opportunities in relation to conventional capital. Psychological Capital is also relevant in human resources development. This so because it enables managers to demonstrate that human resources are used to measure, develop and influence them to achieve business success (Ardichvili, 2011). Since the concept of Psychological Capital was introduced in 2004, scholars have studied the history and effects of Psychological Capital in numerous ways. They have developed Psychological Capital empirical and conceptual support as a core structure (Sweetman et al., 2011). They demonstrated Psychological Capital's impact on staff attitudes, behaviours, and well-being.

Luthans and Youssef (2004) introduced a new Psychological Capital's construction to capture the human resources strengths and the psychological

abilities, based on the ideas of the positive psychology movement (Seligman & Csikszentmihalyi, 2000). They indicated that the variable is a state-like, positive, unique, validly measurable and developable. In contrast to states, traits and characteristics, and could lead to improved performance to integrate into Psychological Capital structure. This structure covers some components which are worth explaining.

Components of Psychological Capital

Psychological Capital contains four elements known as HERO: Hope, Self-Efficacy, Resilience, and Optimism. Achor (2011) suggested when people are happy, they succeed, not the other way around. Thus, if we are more hopeful, efficient, resilient and optimistic about people, in an organisation or personal environment we are more likely to "wet the storm", dynamic and demanding. Therefore, for coaches and leaders, the concept of psychological capital is equally important.

The four components of psychological capital are summarised and the measures to build upon this capital listed. It is important to note that psychological capital has a stronger relationship in its entirety than each of the four components (Hope, Optimism, Self- efficacy and Resilience). Hope and optimism are personality characteristics linked to the physiological and mental well-being (Du et al., 2015).

Hope: "Hopeful thinking reflects the belief that one can identify ways to motivates one to achieve desired goals" (Snyder et al., 1991 p. 257). Therefore, Hope is an awareness-raising process that motivates the finding of will-power (goal determination) and path-power (planning ways to achieve

goals) (the expectation of meeting desired goals). Enriching the following components have found to be successful in developing hope.

- Goal setting and perceived ability (pathway thoughts), The concept of hope is firmly founded on the conviction that people want to achieve their objectives. In general, approach-oriented objectives (going to something) are highlighted by avoidance-oriented objectives (going away from something). Ideally, specific, measurable, achievable, relevant, timely and clearly communicated objectives are achieved in a work setting. Leaders can help students break up complex, challenging goals into portions in size. It can therefore, be a form of motivation for students to appreciate or even celebrate small milestones. They become more confident that they can achieve the objectives (Luthans & Youssef, 2004). The aims themselves may not necessarily be defined as task in teaching. The goals could instead be the desired changes of conduct or emotion (Lippmann, 2013). In order to increase goal setting, teachers can learn how to achieve the desired objective mentally. This procedure enhances understanding of the goal and the students' conviction that they will be able to achieve it.
- Motivation (Agency Thoughts), Autonomy and self-efficacy were key factors in creating students' intrinsic motivation. While people generally choose themselves to achieve through education, their objectives must be validated as their own. Teachers often mistake what other people want to achieve for their goals. Consequently, teachers become unmotivated to achieve a target that they do not own.

Self-Efficacy: Bandura (1997) defined as people's beliefs about their capacity for effectiveness. It determines how they feel, think and motivate themselves. If they have the confidence to make the required effort to be successful in challenging tasks. Then the conviction that the desired effect can be achieved is an important incentive to act first. The higher the effectiveness and expectancy, the harder the work towards objectives and can lead to an increased likelihood of success. Self-efficacy has two main ingredients: expected results and expected efficiency. Bandura (1994) found that the level of automatic self-efficacy is affected by cognition, drive and selection of teacher's processes. Here are four ways to strengthen efficacy:

- Focusing on Past Success (Mastery Experiences). Past achievements are an excellent way of improving self-efficiency. It is often a matter of finding (increasing awareness) and enjoying success stories rather than creating during teaching or leadership environment. Teachers with high external control tends to offer external factors to luck or positive events (Ajzen, 2002). Thus, one can create mastery experiences which lead to higher self-efficacy by outlining the factors, characteristics and strengths which have contributed to success.
- Copying Other People (Social Modelling). People's ability to overcome obstacles in similar situations increases the conviction that it is possible. This means the models must be understood as similar to current situation to feel a strong sense of trust for one's abilities. Teachers with little self-esteem can see other people as having a larger range of competencies than themselves. In order for social modelling to succeed, these thoughts must be challenged.

- Create Situations for Success (Social Persuasion). Verbal persuasion may be a great source of trust that self-doubts cannot overcome. As a teacher, not only structure situations for students as well as verbal persuasion, should be concentrated on but rather avoid premature structure situations in which students may fail. Also, create the platform for them to explore alternatives and express their views.
- Reframe Negative Experience (Psychological Responses). How peoples physical and emotional reaction in stressful situations are interpreted affects their assessment of tiredness and stress vulnerability. People with a high level of auto efficiency can see an affective excitement as an energetic performance facilitator and must be emphasised.

Resilience: the ability to bounce back from adversity and strengthen one's self by overcoming negative events. In life, difficulty, refusal and rejection is occasionally inevitable but reaction to it is highly personal or individualistic. How often people are rejected is one of life struggles and does not really matter but the ability to bounce back and give it another goes, is what makes people successful and that is what resilience is about. According to Coutu (2002), resilience is a combination of the following three elements:

- Face Reality; The best way in situations of desperation and hopelessness is to rationalise and cope, rather than thinking positively. People might lose their energy and hope if the situation does not change rapidly or if expectations are not met on time. However, facing and accepting the reality in difficult circumstances can provide a better basis to withstand difficulties.

- Search for Meaning; Finding meaning when faced with stressful situations which cannot be changed, is central to resilience. This means getting an insight or proper understanding of the basis of the issue is paramount and will also be a first step to addressing it. After this, objectives can be set. One of Seligman's five pillars in his PERMA model of happiness is to have an objective in life (Slavin et al., 2012). Helping professors and students to find or make sense reinforces their resilience levels.
- Improvise; The ability to be creative or using novel means to deal with any situation is a strong predictor of our ability to rebound from adversity. These are not the tools we are given, but the ability to apply the concept teaching as an act and look for new ways of achieving a goal. Teachers are role models and possession of improvisation abilities are critical to their students. During teaching students understanding on concepts can be strengthened by brainstorming different ideas to solve a problem.

Optimism: is defined as a positive feature and confidence of success now and in the future. People with a low control of locus tend to internalize and accept positive events. They believe that they have to work in order to achieve something good. However, optimists believe that, in future, they will have good things, regardless of what. It can be developed through practices that accept the past, appreciate the moment and see the future as a source of opportunity. The way in which we evaluate past events affects the way we anticipate the future. Reframing is a great technique that coaches, teachers and students use both in organization and teaching and learning to achieve changes

in vision. It is essential to recognize that the Psycap concept transcends the mere sum of its parts. Demirjian (2019) emphasises the predisposition to nourish individuals with a robust reservoir of resources. Consequently, the four components integrate into a superior organisational framework that optimizes its potential across all four domains.

Instructional Scaffolding

The concept of instructional scaffolding has received multitudes of views in existing literature. Although educational scholars emphasise the relevance of the concept to the achievement of many educational outcomes, it appears the concept defies a precise definition. However, the concept of scaffolding is generally accepted to have its roots in the socio-cultural theory and the concept of ZPD (Shabani et al., 2010).

In its broader sense, instructional scaffolding refers to a teaching approach that provides temporary support and guidance to learners as they engage in challenging tasks or activities. It involves breaking down complex tasks into manageable steps, also, offering prompts, cues, and support, and gradually fading that support as learners develop competence and independence. Gonulal and Loewen (2018) also, defined the construct as the support given during the learning process which is tailored to the needs of the student with the intention of helping them achieve their learning goals.

Vygotsky and Cole (1978) asserted that scaffolding refers to the steps taken by a more knowledgeable person to support learners in their zone of proximal development, enabling them to reach higher levels of comprehension and skill acquisition than they would be capable of doing on their own. In the views of Windle and Miller (2019), scaffolding involves providing learners

with guidance and support to help them develop the skills and knowledge needed to complete a task, and gradually reducing support as learners become more proficient.

Instructional scaffolding, according to (Belland, 2017), differs from other instructional assistance tools and techniques in terms of what learners are expected to learn from it, when it should be used, and how it should be used. The researcher went on to say that scaffolding needs to both support present performance and eventually enable future independent use of the desired skill. Belland **(**2017**)** contends that before engaging with challenges, teaching students about procedures or subject through lectures or other methods is not considered scaffolding. Scaffolding must therefore be linked to ongoing assessments of students' skills and must expand on what kids already know (van de Pol et al., 2010). As a result, instructing students verbally does not constitute scaffolding because it does not elicit and build upon what the students already know. The demands of each leaner are rarely considered when using this strategy.

In other words, scaffolding must recollect and emphasize the complexity of some task parts while simplifying other task elements (Simons & Ertmer, 2006). This encourages the kind of productive struggle that is the hallmark of successful scaffolding interventions and allows for meaningful participation in the activity while also directing students' attention to the parts of the issue that will result in the desired learning (Belland et al., 2011). With scaffolding, the teacher helps the student master in the scaffolding process, a task or concept which the student cannot understand autonomously. The teacher offers help with only skills beyond the capacity of the student. In

scaffolding student learning, many different supporting tools can be used. These include dividing the job into smaller, more manageable parts; using 'think aloud' or verbalise thinking procedures when doing a task; cooperative study, which supports work in teams and dialog among peers (Lipscomb et al., 2010).

According to van de Pol et al. (2011), scaffolding is contingent, which means that it includes two crucial actions that are interrelated and reiterative: a substantial information of the dynamic evaluation of the learner's present performance traits and the provision of the ideal assistance. This implies that the selection of ideal level of help for students is always based on dynamic assessment. Support might be decreased if dynamic assessment results showed that students were developing their abilities and heading toward being able to complete the assignment independently (Pea, 2018). Support might be increased if dynamic assessment revealed that students were finding it difficult to engage in meaningful participation (Koedinger & Aleven, 2007).

In view of this, substantial information activation, tips, strategies, signs and procedures may include other activities. Teachers must be aware that the learners are doing the job while reducing the stress. If the learners' Skills, or tasks is too far out of reach it can lead a student to his frustration level, and tasks that are too simple can as well cause the same effect. The individually adapted instructional tool is chosen for each facilitative method used. Teachers must have an open dialog with students so that they can determine what they think and how they can clarify misunderstandings and practice individualise education. A student's prior knowledge and skills are critical to successful scaffolding. Teachers should know what the student knows already, that can

be "hooked" or connected to new knowledge that are relevant to the life of the student. It is very important that the student completes the task as unassisted as possible. The teacher only tries to assist the student in tasks that are beyond his current ability. Student mistakes are expected, but the student can achieve the task or goal through teacher feedback and inspiration. When a student is in charge or masters, the teacher starts the "fading" process or gradual removal of the scaffolding, allowing the student to work independently. If scaffolding is properly administered, it will act as an enabler, not as a disabler (Benson, 1997).

Similarly, Caruana and Shoemake (2019) asserted that scaffolding is important to detect the area (zone) between what a student can achieve without assistance and what that student can perform with assistance to provide consistent support to students. In most cases, instructional facilities are provided to help pupils to achieve independent mastery of learning goals by providing support, such as teaching material, practical activity and other training elements. With regard to the proximal zone of development, scaffolding is essentially what helps students to do without help.

Types of Instructional Scaffolding

Alibali et al. (2007) suggests that teachers can use a variety of methods to support the various levels of student expertise as students' progress through a task. A greater number of scaffoldings can be required for the content to be mastered by students at different times. Examples of some common scaffolds and ways they could be used in an instructional setting are listed:

Advance organisers: These are tools for introducing new contents and tasks to inform students of the subject. These tools include Venn information-

comparing and contrast diagrams, process-illustrating flow charts, hierarchy structure diagrams, content-related outline, reminder mnemonics; task or content situations statements and task-or-expected rubrics.

Cue Cards: These are prepared cards for individuals or groups of students to help them discuss a particular subject or field of content. They include vocabulary words for examination preparation, content- specific phrases for complete examination, formulas for problem association and concepts to define.

Concept and mind maps: These are maps showing relationship such as maps for students to complete partially or completely. Students may also create their own maps on the basis of their current task or concept knowledge.

Samples, pictures, issues: They include real objects, problems illustrating something etc**.**

Explanations: These more detailed information to get students to a task or to think about a concept. They include written task instructions and verbal explanation of how the process works.

Hand-outs**:** These are prepared content materials that contain task and content-related information, but with less detail and room for student note taking.

Hints: These are suggestions and clues to move students along such as "place your foot in front of the other," "use the escape key," "find the subject of the verb," "add the water first and then the acid."

Prompts: These are a recollection of previous or assumed knowledge by means of physical or verbal information. Physical: bodily motions, eye blinding, foot tapping, such as points, head nodding. Verbatim: Words,

statements and questions like 'Go,' 'Stop,' 'Tell me now,' 'What menu item in the toolbar would you press to insert the image?', 'Tell me, why the character has done so.'

Question Cards: These are prepared cards containing content and task-specific questions for students to asked each other questions on a specific topic or area of content.

Question Stems: They are incomplete phrases completed by students. They help foster deeper thought by using the "what if" questions of higher order.

Stories: Stories are related to complex and abstract materials that are better known to students. They take the form of telling of stories to motivate and inspire students.

Visual Scaffolds: They point call (attention to an object) which includes representational movements (holding curved hands apart to illustrate roundness), diagrams like charts and chart and methods of highlighting visual scaffolding.

Furtherance to these twelve types of instructional scaffolding as suggested, Jumaat and Tasir (2014) also contends that all the twelve types can be categorised into four major types. These four types of scaffolding can be used by teachers in their review of literature on instructional scaffolding. They include, procedural, conceptual, strategic, and metacognitive scaffolding.

Procedural scaffolding helps students to use the tools available to them, while conceptual scaffolding is for students to determine what to consider in learning (that is, it guides them to prioritise fundamental concepts).

Strategic scaffolding on the other hand suggests alternative ways for

students to tackle the learning problems they encounter, and metacognitive scaffolding; to guide students in the thinking process and helps them self-assess during learning.

According to Jumaat and Tasir (2014), every type of scaffolding can be crucial for students' success. For example, procedural type can play a critical part in making sure that students are able to use the tools of their learning management system and conceptual also help guide the use of more complex materials by students. Strategic helps students to find a new way around a roadblock and finally metacognitive encourages students to take a while to assess their progress. Whatever type of scaffold, the core advantage is consistent: they help students to achieve a task without help. Whether the goal is to use a course tool or master a learning objective, scaffolding simply ensures that students receive the support they need.

Self-Regulated Learning

Self-regulated learning (SRL), according to Wolters and Brady (2020), entails a student actively and purposefully controlling his or her behaviour, motivation, and cognition for academic activities. Self-regulated learning entails controlling three main sides of academic learning. First, self-regulation of behaviour, which entails exercising active control over the numerous resources' students have at their disposal, such as their time, their study environment (for example, the location in which they study), and their use of others, such as peers and teachers, to assist them (Segaran & Hasim, 2021; Wolters & Brady, 2020).

Self-regulated learning is also explained as the control and modification of motivational beliefs, such as efficacy and goal orientation, in

order to help students to adjust to the demands of a course (Huh & Reigeluth, 2017). Students can also learn effective methods for managing their emotions such as anxiousness, to enhance their academic performance. That is, self-regulated learners will often quiz themselves on what they just read to see if they understood it, and if not, will take corrective action, such as rereading, to increase their understanding (Carpenter et al., 2020).

Self-regulated learning (SRL) provides a core framework for an understanding of the cognitive and motivational aspects of learning. Self-regulation capabilities include setting goals, self-control, self-learning and self-improvement (Vosniadou, 2020). Self-regulation is an independent and behavioural process where students transform their ability in mind into abilities in controlling their learning. (Masoomi & Amjadiparvar, 2016; Nisa & Islam, 2022).

The subject of self-regulated learning interlinks cognitive strategies, methodology and driving convictions (Grose-Fifer et al., 2019). The scholars argue that self-regulation has three components or characteristics. Self-regulated learners first try to manage their motivation, mood, and cognition. A goal that the student is aiming to achieve is the second crucial element of self-regulated learning. This goal offers the standard by which students can check on and assess their own performance before making the necessary adjustments. The third crucial aspect of self-regulated learning is that each student must be in charge of his or her own behaviour, not that of a parent or instructor, hence the "self" prefix in the phrase.

Students who self-regulate can improve academic performance, value their own learning process and become efficient learners as soon as they

become employees in the future. As a result of moving from a teacher-centred approach to a learning environment that is more student-centred, students must be more responsible and control their learning processes. Alsancak Sirakaya and Ozdemir (2018) state that SRL is advocated as an important competence in learning environments for students where these students are actively engaged in knowledge development and interpretation. The characteristics of self-regulated learning (SRL) are presented by students by means of a range of learning strategies to control and monitor their cognizance, motivation and behaviour (Jwair, 2018).

Similarly, self-regulated learning is a cyclical process by which the student designs and tracks the outcome of a job (Johnson & Davies, 2014; Law et al., 2017). The cycle is then repeated as the student uses the idea to adjust for the following task and prepare it. It is not applicable in every single method; but adapted to specific learning tasks and individual students. It is so because these strategies can be particularly thorough for students who attempt to learn about unknown problems, who are least prepared or are frustrated or demotivated by school setbacks (Law et al., 2017). Students benefit from learning about themselves, about their strengths and weaknesses, and how to manage their time and learning strategies most effectively (Zimmerman, 2002).

In this regard, Zumbrunn et al. (2011) conclude that self-regulated learning appears to be an influential concept that has a great deal of bearing on academic success and failure of many students. Hence, effective student self-regulated activities, task requirement analysis, productive objectives and strategies to be selected, adapted or invented for its objectives must be

selected carefully by the learners (Zumbrunn et al., 2011). Students must also monitor their own progress, as the task is comprehensive, manage intrusive emotions, increase motivation and adapt successful policies. Seker (2016) added that self-regulated learners are the students who ask questions, take notes, and allocate time and resources for themselves. That is, good self-regulators have cultivated the abilities and routines necessary to be successful students by displaying successful study techniques, effort, and tenacity. Therefore, understanding how to develop and practice these skills in all students is crucial for educators.

As a high order variable, Zimmerman (2015) opined that self-regulated learning involves metacognitive, motivation and behavioural processes that helps an individual to acquire knowledge and skills personal to achieve objectives, plan, learning policies, self- reinforcement, and self-recording. Teachers must be able to raise awareness, learn how to control and apply self-regulated learnings, and learn more effectively about this process. The focus of learning analysis is shifted from learning skills and teaching contexts as fixed entities to self- regulated processes for students to improve their learning methods and environment. This approach views learning as a proactive activity for students rather than as a covert event that takes place in response to teaching experiences (Zimmerman, 2015).

Need Satisfaction

Humans have basic needs, and this has been acknowledged and theorised by several theorists (e.g., Deci & Ryan, 2000; Maslow, 1970; McClelland, 1965; Murray, 1938). However, theorists differed on what constitutes basic human needs, and whether needs are innate or they are

learned. For instance, Deci and Ryan (2000) is of the view that needs are innate, while McClelland (1965) and Murray (1938) assert that needs are learned or acquired in humans over time.

On the matter of conceptualisation, or what constitutes needs, three main perspectives have emerged. The first perspective is that needs are psychological, such as need for dominance, autonomy, achievement, and recognition (e.g., Murray, 1938; Deci & Ryan, 2000), while the second perspective holds that needs are of physiological nature, such as the need for food, water, sex, etc. The third perspective is that needs constitute a combination of both physiological and psychological desires (e.g., Maslow, 1970).

The foregoing perspectives and views suggest that human needs could be physiological and innate, physiological and learned, psychological and innate or psychological and learned, a combination of both. In this regard, theorists like Deci and Ryan (2000) could be deemed as those who view basic human needs as being innate and psychological, while Murray (1938) perceives needs as psychological and learned. In the views of Deci and Ryan (2000, p. 326) as put forward in the Self-Determination Theory (SDT), basic needs are "those nutrients that must be procured by a living thing to maintain its growth, integrity, and health." According to the authors, the concept of need forms the theory's three fundamental psychological demands. These are the need for autonomy, competence, and relatedness. First, the need for competence which is defined as the need of employees to feel capable and competent in understanding their environment, as well as to be able to realise diverse difficulties and achieve desired results. This involves the desire of

individuals to feel that he or she is effective and capable of discharging tasks of varied difficulties within their ability (Ryan & Deci, 2002).

Further, the desire of individuals to direct their own conduct and take actions that are consistent with their own integrated selves is referred to as their second need for autonomy. Lastly, the need for relatedness relates to the urge to feel closely associated with important persons and to experience a sense of belonging (Deci & Ryan, 2000), cared for and supported within their social network (Ryan & Deci, 2002). It is thought of as an active personal resource, promoting the employee's welfare and performance, because meeting needs ensures the personal nutrients for people's growth and health (Deci & Ryan, 2000).

In this study, basic needs are conceptualised in line with Deci and Ryan's (2000) views as espoused in the Self-Determination Theory. Basic needs satisfaction is therefore conceptualised as the extent to which students feel their innate psychological desires to be in control of their own behaviours and resulting outcomes are met, and that they are capable of executing needed tasks effectively within a school community where they receive the needed support and feel connected and cared for by school authorities.

In light of this, Gillet et al. (2019) defined need satisfaction as developing in part from the shifting qualities of the particular life context to which a person is exposed rather than as a fundamentally fixed human trait. Similarly, DeHaan and Ryan (2016) asserts that need satisfaction is one of the most powerful psychological factors affecting vitality and depletion (psychological and physiological). Markland and Tobin (2010) also believed that experiences with satisfaction and disappointment can affect the motivation

and functioning of an individual directly. To satisfy the needs of independence, competence and connectivity, self-sufficiency and wellness are achieved, and individuals participate in activities because they enjoy them or find them inherently interesting or valuable (Milyavskaya & Koestner, 2011).

Bartholomew et al. (2018) and Haerens et al. (2015) claimed that when the needs are dissatisfied, and individuals are involved in activities simply to win or evade punishment or escape feelings of guilt or shame to achieve a sense of value, controlled motivation and ill-being arise. There was also a need for frustration and an utter lack of intent to act.

Whereas a person who experiences need frustration would report feelings of being forced into action, and heavily criticized, the poor demand for satisfaction may be related to reduced vitality and physical activity excitement. Experiences of need frustration are more likely to be associated in these situations with controlled motivation, and even burnout as well as other pathological behaviours. So, it was necessary to draw a distinction between lack of satisfaction in need and experience of frustration in need. The differences are in the intensity of feelings that conceptually distinguish between the two constructs has led to the suggestion that they may be best viewed as asymmetrical, in that low need satisfaction does not necessarily involve need frustration but need frustration does involve experiences of low need satisfaction (Vansteenkiste & Ryan, 2013).

The satisfaction of the three basic needs within learning settings is of utmost importance because basic need satisfaction can assist students in having high-quality motivation and being more actively engaged in learning activities (Reeve et al., 2019).

Empirical Review

Instructional Scaffolding and Students' Self-Regulated Learning

Ihechukwu (2020) studied the effect of an instructional scaffolding on the mathematical performance of secondary school pupils in the Owerri Municipal Council in Imo State. A pre- and post-test, non-equivalent control design was used since the study was considered quasi-experimental. Included in this study were 237 students, 157 females and 81 men enrolled in the 11th grade. Researcher-created, 30-item objective test questions with a reliability coefficient of 0.85 (calculated using the Kudar Richardson 20 method) served as the data collection instrument (KR20). The control group received conventional mathematics education, while the experimental group was given instructional scaffolding. The findings demonstrated that instructional scaffolding improved mathematics achievement for secondary school pupils and reduced gender gaps. Unfortunately, this author was only interested in examining the impact of scaffolding on students' academic performance on the premise that, students self-regulated learning enhances their academic performance at all levels. This premise could be misleading as academic performance has several antecedents.

Similarly, a cross-sectional study was conducted by Tai et al. (2021) to collect physiological data to test the scaffolding theory when applied to the instruction and acquisition of EFL writing. fifty-three people were split into two groups at random, their brain activity while writing to illustrated prompts, was studied. The writing assignment was broken up into four sections of increasing difficulty. The control group completed the activities at random, while the experimental group completed them in a progressively more difficult

order. Writing samples were evaluated, and fMRI scans were taken as well. It was shown that instruction that included scaffolding contributed to student success. The writing performance of the experimental group improved above that of the comparison group, the fMRI scans showed weaker reactivity in the language processing region. Its data also showed that the experimental group had worse motor and cognitive abilities when they were writing in English. The results of the study could have implications for the way English is taught since they shed light on how the human brain works when engaged in the act of writing. It is also possible that, there may be other factors unknown to the researchers that contributed to students' success other than mere inclusion of scaffolding in an instructional course.

In addition, students who practice self-regulated learning are given higher standard in terms of their consistent use of metacognitive, motivational, and behavioural strategies (Zusho, 2017). Learning strategies, metacognitive strategies for preparing and reflecting on learning, effort management skills for working diligently and effectively with challenging tasks are the three most important aspects of academic success in the classroom (Pintrich, 2004). When compared to pupils from other countries, Indonesian students did poorly on the Programme for International Student Assessment (PISA), which assesses students' Higher-Order Thinking Skills (HOTS) in problem solving.

Furthermore, an investigation by Ansari and Saleh (2021) into students' variation in the use of learning strategies and SRL for addressing Higher-Order Thinking (HOT) problems in mathematics was undertaken. After eight weeks of five tests and seven interviews with the use of mixed-method approach, that is combining quantitative and qualitative techniques.

Thirty students in grade 10 (Senior High School) were selected at random; 12 were then selected purposefully following a pre-test and interview, with the criteria for the entire group, the middle group, and the lower group having been met. Metacognitive questions were used to help all of them. Percentage, data reduction, presentation, and conclusion were employed as methods of analysis. Based on the data, it was determined that 68.3%, 60%, and 56.7% of the students in the full, middle, and lower groups respectively were able to successfully apply orientation, organisation, and elaboration learning strategies. The adoption of a mixed research method for this kind of study is highly applaudable since students' self-regulated learning can be observed to elicit the appropriate responses to that effect. Although, the use of learning strategies and SRL for addressing HOT problems could have been enhanced through the role of instructional scaffolding so to broaden the scope of the study's generalisation.

Another study by Zheng (2016) found that SRL supports online-learning, based on a study of 2,648 participants. The results showed a fairly beneficial impact on students' abilities to self-regulate their learning and their academic outcomes. Pereira et al. (2016) also found out that students' self-regulated learning (SRL) can be influenced by teachers' instructional scaffolding. Their study revealed that employing scaffolding progressively help students achieve independence and can also have a positive effect on students' self-regulated technique utilisation and motivation (Finn & Metcalfe, 2010; McMillan, 2014; Guo, 2017; Guo & Wei, 2019; Hyland & Hyland, 2019). Guo and Wei (2019) also found that scaffolding feedback may effectively boost students' self-regulated learning by using metacognitive

strategies, resource management strategies, intrinsic motivation, and self-efficacy which are embedded in (SRL).

Kramarski and Michalsky (2009) also, studied self-regulated learning support for pre-service teachers where, teachers were randomly allocated to one of four conditions: online learning, face-to-face learning, online learning with self-regulated learning support, or face-to-face learning with self-regulated learning support. The logic and significance of self-regulated learning and metacognitive methods were explained to the self-regulated learning support groups. According to the findings, self-regulated learning support groups performed better than the other groups in terms of professional progress.

Lipnevich and Smith (2008) discovered that when students are compelled to focus primarily on the scaffolding provided rather than the actual task at hand, their intrinsic motivation and feelings of competence can be negatively affected. However, students' positive attitudes towards teacher-led scaffolding may help alleviate any adverse impacts it may have on autonomous learning (Harris et al., 2014). Completion of assignments and peer competition are additional aspects to consider. When students are given ready-made answers or solutions to problems by their instructors, they may become excessively reliant on teachers and show less willingness to tackle challenging problems or confront obstacles independently (Shute et al., 2008). This dependence on scaffolding may hinder their development of problem-solving skills and their ability to overcome challenges autonomously

It has been argued that teachers can utilise web-based pedagogical tools (WBPT) as a form of scaffolding to help their pupils learn to self-

regulate (Dabbagh & Kitsantas, 2013). The scholars did acknowledge that WBPT was the most beneficial in promoting students' ability to self-regulate. Numerous processes involved in self-regulated learning, such as goal setting, task-strategy development, self-monitoring, and self-evaluation, are influenced by the various forms of WBPT (administrative and collaborative communication, the generation and delivery of material, assessment, and hypertext WBPT) (Dabbagh & Kitsantas, 2013).

Instructional Scaffolding and Psychological Capital

(Mannion et al., 2021) conducted an exploratory descriptive case study to learn about English for academic purposes (EAP) instructors' perceptions of dialogic scaffolding and how they use dialogic scaffolding techniques with their students. It came out that extensive planning of courses and curriculum can contribute to better learner outcomes, the researchers argue that teachers' attention should be on assisting to fulfil the requirements of individual learners using unplanned, contingent, and in-the-moment dialogic scaffolding. This was to demonstrate the importance of the teachers' psychological capital (self-efficacy, optimism, hope, and resilience) so to ascertain that the instructional scaffolding chosen by the teachers are effective in encouraging student learning. Mannion et al. (2021) also assert that instructors employ various scaffolding tactics to facilitate their students' understanding of curricular topics. Interestingly, the study also found that teachers who possess high psychological capital exhibit greater effectiveness in implementing instructional scaffolding strategies. This highlights the importance of teachers' psychological resources and their impact on the efficacy of instructional scaffolding in educational settings.

According to Zheng (2016), students' efforts in open learning environments can be supported using scaffolds. The statement highlights various authors' perspectives on the use of scaffolds in supporting students' efforts in open learning environments and the relationship between scaffolding, psychological capital, and student motivation. However, it lacks a clear integration of these ideas and supporting evidence. It would be beneficial to provide more specific examples or empirical research findings to substantiate the claims made by Zheng (2016), Simons and Klein (2007), and Jafri (2017). The mention of the four tenets of Psychological Capital (hope, efficacy, resilience, and optimism) is relevant, so is the connection between these tenets and the presence of scaffolding or teacher effectiveness hence, needs further elaboration. The reference to Luthans and Youssef-Morgan (2017) could be expanded upon to explain their stance on how the HERO framework assesses the development of psychological capital.

The four components of psychological capital have been associated with success in both the workplace and in other areas of life. Success tends to follow happiness, as proposed by Achor (2011). Regardless of the demanding nature of the task, in the school environment teachers are more likely to contribute their quota in supporting students if they themselves are more optimistic, efficient, resilient, and hopeful about tasks because to inculcate, develop and maintain something one must first possess such trait. Therefore, the concept of psychological capital is equally important for both educators and students. It is worth noting that, Psychological Capital components are more strongly correlated than its constituent parts. Thus, a teacher's ability to help a student master a task or concept that the student would not have

achieved independently is enhanced by the teacher's own level of development in the four pillars of psychological capital (HERO).

Subsequently, the teachers' personal attributes of hope, self-efficacy, resilience, and optimism empower them in delivering effective support to students. Lipscomb, Swanson, and West (2010) indicated that students acquire knowledge through the utilisation of diverse instructional aids facilitated by the instructor. These aids include techniques such as "think aloud," where the instructor vocalizes their thought processes while completing a task; cooperative study, which fosters collaborative work and peer dialogue; and the breakdown of complex learning tasks into smaller, more manageable components. Students' ability to follow through instruction and perform a particular task successfully is based on individual student's psychological resource hence differences in accomplishment level. The discussion so far suggests that, for a successful instructional scaffolding, teachers' psychological capital is as important as the students'

Instructional Scaffolding and Need Satisfaction

Most research study has shown that instructional scaffolding can positively affect students' need satisfaction (Pereira et al., 2016; Guo & Wei, 2019; Guo et al., 2019; Van der Kleij, 2019; Lou & Noels, 2020). Instructional scaffolding is one of the most promising approaches that has been seen to improve student learning especially encouraging students to learn independently (Guo & Wei, 2019; Guo et al., 2019). Guo and Wei (2019) observed that, students who were provided with instructional scaffolding were more likely to respond independently to academic activities, an action that is viewed as satisfying a demand or desire for autonomy.

Poulou (2020) also showed that instructional scaffolding boosts students' satisfaction of their needs, as well as their academic achievement and learning outcomes, and that it also provides students more freedom and encourages constructive teacher-student relationships. Other research has seemingly found that students' learning behaviours and need satisfaction can improve when teachers are sincere and give precise compliments, (Guo et al., 2019; Haimovitz & Henderlong, 2011). The application of scaffolding strategies by teachers in satisfying students' needs has therefore become a major issue of interest to educational researchers as it is seen to be linked to important academic outcomes.

Although evidence suggests that instructional scaffolding can help students satisfy their needs, there are situations in which it could actually hinder their development (Lou & Noels, 2020). Some forms of instructional scaffolding, such as verification feedback, may have a deleterious effect on students' ability to meet their own needs, according to research by Lipnevich and Smith (2008). This is because students' attention may be diverted from problem-solving to academic competition among peers or to meeting teachers' demands (Atlas et al., 2004; Guo et al., 2019).

Mahama et al. **(**2021**)** recently surveyed 738 students using an online learning platform (VClass) to evaluate the impact of online instructional scaffolding on students' need satisfaction as experienced by regular undergraduate students in Ghana. The researcher adapted both Cho and Cho (2016) online instructional scaffolding scale and the Johnston and Finney (2010) need satisfaction scale and administered to the students. Quantitative methods, including frequency distributions, percentage breakdowns, and linear

regression, were applied to the data collected with the modified scales. Results showed that most students had a negative experience with online instructional scaffolding and need satisfaction. Students' needs were shown to be strongly predicted by the amount of scaffolding provided in online lessons. It was established that students' low perceptions of academic challenge and their unsatisfied needs in online learning environments are antecedents to indifference and disinterest in school. Therefore, to make the most of online learning, it is necessary to re-orient both teachers and students toward its advantages.

Again, a study by Taghizadeh and Saadatjoo (2021) used 140 undergraduate students, two PhD holders teaching academic listening at Iran University of Science and Technology, to evaluate the needs of Engineering students for scaffolding in academic listening. This descriptive, correlational study used an academic IELTS listening test sample, a questionnaire on scaffolding tactics, and five hours of listening class observation. In one class with 96% learner satisfaction, the instructor's most frequently used strategies were repeating whole or part of a task if needed' and 'waiting for them to answer the questions.' In another class with 30% learner satisfaction, only one strategy, 'providing a comfortable atmosphere for the students to listen to the tasks,' received the highest percentage. Providing tips and suggestions to help students locate the proper answer and revising student tasks or answers were the only two statistically significant methods needed by individuals with the lowest academic listening test scores. Findings show that scaffolding in listening classes increases student satisfaction.

Psychological Capital and Self-Regulated Learning

Psychological capital has been linked to positive outcomes like self-regulation and interest in learning (You et al., 2014), The importance of students being able to self-regulate their learning has been widely acknowledged, but how teachers may best assist their pupils in developing this skill remains little understood. Dignath and Veenman (2021) presents a framework for understanding how students' capacity for self-regulated learning can be stimulated both directly through strategy instruction and indirectly through the cultivation of a learning environment that fosters such capacity. The authors comprehensively analyse the literature on classroom observation studies that examined how teachers support students' SRL in order to examine teachers' instructional attempts for SRL. The majority of schools had little or no direct strategy training. Some educators have created classroom settings that demand and, in turn, indirectly promote self-regulated learning among students.

Davis and Hadwin (2021) claimed that studies have shown that students' psychological capital and their ability to self-regulate their learning are crucial to their academic success, but that there is a shortage of studies that investigate the relationship between these two factors. In their research, 118 college students took an optional course on how to learn, and they used nine different online planning and reflection tools every week. Students created a study session plan, assessed their academic engagement and mental health, remarked on a difficulty they encountered, and detailed the method they used to solve it. Results showed that; (a) students who said they consistently met their goals also reported greater levels of psychological well-being, and (b) a

person's own historical patterns of psychological well-being and academic engagement may influence his or her regulatory responses to challenge.

Emotional regulation and academic self-regulation were the focus of a study by Shooraki et al. (2022), which attempted to propose a causal model or the relationship between psychological capital and academic self-regulation practices. Correlational structural equation modelling was used to conduct the study. Three hundred eighth graders from Yazd were randomly picked from the entire statistical population of eighth graders in the city during the 2010-2011 school year using a multi-stage cluster sampling technique. Research instruments included the Academic Harmful Behaviours Questionnaire, the Academic Self-Regulation Questionnaire, the Emotional Regulation Problems Questionnaire, and the Psychological Capital Questionnaire. Using PLS for the structural equation modelling to analyse the data, the study found that students' negative actions can be foreseen by their psychological capital structure, which is mediated by their ability to control their emotions and their performance in the classroom. As a result, the scholars infer that one's level of psychological capital has a bearing on whether or not their damaging academic behaviour is elevated, through their levels of emotional regulation and self-regulation.

Similarly, Sheikhi and Shahmorady (2016) investigated how students' intelligence beliefs, educational self-regulation, and psychological capital influenced their performance at the University of Applied Sciences. This study found that students who scored higher on all four subscales of psychological capital (hope, resilience, optimism, and self-efficacy) also performed better academically, and that students who scored higher on intelligence beliefs also

had higher levels of psychological capital. It was further stressed by Carmona-Halty et al. (2019) that students' psychological capital can grow in the presence of positive relationships with educators (i.e., their need for relatedness is satisfied). Student motivation and optimism (both forms of psychological capital) can benefit from teacher and peer encouragement (Orkibi & Ronen, 2017).

Again, the impact of psychological capital on college students' involvement and drive was studied by Jafri (2017). Using a random selection technique, 230 commerce and business students in Bhutan participated in the study by completing a standardised questionnaire. The analysis of the collected data through correlations and regressions showed a positive and statistically significant connection between psychological capital, involvement, and drive. According to the results of the regression analysis, students' engagement and motivation are significantly impacted by their level of psychological capital. It can therefore be deduced that as students are engaged in their lessons, they tend to take responsibility of their own learning thereby leading to self-regulated learning.

Psychological Capital and Need Satisfaction

For educators, meeting students' needs is just as crucial as watching them succeed in the classroom (Linnenbrink & Pintrich, 2003). Students' academic success and the perception of their own abilities are closely tied to the extent to which their needs are met (Pokay & Blumenfeld, 1990, Wiegfield & Guthrie, 1997). According to Jafri (2017, p. 2), students' motivation to learn can be boosted when they get insight into the variables that contribute to their own sense of personal fulfilment. Psychological capital, made up of the four

pillars of hope, optimism, resilience, and self-efficacy, has been identified as one of those most influential variables in students' ability to meet their own needs.

It seems to indicate from the literature that PsyCap is linked to how well students' needs are met in the classroom. According to Jafri (2017), the extent to which students' needs are satisfied depends on their PsyCap scores. Researchers have discovered that a student's sense of competence has an effect on how well their needs are satisfied (Bandura, 1996; Dweck, 2010). In light of this, Sanacore (2008) found that when people do not believe in their own abilities, they are not as driven to succeed or feel that their needs are being met. Carver and Scheier (2014) also linked the optimistic portion of PsyCap to meeting students' needs. Students report higher levels of need satisfaction when they have a strong belief in their own ability to learn and succeed. According to Linnenbrink and Pintrich (2003), learners are motivated when they find a task interesting or can see how it will benefit them. In another scenario, PsyCap's inclusion of hope is stated to facilitate the realisation of desired outcomes, the activation of latent abilities, and the stimulation of want gratification. That is, students who set ambitious goals for themselves are more likely to follow through and do what it takes to reach those goals (Jafri, 2017). The accumulation of psychological capital has also been linked to the satisfaction of needs for autonomy, competence, and relatedness (Luthans & Youssef, 2007).

Current research by Paloș et al. (2020) examines the explanatory significance of psychological capital, as a personal resource, beyond teacher assistance and need satisfaction, in relation to students' preference for self-

regulating their learning (i.e., using cognitive strategies and self-regulation in academic learning). A convenience sample of 236 first-year psychology students in Romania provided the data. Hierarchical multiple regressions revealed that students' preferences for self-regulating their learning may be explained, in large part, by their level of psychological capital, which outranked the importance of teacher assistance and students' need for competence fulfilment. All three factors investigated are movable or flexible and can be fulfilled or enhanced through training, providing practical support for educational practice interventions in promoting self-regulated learning.

Similarly, Datu and Valdez (2019) investigated the connection between PsyCap, life satisfaction and school belongingness in the academic context in an effort to better understand the role of PsyCap in boosting educational success in the classroom. The research included 462 Filipino high school students. PsyCap was found to have a positive relationship with school belongingness, by means of the mediating variable of life satisfaction, according to structural equation modelling. Evidence of PsyCap's indirect effects on life satisfaction through school belongingness was also presented by a different structural model. They examine both the theoretical and practical significance of these findings.

Again, psychological capital (PsyCap) is proposed as a mediator between students' basic psychological needs and their academic success (as measured by students' GPAs) in a study by Carmona-Halty et al. (2019). There was a total of 407 (12–18-year-old) students from three different schools in Chile that took part in the study. By employing structural equation modelling, both direct and indirect effects were determined. According to the findings,

the connection between fundamental psychological needs being met and academic performance is totally mediated by academic PsyCap. When students' emotional and social needs are met at school, they develop a greater sense of optimism, hope, and resilience (PsyCap), which in turn improves their performance in the classroom.

Students' Need Satisfaction and Self-Regulated Learning

Deci and Ryan (2000) and Ryan and Deci (2002) emphasised the relevance of needs satisfaction for psychological growth and self-determination. They noted that satisfaction of basic psychological needs, such as need for autonomy and competence, are essential for intrinsic motivation to engage in self-directed behaviours. In this regard, the more students become autonomous in their learning-related activities, the more they develop a unified sense of self and interact successfully and meaningfully with their learning environment. Ryan and Deci posit that psychological growth, in terms of feeling of autonomy and competence promote integration and internalisation of ideas and purposeful behaviours. Some studies provide evidence for the positive influence of needs satisfaction on students' aspiration (e.g., Niemiec et al., 2009), anxiety (Deci et al., 2001), and self-esteem (Thogerse-Ntoumani & Ntoumanis 2007), which are critical for students' learning-related behaviours.

Empirical studies provide support for the need for self-regulated learning as part of students' learning experiences, as evidenced by research conducted by van den Broeck et al. (2010), DeHaan et al. (2016), and Orkibi and Ronen (2017). These studies emphasise the importance of students' desire for decision-making and psychological independence within the learning

context. The need for competence in students is associated with their yearning for efficacy and mastery, supported by the findings of González-Cutre et al. (2016). Factors influencing students' desire for relatedness, such as their sense of belonging to a community and being recognized by others, are explored in the works of van den Broeck et al. (2010) and Orkibi and Ronen (2017). In all, these empirical studies positively authenticate the relevance and significance of the three psychological needs in the context of student well-being and motivation.

In view of that, Sierens et al. (2009) asserts that when students' emotional needs are satisfied, they are better able to self-regulate and be motivated by internal factors, thereby establishing a link between students' self-regulation construct and need satisfaction variable. Against this background, learners become more likely to engage in self-regulated learning when the classroom setting emphasises autonomy through student choice, competency through disciplined practice, and involvement through a shared sense of purpose (Grolnick & Raftery-Helmer, 2015).

Again, to determine what factors contribute to the happiness of college students, Holzer et al. (2021) examined how effectively students' fundamental needs were satisfied and how much control they felt they had over their self-regulated learning. This study employed self-regulated learning as a moderator, to look into the connections between meeting basic psychological needs (experienced competence, autonomy, and relatedness) and feeling of happy emotions and being intrinsically motivated to learn. Being a two-stage study, the first study gathered data from 6,071 pupils in Austria and the second from 1,653 in Finland. In this study, Competence was found to be the most

significant predictor of satisfaction with life through structural equation modelling. Competence and autonomy in the U.S. and Finland, relatedness, also predicted students' intrinsic motivation to study. Self-regulated learning's moderating effects were intermittent, but the major effects on intrinsic drive to learn were clear. Remarkably, the effect of relatedness on the experience of positive emotions was relatively modest. Nonetheless, these findings hold valuable implications for enhancing students' happiness in the context of engaging self-regulated learning strategies. It underscores the notion that when students' interests and needs are effectively addressed within a specific course, they are more likely to direct such interests towards fostering their own self-regulated learning. While this study significantly contributes to the existing educational literature, it is crucial to acknowledge the potential value of assessing these variables within an African setting, particularly in the context of Ghana. Such research endeavours would be highly valuable and appreciated for enriching our understanding of these dynamics within diverse cultural and educational contexts.

Furthermore, results from a study by Ejubovic and Puska (2019) on the effects of self-regulated learning (SRL) on students' academic performance and need satisfaction indicate that the statements comprising SRL; which were broken down into the following five categories: goal-setting, metacognition, environment structuring, computer self-efficacy, and social dimension, had four of the five criteria found to have a significant beneficial effect on students’ satisfaction and academic achievement. With the exception of goal setting, all of the aforementioned elements were found to have a significant impact on both student need satisfaction and academic success.

Mediation Role of Psychological Capital in the Relationship Between Instructional Scaffolding and Students' Self-Regulated Learning

It is clear from empirical point of view that literature on the role of psychological capital in instructional scaffolding and students' self-regulated learning connection is scarce, however, several deductions can be hypothesized from the characteristics of instructional scaffolding and their relationship with the psychological capital and students' self-regulation variables.

In the same context, self-regulated learning is facilitated by scaffolding, which is widely acknowledged by scholars (Dabbagh & Kitsantas, 2005; Shapiro, 2008). Zheng (2016) they posited that scaffolds are used to support students' learning and their development in an open-learning environment. This assertion found support from Zusho **(**2017**)** who declared that self-regulated learner is also expected to consistently employ metacognitive, motivational, and behavioural methods to help students succeed in school or in any learning environment. According to Pintrich (2004), the three most crucial elements of academic achievements are the development of effective learning techniques, metacognitive strategies for anticipating and analysing one's own learning, and effort management skills for tackling difficult assignments with diligence and efficiency. Efficiency here is linked to self-efficacy, a component of psychological capital whereas analysing ones' own learning implies self-regulated learning.

Paloș et al. (2020) in their study 'the role of teacher support, students' need satisfaction, and their psychological capital in enhancing students' self-regulated learning,' linked psychological capital to self-regulation. Their

findings indicate that psychological capital significantly contributes to explaining students' predisposition towards self-regulated learning. This highlights the importance of psychological capital in facilitating and supporting students' ability to regulate their own learning processes effectively. Similarly, You et al. (2014) found that psychological capital is linked to positive outcomes like self-regulation, thereby promoting students' interest in their learning. Davis and Hadwin (2021) also claimed that studies have shown that students' psychological capital and their ability to self-regulate their learning are crucial to their academic success.

Considering these assertions, it can be inferred that scaffolding lessons help students to learn on their own may be the most effective method for raising student self-regulated learning with the influence of their psychological capital (efficacy level) (Guo & Wei, 2019; Guo et al., 2019). With the numerous vital roles played by psychological capital, instructional scaffolding is effective teaching and learning strategy as discussed above, it could again be inferred that psychological capital can stimulate students' self-regulated learning or have a negative impact on students' self-regulated learning depending on time of application and how it is done. It will therefore be prudent to envisage the influence of psychological capital in the relationship between instructional scaffolding and students' self-regulated learning of students and how to strengthen it.

Mediation Role of Need Satisfaction in the Relationship between Instructional Scaffolding and Students' Self-Regulated Learning

The fulfilment of basic needs is so crucial to the achievement of many educational outcomes that, it has served as a mediator for several other

academic variables. Students who have their needs and interests addressed are more likely to make use of a variety of learning strategies and self-regulated procedures throughout class (Mouratidis et al., 2013). If students are happy with their academic progress, it stands to reason that they will be open to using any new methods or support offered by their teachers. Since scaffolding is designed to get students involved as much as possible, it naturally leads to improved self-regulated learning. Because of this, we can see that need satisfaction is a crucial mediator between instructional scaffolding and students' ability to learn autonomously.

Scaffolding instruction has been found to improve students' satisfaction with learning in most circumstances (Pereira et al., 2016; Guo & Wei, 2019; Guo et al., 2019; Van der Kleij, 2019; Lou & Noels, 2020). When it comes to improving student learning, instructional scaffolding has shown the most promising because of the way it encourages students to learn on their own (Guo & Wei, 2019; Guo et al., 2019). In their study, found that when teachers used instructional scaffolding, students were more likely to respond independently to academic activities, which is seen as meeting a need for autonomy. Ansari and Saleh (2021) also found that the use of learning strategies such as self-regulated learning can be enhanced through the role of instructional scaffolding.

According to the Self-Determination Theory (SDT) proposed by Deci and Ryan (2000, p. 326), fundamental needs are "those nutrients that must be procured by a living entity to preserve its growth, integrity, and health," which is indicative of its crucial role in life. DeHaan et al. (2016) agree, claiming that a person's level of need satisfaction is a major psychological element in

determining their levels of energy and exhaustion (psychological and physiological).

In furtherance to this, Simons and Klein (2007) define a scaffold as anything that helps students achieve a deeper level of understanding than they would have achieved without the scaffold. The reason for this is that scaffolding has been widely acknowledged by researchers as a way to facilitate self-regulated learning (Dabbagh & Kitsantas, 2005; Shapiro, 2008). An argument can be made that, using the wrong kind of scaffolds can have a negative effect on students' ability to study independently. The inclusion of a mediator (need satisfaction) in this association, therefore, may suggest differently, as need satisfaction is thought of as a catalyst variable that stimulates other academic factors in the school setting.

Mediation Role of Need Satisfaction in the Relationship between Psychological Capital and Students' Self-Regulated Learning

According to studies, both students and teachers who put an emphasis on their psychological capital (i.e., their hope, optimism, resilience, and self-efficacy) are better able to self-regulate their learning and reach their goals (Avey et al.,2010). But Sierens et al. (2009) argues that learners' ability to self-regulate and be motivated by intrinsic variables improves when their emotional needs are met. It follows that low levels of psychological capital are associated with lessened capacities for self-control.

Sanacore (2008) found that when people do not believe in their own abilities, they are not driven to succeed as the feeling that their needs are being met. Carver and Scheier (2014) also linked the optimistic portion of PsyCap to meeting students' needs. Despite this, empirical studies agree that

meeting students' needs is critically important to their academic success (Sierens et al., 2009). In other words, after a student's individual learning requirements and areas of interest have been addressed, those factors typically take precedence over all traditional measures of academic performance. That is, if students' need satisfaction plays a mediating function between their psychological capital and their ability to self-regulate their learning, we might find that it increases their energy even when students' psychological capital appears to be low.

According to Paloș et al. (2020), many writers believe it is crucial for higher education to prioritise the development of students' self-regulatory learning skills because self-regulated learners perform better in university and are more likely to produce successful students. In light of this, Paloș et al. (2020) employed the psychological construct of psychological capital to investigate the explanatory role of psychological capital, as a personal resource, in relation to students' preference for self-regulating their learning (i.e., using cognitive strategies and self-regulation in academic learning). They used a convenience sample of 236 first-year psychology students in Romania to get their data. Students' propensity for self-regulating their learning can be explained, at least in part, by their level of psychological capital, which hierarchical multiple regressions found to be more significant than either teacher support or the demand for competence satisfaction. All three characteristics investigated were fluctuating and may be fulfilled or enhanced through training, so from a practical standpoint, research findings support educational practice and interventions in promoting self-regulation learning.

Conceptual Framework

One of the essential aspects of the research is determining how effectively one can diagrammatically portray one's ideas in order to facilitate easy reading for the audience. Conceptual framework serves as the "blueprint" of any research work, providing the concepts that are being conveyed in such research works with clarity and a sense of interconnections amongst the variables. Grant and Osanloo (2014) emphasised the significance of a conceptual framework by stating that it is the basis upon which research is built. This definition highlights the fact that a conceptual framework serves as the foundation for research. The conceptual framework for this current study is provided in Figure 1. This framework was developed on the basis of the purpose of the study as well as the guiding objectives.

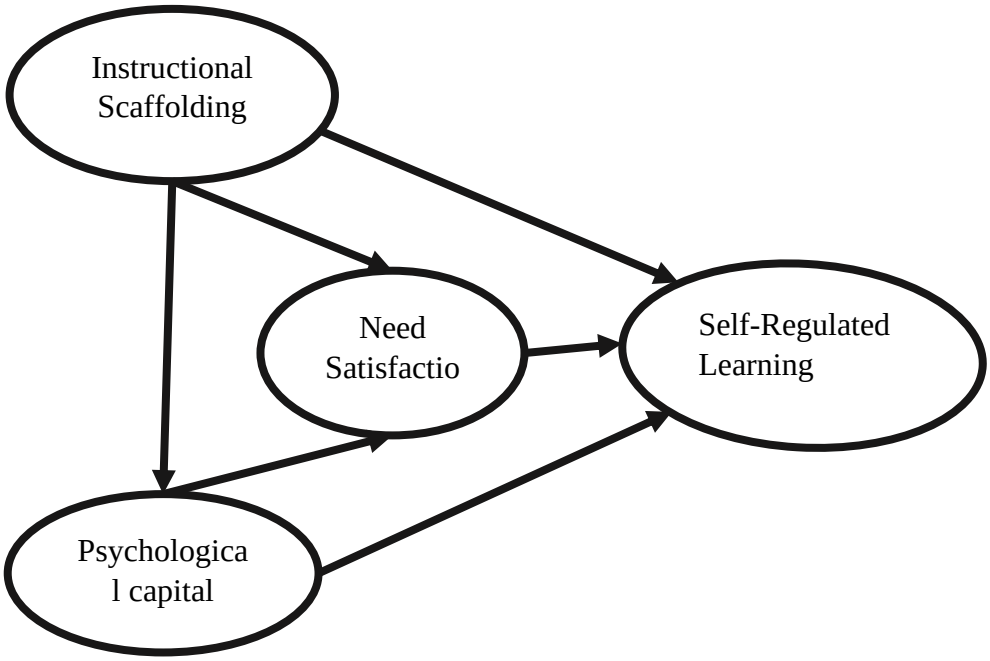

Figure 1: **Conceptual Framework**

Source: Author's own construct (2023)

The framework indicates that instructional scaffolding influence psychological capital, students' self-regulated learning and need satisfaction. It also shows the relationship among them according to the framework. Based on the model's conceptualization, it is assumed that psychological capital mediates the relationship between instructional scaffolding and self-regulated learning. Need satisfaction also mediates the relationship between psychological capital and self-regulated learning as well as instructional scaffolding and self-regulated learning.

Chapter Summary

The chapter dedicated itself to providing an extensive account of the literature review. It explored various key thematic areas, surrounding examination of the theoretical underpinnings, conceptual review, empirical review, and finally arrive at a conceptual framework to pictorially indicate the existing relationship among the variables. The literature review was precisely guided by the characteristics of the concepts under study, the perceived interconnections between these concepts, the established theoretical frameworks and the central goal of the study, thereby contributing to the expansion of knowledge in the area of psychological capital, instructional scaffolding, self-regulated learning, and the satisfaction of needs, all within the unique context of Ghana.

CHAPTER THREE

RESEARCH METHODS

Introduction

The chapter covered the research philosophy, approach, design, study area, population, sample and sampling procedures, data collection instruments, validity and reliability of the instruments, data collection procedure as well as data processing and analysis.

Research Philosophy

The study is governed by positivist paradigm because it allows the researcher to visualise, measure situations from an objective point, collect data, analyse and present issues quantitatively. The researcher's choice of positivism was underpinned by Dudovskiy's (2018) view that, positivism research is characterised by restriction of the researcher's involvement of data gathering and analysis done in an objective manner. Positivism is based on quantitative observations that can be analysed statistically, as opposed to others. It is believed that the world is made up of discrete, observable elements and events interact in a predictable manner (Collins, 2010). The authors Crowther and Lancaster (2008) suggest that, as a general rule, positivist studies employ a deductive technique. Positive thinking is associated with the belief that researchers must concentrate on facts.

Research Approach

The study dwelled on the quantitative approach. The choice of quantitative approach was in line with the positivism philosophy and supported by the view that objective measurements and statistical, mathematical, or numerical analysis of data obtained through polls and

questionnaires are stressed in quantitative methods. Quantitative research also allows results presented using statistics, tables and graphs also pre-determined hypotheses and produce generalizable results (Marshall, 1996; Babbie, 2010). The results of quantitative study can confirm or refute hypotheses about the effects of proposed predictor on a criterion using statistical tools. Quantitative research has the advantage of having numerical data that has been collected rigorously, using the standardized research instrument and methods. However, quantitative data does not provide an in-depth description of the experience of the respondents.

Research Design

Bares et al. (2003) defined research design as the blueprint for conducting a study with maximum control over factors that may interfere with the credibility of the findings. The design used for the study was descriptive analytical survey. According to Amedahe (2002), descriptive survey allows for accurate description of activities, objects, processes and persons. Barnes et al. (2003), also said descriptive survey is designed to provide a picture of a situation as it naturally happens or occur. That is, it may be used to make informed decision with regards to current practice and theories.

This study employed questionnaire to elicit responses from a cross section of students from diverse demographic background and responses from the respondents were coded numerically because Shaughnessy, Zechmeister and Jeanne (2011) were of the view that surveys include the use of questionnaire and interview. The descriptive analytical survey was deemed the most appropriate for the study because data were collected at one point in time from different sub-groups who had different information to provide for the

study, also it not only describes characteristics but also investigate the relationship between different factors. Descriptive studies aim to assess associations between different parameters such as attitudes and opinions of people concerning a situation or phenomenon (Kesmodel, 2018). Descriptive research may be conducted without the need for follow-up, making them easier to perform. However, the key drawback of the design is that the sequential relation between variables cannot be determined since both were studied at the same time (Di Girolamo & Mans, 2019).

Study Area

The study area was the Bono region, one of the regions created in 2019. It is located in between now Southern Ghana and Eastern Ivory Coast. This is to say; Bono territory is geographically situated between the Savanah and forest environment which makes it a prime central location for trade. Their oral history indicates that they migrated from place to place until they found a suitable place to build their empire. The Bono means first born.

Sunyani, the green city of Ghana is now the regional capital of Bono Region. Currently, the political administration of Bono region is through the local government system. Under this administration system, the region is divided into 12 MMDA's (0 Metropolitan, 5 Municipals and 7 District Assemblies). There are a number of schools from basic to tertiary for both the public and private sector although currently they are into farming and trading. The study specifically concentrated on senior high school. The number of senior high schools as at the time data was taken was 47 with 37 being public and the remaining 10 being private.

The researcher chose Bono Region due to some reasons including; the region being one of the newly created regions and also the observations that students seem to rely so much on teachers for most of the academic activities rather than pushing forward on their own for academic excellence. Thus, most students in the Bono Region presume that teaching and learning should be mutually inclusive rather than mutually exclusive all things being equal. Also, Bono is one of the regions that is rooted in the cultural values and norms that states "a child is seen but not heard" In cultures that value modesty and humility, individuals may underestimate their abilities, which can affect their confidence and willingness to take on challenging tasks. This means that the culture and norms in Bono has the tendency to hinders critical thinking thereby restricting children on self-regulation which is a pre-requisite for self-regulated learning. It also has the ripple effect of children's inability to identify what they want and need for academic pursuance.

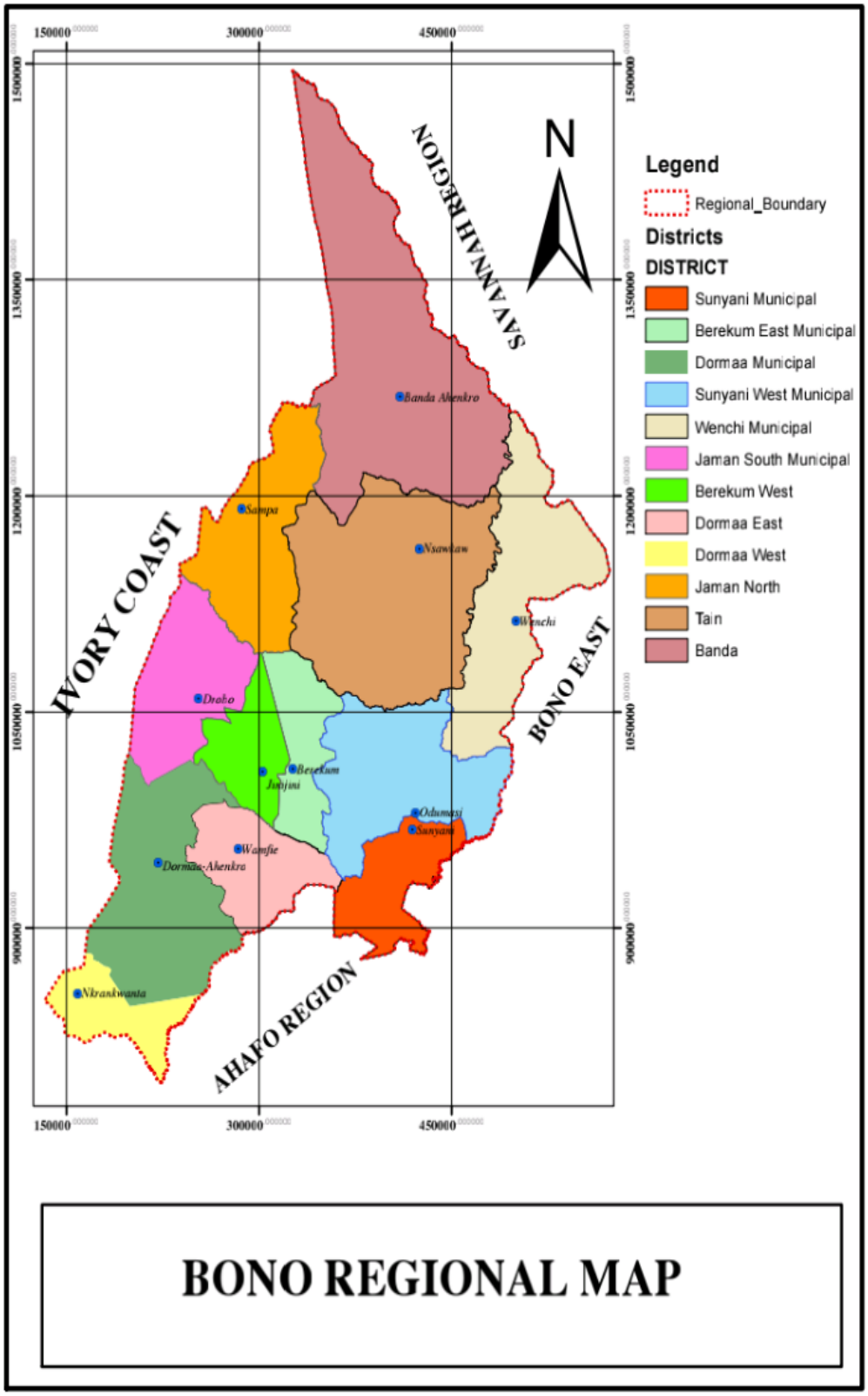

Figure 2: The map of Bono Region

Population

The population for this study comprised of 1 selected Senior High Schools in the Bono Region of Ghana. The population of the students according to the Ghana Education Service data as at March, 2022 was 53,513, which comprised 35,220 males and 18,293 females in (public schools). The second-year students numbering 18,548 with 9,296 females and 9,252 males were the target population. The accessible population comprised second year students in15 selected schools out of the 37-total number of public Senior High Schools in the Bono Region of Ghana. This was done base on Kothari (2004), that, the selection of stratified sample is indeed based on a specific purpose because the sample size represents the estimated characteristics of each stratum or category. See (Table 1) for the Districts and Municipals of the Bono Region of Ghana.

Table 1: The 5 Municipal and 7 Districts in the Bono Region.

Municipal	**Municipal capital**	**Districts**	**District capital**
Berekum East	Berekum	Banda	Banda Ahenkro
Dormaa Central	Dormaa Ahenkro	Berekum West	Jinijini
Jaman South	Drobo	Dormaa East	Wamfie
Sunyani	Sunyani	Dormaa West	Nkran Kwanta
Wenchi	Wenchi	Jaman North	Sampa
		Sunyani West	Odumase
		Tain	Nsawkwo

Source: EMIS, Bono Region

Sample and Sampling Procedures

The sample size for this study was 510 which was based on Krejcie and Morgan (1970) table for determining sample size at confidence level of .05. From the sample size determination table, the accessible population of 18,548 recommend approximately 377 however, in this study 133 was added giving a total of 510, to take care of possible incomplete questionnaire due to human factor. The addition was done based on the suggestion by Andrade (2020), who suggested that a researcher may increase the sample size by 10% or more depending on what justification the they have.

Multiple-stage sampling procedure such as purposive sampling, stratified purposive sampling and quota with convenient sampling were used to collect data.

Purposive sampling is where sample is handpicked on the basis of their particular knowledge on the case under study. It is therefore used when one has a clear idea of specific attributes, he or she is interested in studying and want to select a sample that accurately represent those characteristics. Purposive sampling was used to select second year students because, first years were new in the environment and may be managing adjustment in the new environment and may not have much experience to tell with regards to the variables in the study. Third years on the other hand were also pre-occupy with examination anxiety and preparing and may see the whole activity as a destruction which can affect the whole activity. The second years students were the accessible population due to the fact that, they have been in the school for one year and have a lot of experience to fit for the study and the fact that they were not candidates put them at ease to be part of the study.

Stratified purposive sampling is described as samples within samples and suggests that purposeful samples be stratified or nested by selecting units or case that vary according to a key dimension. Sex, location, etc. This sampling procedure was used to select 15 schools out of the 37 schools based on the number of senior high schools in the municipality and district as well as the population and location. This was done to ensure that each municipality or districts had appropriate sample distribution based on the school's population and location. This procedure was appropriate for the study because almost all schools sampled for the study have different figures, hence equal and fair representation was needed. It is also deemed appropriate because it allows for more accurate information instead of simply collecting a general census from a large group.

Quota with convenience sampling. In quota sampling you first need to divide your population of interest into subgroup (strata) and estimate their proportion (quota) in the population and convenient sampling is a non-probability sampling technique where units are selected for inclusion in a sample because they are easiest for the researcher to access, due to geographical proximity, availability at a given time or willingness to participate in the research. It is also cheap, efficient and simple to implement. A quota of 34 students was ascertain by dividing the sample size of 510 by the 15 sampled schools. This means data was to be taken from 34 students in each sampled school. A quota with convenient sampling technique was to get the students for the study based on their availability and the willingness to partake in the study as long as the person is in second year. See Table 2 for how some schools were sampled out of the lot in the Districts and Municipalities.

Table 2: Number of public senior high schools in the districts and municipals and number of schools sampled.

S/n	District or Municipal Name	Number of Public Senior High Schools	Number of Schools Sampled
1.	Banda District	1	0.405 ≈ 0
2.	Berekum East Municipal	3	1.216 ≈ 1
3.	Berekum West District	2	0.810 ≈ 1
4.	Dormaa Central Municipal	2	0.810 ≈ 1
5.	Dormaa East District	2	0.810 ≈ 1
6.	Dormaa West District	1	0.405 ≈ 0
7.	Jaman North District	6	2.432 ≈ 2
8.	Jaman South Municipal	2	0.810 ≈ 1
9.	Sunyani Municipal	5	2.027 ≈ 2
10.	Sunyani West District	5	2.027 ≈ 2
11.	Tain District	4	1.621 ≈ 2
12.	Wenchi Municipal	4	1.621 ≈ 2
TOTAL		37	15

Source: Field Survey (2023)

Data Collection Instruments

The instruments that were used for the study were close-ended questionnaires. The measurement scales for the various constructs were adapted from previous studies. These scales were adapted because the original scales needed some alteration to suit the respondents. McLeod et al. (2014) indicated that questionnaires provide a relatively cheap, quick and efficient way of obtaining large amount of information from a large sample of people and also data can be collected relatively quickly without the presence of the researcher. Despite the merits, questionnaires are sometimes problematic as

respondents may lie or bend the truth to look good due to social desirability and also to present a positive image of themselves (McLeod et al., 2014).

The questionnaires comprised five sections (A-E) with 65 items in all. Section A- being the demographic data, B- measuring psychological capital, C- measuring instructional scaffolding, D- measuring self-regulated learning and E- measuring need satisfaction. Respondents were expected to tick the space that corresponds with their level of agreement or disagreement in the box to the right of each statement.

Teachers Instructional Scaffolding

Teacher instructional scaffolding was measured with the instructional scaffolding scale developed by Cho and Cho (2016). The scale is uni-dimensional with 12-items, with reported reliability coefficient of α=.95 (Cho & Cho, 2016). The responses are rated on a six-point Likert-type scale, ranging from, not at all true = 1, not true = 2, somewhat not true = 3, somewhat true = 4, True = 5, and very true = 6. Scores on the scale range from 12 to 72, with higher score denoting higher level of instructional scaffolding.

Psychological Capital

The psychological capital questionnaires were adapted for the study to measure student's psychological capital. This questionnaire was developed by Lorenz et al. (2016) and named Compound Psychological Capital Scale (CPC-12). It had 4-dimensions with 12-items. The dimensions are hope (3-items, α= .85), optimism (3-items, α= .60), resilience (3-items, α= .91) and self-efficacy (3-items, α= .80). The scale is scored based on responses are rated on a six-point Likert-type scale, ranging from, not at all true = 1, not true = 2, somewhat not true = 3, somewhat true = 4, True = 5, and very true = 6. Scores

on the scale range from 12 to 72, with higher score denoting higher level of Psychological Capital.

Self-Regulated Learning

The Short Self-Regulation Questionnaire (SSRQ, α=.91) with 22-items developed by Chen, and Lin (2018) was adapted for the study to measure the extent to which student's self-regulate their learning. The scale had five dimensions such as goal attainment (7-items, α=.88), mindfulness (7-items, α=.86), adjustment (3-items, α=.84), proactiveness (3-items, α= .80) and goal setting (2-items, α=.82). The responses are rated on a six-point Likert-type scale. The scale is scored based on agreement and disagreement where Strongly Disagreed (SD)=1, Disagreed (D)=2, somewhat disagree (SD)=3, Somewhat agree (SA)=4, Agreed (A)=5 and Strongly Agreed (SA)=6. Scores on the scale range from 22 to 132, with higher score denoting higher level of Self- regulated learning.

Need Satisfaction

The scale used to measure student's need satisfaction was an adapted scale developed by Johnston and Finney (2010) and named it Basic Need Satisfaction in General Scale (BNSG-S). The scale has 21-items under three dimensions. The dimensions are autonomy (7-itmes, α=.88), competence (6-items, α=.81) and relatedness (7-items, α=.83). The scale is scored based on responses are rated on a six-point Likert-type scale, ranging from, not at all true = 1, not true = 2, somewhat not true = 3, somewhat true = 4, True = 5, and very true = 6. Scores on the scale range from 21 to 126, with higher score denoting higher level of Need satisfaction.

Validity of the Instrument

Validity refers to how accurately a method measures what it is intended to measure. To ensure the accuracy of the construct, the research instrument was evaluated by my supervisors. The face and content validity of the instrument was determined with the help of my supervisors after the modification to make sure it measures what it is supposed to measure. Samples of the questionnaires were also given to colleagues and other experts in the field to check for correctness of the wordings and suitability as part of measures for content validity. Gravetter and Forzano (2012), established that face validity is the extent to which a test is subjectively viewed as covering the concept it purports to measure.

Reliability of Instrument

The instrument was pre-tested among 60 randomly sampled second year students from selected schools in the Bono East Region of Ghana. This was based on the recommendation of Teare et al. (2014) who indicated that a sample of seventy (70) respondents are appropriate for a pilot testing, therefore considering the accessible population of this study, the sixty (60) is ideal. In research, pre-testing helps determine whether respondents understand the questions and can do the tasks to obtain the knowledge needed. Pre-testing also provides clear proof that the questionnaire results are accurate for most items. The reliability was established using the Cronbach Alpha with the values 0.85, 0.80, 0.76 and 0.71 for instructional scaffolding, psychological capital, self-regulated learning and need satisfaction respectively.

Data Collection Procedure

All procedures for obtaining approval from the Institutional Review Board in the University of Cape Coast, which includes introductory letter from principal supervisor and head of department were observed and due processes followed until approval was given to indicated that protocols were not breached and aided the move in seeking permission from the various schools where the study was carried out. Copies of the letter of approval were sent to the Municipal and District Directorates of Education as well as their respective Inspectorate in charge of Secondary Education. I established rapport by informal visit to the selected schools to explain the purpose of the study to the management and cooperation was assured before the formal visit. On the day of the formal visit, my team and myself got to the schools early enough to put things in place as we wait for students' free period to administer the questionnaires in order not interfere with the school time table.

The data collection process lasted for three weeks with the help of two colleagues who are teachers as well as programme mates then three national service personnel I employed. Training and education regarding how to administer the questionnaires and protocols to observe were given to all field assistants for fast and efficient administration. Our visits to the schools were based on the schedule dates agreed on with the school management. This arrangement was made to ensure that the schools' activities were not interrupted much.

Ethical Consideration

Ethical issues such as informed consent, confidentiality, anonymity, right to withdraw from the study at any time without suffering a penalty and

other issues pertaining to research were discussed with respondents. In ensuring informed consent, the researcher ensured that the consent of the participants was being sought. For this reason, the researcher gave an informed consent forms to the respondents to fill. The house parents signed the ascent form for the parents of the minors but willing to take part in the study after the assurance that the information needed will not expose them to any adverse effect. Those who participated in the study were given full disclosure of the study's purpose, methods and any other potential damage. In addition, anonymity and confidentiality were also taken into consideration. The researcher ensured that the data was taken without including the names of the participants.

Participants were further assured that no third party will know who fill which of the questionnaire each of them filled and that their responses would be kept as confidential as possible. They were assured that the collected data will be used only for research purposes and not any other. Any participant who wished to withdraw from the study was given the chance to do so and there was no force participation. Only voluntary participation was considered and that questionnaires were administered to participants who agree to participate. The purpose and how the questionnaire should be filled was also made known to the participants.

Data Processing and Analysis

The total questionnaires administered were 510 and there was 100% recovery however, there were few incomplete ones therefore, after sorting, organising and cleaning those ready for analysis were 455. The data was then analysed quantitatively using descriptive statistics and inferential statistics. All

negatively worded items were reversed as part of the data management process to make the data easy to work with. The main statistical tool used for data on all research hypotheses was Partial Least Square Structural Equation Modelling (PLS-SEM) to analyse using SmartPLS 4.0 software. The tool was appropriate in that it allows for estimation of complex models with many constructs, indicator variables and structural path without imposing distributional assumptions on the data. Again, it's a causal-predictive approach to PLS-SEM that emphasises prediction in estimating statistical models whose structures are designed to provide causal explanations (Becker et al. 2018a).

Chapter Summary

The research is based on quantitative approach. The design employed was the descriptive survey. A sample of 510 second year senior high school student in the Bono region were used. Partial Least Square Structural Equation Modelling (PLS-SEM) was used to analyse using SmartPLS software.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presented the results and discussion of the findings of the study. The PLS-SEM was used to test all the hypotheses. This involves evaluation of measurement and structural models. The measurement model assesses the quality of measures whiles the structural model assesses and presents the path coefficients of the relationships between the exogenous and endogenous variables. Relevant assumptions required have been tested, including test for Common Method Bias. The PLS-SEM was executed with the SmatPLS 4.0 to test all the hypotheses through its two-step approach of measurement and structural models.

Test for Common Method Bias and Measurement Model Evaluation

Before the presentation of the measurement model, the common method bias (CMB) of the responses was checked. This technique is usually conducted to establish or otherwise the non-existence of self-reported biases that may contaminate the validity of the results. In PLS-SEM, the CMB is ascertained by relying on the collinearity statistics (i.e., Variance Inflation Factor, VIF) scores. It is recommended that the scores of VIF of the indicators should range from 0 to 5.0 (Becker et al., 2015).

Hair et al. (2019) claim that the measurement model is accurate when it meets the relevant quality criteria set. Notably, the measurement model is evaluated based on four parameters, namely; indicator loadings, internal consistency (reliability), convergent validity and discriminant validity. As a rule of thumb for the various latent variables, indicators of the constructs are

reliable when they load 0.7 or more. Values less than 0.7 up to 0.4 may be retained in circumstances where they do not inflate the overall model reliability. Also, internal consistencies are checked by use of either Cronbach's Alpha (CA) or rho_A or composite reliability (CR) or all three parameters. Internal consistency explains the extent to which a construct measures the phenomenon it is supposed to measure (Hair et al., 2019). Similar with indicator loading criteria, the CA, rho_A or CR values should load up to .708 or above to qualify for accurate internal consistency.

The convergent validity which measures the degree to which the constructs in study attain mutual relationship (Hair et al., 2019) was assessed using the average variable/variance extracted (AVE) scores. The rule of thumb is that, AVE values should be equal to or greater than 0.50 (AVE ≥ 0.50). The reason is that the constructs must be seen to explain over 50% of variance in the relationship among one another. Finally, discriminant validity was checked using the Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratios (Henseler et al., 2016). The discriminant validity evaluates the degree to which the constructs are distinct or different from another to allow for proper explanation of the phenomenon being investigated. For the Fornell-Larcker criterion, the rule is that the square root of a construct's AVE should be greater than the relationship or correlation between other constructs (Fornell & Larcker, 1981). For the HTMT ratio, the threshold is benchmarked at scores or values lower than 0.90 (HTMT < or = 0.90).

Table 3: Outer Loadings and Collinearity Statistics

Items	Loadings	T stat	P values	VIF
Instructional scaffolding				
IS1 <- Instructional scaffolding	0.568	8.840	0.000	1.150
IS10 <- Instructional scaffolding	0.607	12.962	0.000	1.161
IS11 <- Instructional scaffolding	0.664	15.756	0.000	1.176
IS2 <- Instructional scaffolding	0.622	12.299	0.000	1.170
IS3 <- Instructional scaffolding	0.708	17.427	0.000	1.248
Need satisfaction				
NS10 <- Need satisfaction	0.544	10.880	0.000	1.178
NS12 <- Need satisfaction	0.541	11.670	0.000	1.230
NS13 <- Need satisfaction	0.515	9.131	0.000	1.226
NS14 <- Need satisfaction	0.463	7.407	0.000	1.158
NS2 <- Need satisfaction	0.492	8.574	0.000	1.126
NS21 <- Need satisfaction	0.553	11.355	0.000	1.205
NS5 <- Need satisfaction	0.543	10.632	0.000	1.194
NS6 <- Need satisfaction	0.517	10.144	0.000	1.186
NS8 <- Need satisfaction	0.582	13.586	0.000	1.205
NS9 <- Need satisfaction	0.410	7.311	0.000	1.126
Psychological capital				
PC1 <- Psychological capital	0.592	13.487	0.000	1.290
PC10 <- Psychological capital	0.525	11.825	0.000	1.280
PC11 <- Psychological capital	0.599	16.303	0.000	1.424
PC12 <- Psychological capital	0.527	11.586	0.000	1.314
PC2 <- Psychological capital	0.584	14.498	0.000	1.295
PC3 <- Psychological capital	0.574	14.783	0.000	1.315
PC4 <- Psychological capital	0.494	11.454	0.000	1.269
PC5 <- Psychological capital	0.590	15.791	0.000	1.346
PC6 <- Psychological capital	0.521	10.354	0.000	1.288
PC7 <- Psychological capital	0.608	13.951	0.000	1.386
PC8 <- Psychological capital	0.582	15.567	0.000	1.375
PC9 <- Psychological capital	0.623	17.139	0.000	1.373
Self-regulated learning				
SRL18<-Self-regulated learning	0.660	16.948	0.000	1.274
SRL19<-Self-regulated learning	0.446	7.766	0.000	1.115
SRL20<-Self-regulated learning	0.515	8.346	0.000	1.168
SRL3 <-Self-regulated learning	0.708	17.466	0.000	1.324
SRL5 <- Self-regulated learning	0.706	18.138	0.000	1.343
SRL6 <- Self-regulated learning	0.674	16.138	0.000	1.279

Source: Field Survey (2023)

From Table 3, the values of VIF reveal the absence of CMBs in the respondents' responses. This is because all the items for the various latent variables were lower than the 5.0 which is the cut-off point. Also, based on the

specified recommended thresholds, Table 3, revealed that the various items were suitable for the measurement model. Thus, the item loadings for instructional scaffolding ranged from 0.568 to 0.708; loadings for need satisfaction started from 0.410 to 0.582; psychological capital was within the range of 0.494 to 0.623; whereas item loadings of self-regulated learning acceptably had a minimum of 0.446 to a maximum of 0.708. These loadings including those below 0.70 were retained because they contributed to improving the overall model reliability (Hair et al. 2019), i.e., their p values were significant with respective constructs. The rest of the items were deleted due to their poor loadings and contribution to constructs' AVE. Table 4 was deployed to evaluate the constructs' reliability and validity.

Table 4: Internal Consistency and Convergent Validity

Constructs	CA	rho_A	CR	AVE
Instructional scaffolding	0.763	0.875	0.771	0.544
Need satisfaction	0.700	0.700	0.785	0.686
Psychological capital	0.812	0.816	0.851	0.632
Self-regulated learning	0.876	0.712	0.790	0.554

Source: Field Survey (2023)

The internal consistency of the latent variables (see Table 4) was found to be satisfactory based on the scores of the CA, rho_A and CR scores. The composite reliability values for instructional scaffolding, need satisfaction, psychological capital and self-regulated learning were found as 0.771, 0.785, 0.851 and 0.790 respectively. Finally, Table 4, revealed that the extent to which the constructs achieved mutual relationships through their AVEs was appropriate in the study. A cursory look at the values suggests that all the

constructs mutually explain more than 50% of variance against each other. The next tables, Table 5 and 6, presented findings on the discriminant validity of the model's constructs through the Fornell - Larcker criterion and HTMT ratio criteria respectfully.

Table 5: Fornell-Larcker criterion

Constructs	1	2	3	4
1. Instructional scaffolding	**0.738**			
2. Need satisfaction	0.425	**0.828**		
3. Psychological capital	0.434	0.533	**0.795**	
4. Self-regulated learning	0.514	0.527	0.555	**0.744**

Notes: *Bold values are the √AVEs*

Source: *Field Survey (2023)*

The values displayed in Table 5, demonstrated that discriminant validity was established. The bolded values confirm that the square roots of the various constructs' AVEs were higher than the correlations with other constructs. Further analysis was done using the HTMT ratio criteria as represented in Table.

Table 6: Heterotrait-Monotrait ratio (HTMT) Ratios

Constructs	1	2	3	4
1. Instructional scaffolding				
2. Need satisfaction	0.618			
3. Psychological capital	0.576	0.687		
4. Self-regulated learning	0.738	0.740	0.701	

Source: Field Survey (2023)

The results emanating from Table 6, are values of HTMT ratios, which are used to confirm the uniqueness of the various constructs. Within the remits of the acceptable thresholds of 0.90, it can be seen that constructs were distinct from one another. This means that the individual constructs are capable of representing unique phenomena. The Figure 3 and following tables presented the assessment of the structural model and the associated hypotheses.

Structural Model Evaluation

The assessment of the structural model is based on parameters such as the paths coefficients (R), coefficient of determination (R^2), effect size (f^2) and predictive capacity/relevance(Q^2). Also, the t-statistics and the P-values emphasise the significance of the paths established under the structural model. The path coefficients generally are regression coefficients, which define the direction and the strength of the relationship between two variables.

The R^2 explains the number of changes that can be made by the dependent or endogenous variables due to variations in the scores of the independent or exogenous variables in the model. According to the literature (Hair et al., 2019), any reminders of the changes after the determination of the R^2 are attributed to other or erroneous variables not captured in the given model. The established criteria are that R^2 of 0.25, 0.5 and 0.75 are considered as weak, moderate and substantial respectively. In addition to the R^2, the f^2 statistics are used to explain how meaningful or the significance of the relationship is in respect of its practical implications. Usually, effect size (f^2) of 0.02, 0.15 and 0.35 is seen as small, medium and large respectively. While a predictive relevance (Q^2) of 0.02, 0.15 and 0.35 is considered as small, medium and large respectively. In sum, a significant level of 5% or less or a t-

statistic of 1.96 or higher is appropriate for a structural model. The results of the variables were captured in the tables and figures that ensure.

Mediation

As established by Nitzl et al. (2016), mediation effects can be identified by observing the performance of the direct and indirect paths of the exogenous and endogenous variables. To differentiate between the three types of mediation, i.e., full, partial and no mediation, the scholars claimed that both the direct and indirect columns should meet certain criteria. For full mediation, the direct path must be non-significant while the indirect path is significant. For partial mediation, both the direct and indirect paths should be significant, while no mediation is where both the direct and indirect paths are not significant.

As a confirmation procedure from Hair et al. (2020), the study utilised the Variance Accounted For (VAF) formula suggested by Hair et al. (2019) to interpret the mediation types. To recap, the VAF is calculated as total indirect effect/total effect *100% on the constructs of the study. The rules of classifying these mediation types include; VAF<20% = no mediation; 20%<VAF<80% = partial mediation; and VAF > 80% = full mediation. Next was presentation of the results in tables and figure starting with the indicator or outer loadings and CMB (Table 3) of the measurement model.

Structural Model (Test of hypotheses)

Table 7, and Figure 3 below present the assessment of the structural model (path coefficients).

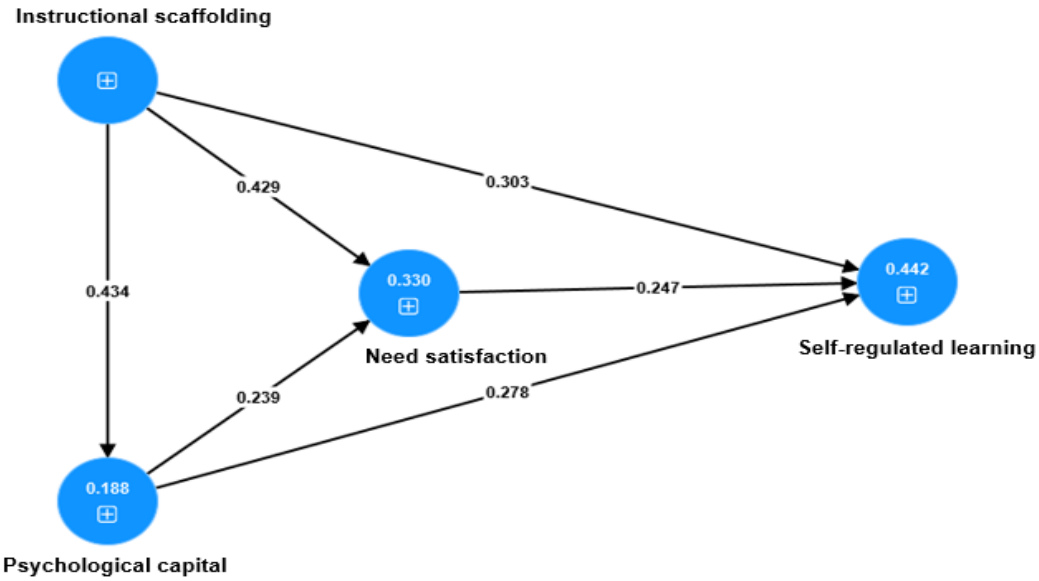

Figure 3: Final paths among instructional scaffolding, psychological capital, self-regulated learning and need satisfaction

Table 7: The direct and indirect paths of instructional scaffolding psychological capital, self-regulated learning and need satisfaction

Paths	T stat	P values	R^2	f^2	Q^2
Psychological capital (PC)			0.188		0.175
Need satisfaction (NS)			0.330		0.269
Self-regulated learning (SRL)			0.442		0.296
Direct paths					
TIS->SRL	0.303	7.142	0.000		0.109
TIS->PC	0.434	8.980	0.000		0.232
TIS->NS	0.429	9.896	0.000		0.223
PC->SRL	0.278	5.532	0.000		0.105
PC->NS	0.239	4.782	0.000		0.069
NS->SRL	0.247	4.821	0.000		0.073
Indirect paths (mediation analysis)					
TIS->PC->SRL	0.121	4.379	0.000		
TIS->NS ->SRL	0.106	4.270	0.000		
PC-> NS ->SRL	0.059	3.264	0.001		

Field Survey (2023**)**

Hypothesis 1: ***Teacher instructional scaffolding will significantly influence psychological capital***

The first hypothesis of the study sought to investigate if instructional scaffolding relates with the psychological capital of students and the results (Table7) showed that instructional scaffolding positively predicted psychological capital ($\beta = .434$, $t = 8.980$, $P < .001$),

Hypothesis 2: ***Teacher instructional scaffolding will significantly influence need satisfaction***

The second hypothesis of the study sought to investigate if instructional scaffolding relates with the need satisfaction of students in the Senior High Schools in the Bono Region of Ghana and the results shows ($\beta = .429$, $t = 9.896$; $p < .001$) hence supported.

Hypothesis 3: ***Teacher instructional scaffolding will significantly influence self-regulated learning***

The third hypothesis of the study sought to investigate how instructional scaffolding relates with self-regulated learning of students in the Senior High Schools in the Bono Region of Ghana. The results (Table 7) are evidence that instructional scaffolding relates with self-regulated learning of students ($\beta = .303$, $t = 7.142$; $p < .001$).

Hypothesis 4: Psychological capital will significantly impact on need satisfaction

Hypothesis 4 sought to examined whether psychological capital will significantly impact on Senior High School students need satisfaction. The results (Table 7) reveal that psychological capital significantly contribute to the students' need satisfaction ($\beta = .239$, $t = 4.78$, $p < .001$).

Hypothesis 5: ***Psychological capital will significantly impact on self-regulated learning***

Hypothesis 5 sought to examined whether psychological capital will significantly impact on self-regulated learning of Senior High School students. The results (Table 7) showed that psychological capital significantly predicted ability of the students to regulate their self-learning ($\beta = .278$, $t = 5.532$; $p < .001$).

Hypothesis 6: ***Need satisfaction will significantly predict self-regulated learning***

This sixth hypothesis sought to investigate whether need satisfaction of students will significantly predict self-regulated learning of Senior High School students. The results presented indicates that need satisfaction of students were significant positive predictor of their self-regulated learning ability ($\beta = .247$, $t = 4.821$; $p < .001$).

Hypothesis 7: ***Psychological capital will significantly mediate the relationship between instructional scaffolding and self-regulated learning***

Hypothesis 7 tested the mediating role of psychological capital in the relationship between instructional scaffolding and self-regulated learning of SHS students. The results (Table 7) showed that psychological capital partially mediated the relationship between instructional scaffolding and self-regulated learning ($\beta = .121$; $t = 4.38$; $p < .001$) of SHS students. Psychological capital thus, played a critical role in how teacher instructional scaffolding could enhance self-regulated learning capabilities of students in SHS.

Hypothesis 8: ***Need satisfaction will significantly mediate the relationship instructional scaffolding and self-regulated learning of students***

The eighth hypothesis also sought ascertain whether the relationship between instructional scaffolding and self-regulated learning could be mediated by need satisfaction of students. The results (Table7) revealed that need satisfaction of the students partially mediated the relationship between instructional scaffolding and self-regulated learning ($\beta = .106$; $t = 4.270$; $p < .001$).

Hypothesis 9: ***Need satisfaction will significantly mediate the relationship between psychological capital and self-regulated learning***

The final hypothesis of the study concerned the mediating role of need satisfaction in the relationship between psychological capital and self-regulated learning of SHS students. The results (Table 7) indicated that part of the effect of students' psychological capital on self-regulated learning is absorbed by the students' need satisfaction ($\beta = .059$; $t = 3.264$; $p = .001$).

Table 8: Summary of Results

Paths	**Decision**
Direct paths	
Instructional scaffolding->Self-regulated learning	Supported
Instructional scaffolding->Psychological capital	Supported
Instructional scaffolding->Need satisfaction	Supported
Psychological capital->Self-regulated learning	Supported
Psychological capital->Need satisfaction	Supported
Need satisfaction->Self-regulated learning	Supported
Indirect paths (mediation analysis)	
Instructional scaffolding->Psychological capital->Self-regulated learning	Supported
Instructional scaffolding->Need satisfaction ->Self-regulated learning	Supported
Psychological capital-> Need satisfaction ->Self-regulated learning	Supported

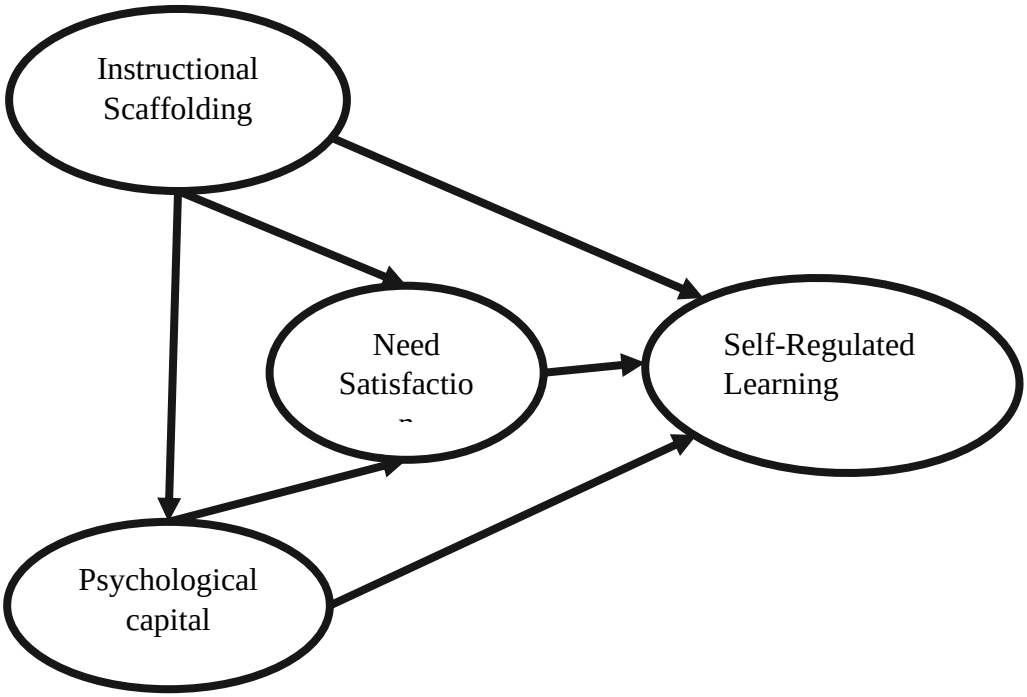

Figure 4: Final observed model

Discussion of Findings

The findings of the study are discussed in this section, in light of the existing literature and the theoretical framework that underpins this study. This is presented thematically, based on the findings that emanated from the test of the hypotheses.

Teacher instructional scaffolding on psychological capital,

The implication is that by increasing the use of instructional scaffolding methodologies by teachers in the respective lessons, the students would become resilient when they are in a difficult situation in class. Also, through instructional scaffolding, the students become self-efficacious at finding their way out from difficult subject tasks and can cope with frustrating moments from colleague students (Lorenz et al., 2016). Reflecting the implications of this finding within the self-determination theory (Deci &

Ryan, 2000), the study averred that when student receive the necessary guidance from their teachers on how to address academic difficulties, the students become determined to focus on their goals of academic prosperity.

In congruence with previous other studies, Guo and Wei (2019) argue that instructional scaffolding is the most promising strategy for fostering effective teaching and learning among students. Mannion et al. (2021) who conducted an exploratory descriptive case study to learn about English for Academic Purpose (EAP) instructors' perceptions of dialogic scaffolding and how they use dialogic scaffolding techniques with their students, found that learners are more exposed to ideas to build their psychological capital based on the teachers' instructional scaffolding orientations. Accordingly, students would demonstrate psychological capital of being self-efficacious, optimistic, hopeful of academic prowess, and resilient when adequate instructional scaffolding methodologies are employed in schools. Furthermore, Mannion et al. (2021) discovered in their study that instructors who use a range of scaffolding tactics to help their students would enable these students to build knowledge of the curricular topics.

Teacher instructional scaffolding on need satisfaction

The results again indicate that positive instructional scaffolding could improve need satisfaction of SHS students. The implication is that when instructional scaffolding increases, the students' need for satisfaction equally appreciates.

Moreso, when students receive instructional guides and assistance from their teachers, they may be free to ask questions, and be provided feedback and support by their peers and teachers in learning new material. In the long run,

such students would have feeling of satisfaction in the learning process, which may in turn leads to students paying more attention in class, feel interested in the learning activities, exhibit in-depth learning strategies, and express their thoughts and convictions during academic goals (Benlahcene et al., 2021; Reeve, Cheon, & Jang, 2019). It is therefore important for schools to offer students a comfortable and nurturing environment so that their needs can be met for onward learning and improved academic performance. Aside improving upon students' performance, high need satisfaction could promote students' psychological well-being and mental stability for academic success.

Teacher instructional scaffolding on self-regulated learning

The findings suggest that students who receive instructional support from their teachers or those who impart knowledge to them could exhibit personalized form of learning in terms of regulating their process of learning and the learning situation. Based on the findings, as students receive support and constructive feedback regarding learning and learning situations from their teachers, they may show an organised process of learning, monitor their learning process and situation, direct their learning channels, and regulate their learning processes and situations. It is important to note that teachers' instructional scaffolding is external in nature, and that providing students with feedback on their class tasks improves and facilitates the students' self-regulated learning better (Chou & Zou, 2020).

The findings validate with previous literature (Guo, 2017; Guo & Wei, 2019; Hyland & Hyland, 2019) by demonstrating that using scaffolding methodology by teachers would gradually help students gain learning independence and enhance students' self-regulated learning techniques. For

instance, Guo and Wei (2019) discovered that teachers' scaffolding by means of feedback, metacognitive methods, resource management strategies may successfully increase students' self-regulated learning to better understand the course or subject. In addition, Skipper and Douglas (2012) upheld that the use of scaffolding techniques such as praise commonly motivate students accomplish goals, they set for themselves and fosters the impact on students' judgments of their self-regulated learning. Furthermore, the findings intersect with an investigation by Ansari and Saleh (2021). From the authors revelations, the use of teaching strategies such as instructional scaffolding is a great propellant of students' self-regulated learning.

Psychological capital on need satisfaction

Psychological capital is sort of intrinsic, it makes students encouraged to persevere toward goals and, when necessary, redirect their paths to attain success in their academics (Luthans et al., 2007). the findings suggest that when managers of the senior high schools improve the needs of the students in terms of developing the confidence to achieve academic goals, emphasis should be placed on developing their psychological capital. In other words, because students' psychological capital seems to eliminate doubts and frustrations, it makes the students confident about academic relationships among themselves (Bartholomew & Steffens, 2011). In other studies, Jafri (2017) found that psychological capital in the form of hope serves as the willpower which helps students to attain goals and ignite their potentials. Also, previous investigations have shown that the satisfaction of needs for autonomy, competence, and relatedness could be influenced by the development of psychological capital (Luthans & Youssef, 2007).

Psychological capital on self-regulated learning,

This section examined how psychological capital influence students' self-regulated learning was discussed. The results showed that students' psychological capital influences their ability to regulate their self-learning. Based on the findings in this study, it can be asserted that students' ability to self-regulate their learning can be improved when the student possesses and are conscious of their level of psychological capital. This is because psychological capital instils a sense of hope and optimism into students to be efficacious and resilient on their academic aspirations.

To this extent, students who possess an appreciable level of psychological capital, may be successful in their academic journey. For instance, it is noted that as students exhibit appreciable levels of psychological capital, they are likely to perceive their academic settings and situations in a more positive way than something that is negative. According to Riolli et al. (2012), such students would perceive better challenging aspects of problems, and would be able to understand difficulties as possibilities to enhance learning and personal growth. As such students become increased in psychological capital, their self-regulated learning abilities would get them encouraged to seek out knowledge proactively rather than merely reacting to situations that provide them with the opportunity to learn.

In addition, the study's findings found similar expressions in previous research works (You et al., 2014; You, 2016) that students' psychological capital is significantly related to self-regulated learning and study engagement. Concisely, You (2016) showed positive associations between psychological capital of college students and their learning empowerment (i.e., the feeling of

competence to perform a task), and how this indirectly enhanced engagement. In another study among randomly sampled college students, it was found that students' psychological capital played a significant role, by predicting their self-regulation in academic and learning process (Paloș et al., 2020).

Need satisfaction on self-regulated learning

This hypothesis addressed how students need satisfaction influences their self-regulated learning attitudes in the SHSs in the Bono Region. Need satisfaction of students showed a significant positive relationship with self-regulated learning. The results show that positive need satisfaction could improve self-regulated learning of SHS students. The result implies that a unit increase in need satisfaction would lead to a .247 increase in the self-regulated learning of SHS students.

In line with the Self-Determination Theory, a person's ability to operate well and be happy is dependent on their ability to satisfy three basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). Students' need for autonomy makes them desire to be able to make their own decisions and have psychological freedom while completing a learning task or an activity (van den Broeck et al. 2010; DeHaan et al. 2016). Thus, students' demand for competence again reveals enhance their longing for a sense of efficacy and mastery in many educational goals (González-Cutre et al. 2016). There are many things that make students want to feel like they belong to a group and have their names and looks recognised by people in that group (van den Broeck et al., 2010; Orkibi & Ronen, 2017). Based on the foregoing, the current study concludes that students' need satisfaction predicts their self-regulated learning.

Mediating role of psychological capital in the relationship between instructional scaffolding and self-regulated learning

In a broader sense, when teachers deploy instructional scaffolding techniques holistically in lesson deliveries, this would have the propensity of improving the psychological capital of the students, and in turn lead to their (students) self-regulated learning. This is because instructional scaffolding is hinged on developing the students to think critically on how to practically provide solutions to problems and by so doing would lead the students to gaining hope, resilience and self-efficacy in their academic goals (Lorenz et al., 2016; Guo & Wei, 2019). These traits, eventually, would boost the learner's confidence and abilities to make their learning schedules (You et al., 2014; Paloș et al., 2020).

By assisting the students to develop and build their psychological capital traits, it would foster their capabilities to self-regulate their learning with direction or guidance from teachers' instructional scaffolding. To this end, the present study concludes that psychological capital is one of the mechanisms through which instructional scaffolding predicts students' regulated learning.

Mediating role of need satisfaction in the relationship between *instructional scaffolding and self-regulated learning*

In analysing the relationship between teachers' instructional scaffolding and self-regulated learning through need satisfaction as a mediator, the results revealed that seed satisfaction of the students in the similar fashion partially mediates the link between teachers' instructional scaffolding and students' self-regulated learning. In addition, through need satisfaction,

instructional scaffolding explained 47.3 percent of changes in the students' self-regulated learning.

These finding sheds light on the position held by Mouratidis et al. (2013) that the fulfilment of basic needs is so crucial to the achievement of many educational outcomes such as academic success. In their view, students who have their needs and interests addressed are more likely to make use of a variety of learning strategies and self-regulated procedures throughout class (Mouratidis et al., 2013). In that case, when students are happy with their academic progress, it stands to reason that they will be open to using any new methods of support offered by their teachers to facilitate their learning. Moreover, since scaffolding is designed to get students involved as much as possible, it naturally leads to students' need satisfaction, and by extension affects improved self-regulated learning (Pereira et al., 2016).

In the study by Guo and Wei (2019), when teachers used instructional scaffolding, students were more likely to respond independently to academic activities, which is seen as meeting a need for autonomy. Ansari and Saleh (2021) also found that the use of learning strategies such as self-regulated learning can be enhanced through the role of instructional scaffolding.

Mediating role of need satisfaction in the relationship between psychological capital and self-regulated learning

The final hypothesis of the study concerned the mediating role of need satisfaction in the link between psychological capital and students' self-regulated learning in the Senior High Schools in Bono Region. The findings suggest that part of the effect of students' psychological capital on self-regulated learning is absorbed by the students' need satisfaction. Concisely,

the study asserts that through need satisfaction, the student's psychological capital is able to produce an over 24 percent self-regulated learning among the students.

In light of previous studies like Paloș et al. (2020) argue that the development of students' self-regulatory learning skills is premised on their psychological capital together with other resources like students' preference for competence. In a similar fashion, Sheikhi and Shahmorady (2016) examined the relationship between psychological capital, educational self-regulation, and intelligence beliefs and academic performance students in the University of Applied Sciences, Iran, found a significant positive relationship among the variables.

Chapter Summary

The chapter presented the results of the objectives of the study as well as the hypotheses. PLS-SEM models were developed to handle the various hypotheses. The assessment of the measurement and structural models of the PLS-SEM reveal that all required criteria were met. In analysing the various hypothesis, the results suggest that all the nine hypotheses set were supported in the study. The hypotheses were discussed and backed by previous literature to shed light on the study's implications to the study setting.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The chapter presents the summary, conclusions and recommendations based on the findings of the study. The conclusions and the recommendation offer substantial insights to various stakeholders and policymakers in the education sector development in Ghana and other similar international organisations. The study sought to examine the impact of teachers' instructional scaffolding, and psychological capital on self-regulated learning and the need satisfaction of students in Senior High Schools in the Bono Region The study specifically relied on nine objectives in addressing the main purpose driving the study.

These were, to examine how instructional scaffolding predicts students' self-regulated learning, psychological capital and need satisfaction of Senior High Schools students; examine how psychological capital predicts self-regulated learning and need satisfaction of Senior High School students; examine how need satisfaction predicts self-regulated learning of Senior High Schools students; examine how psychological capital and need satisfaction mediate the relationship between instructional scaffolding and students' self-regulated learning; and examine how need satisfaction mediates the relationship between psychological capital and self-regulated learning of Senior High Schools students.

Methodologically, the study adopted the positivist paradigm to research and in that manner relied on the quantitative approach as well as descriptive research design. The population of the study was 18,548 students

from selected 15 senior high schools in the Bono Region of Ghana. By using Krejcie and Morgan's sample size determination technique, a minimum of 510 students were selected through proportionate sampling across the schools to participate in the study. Data was finally obtained from 455 students from the schools representing an 89.2 percent response rate. Subsequently, data processing was done using SMART PLS software, while the partial least square structural equation modelling (PLS-SEM) was deployed to test the 9 hypotheses that emanated from the 9 objectives of the study. The summary of the findings is reported in the next section.

Summary of Key Findings

The findings revealed that:

1. Teachers' instructional scaffolding had a significant positive influence on the self-regulated learning of students, so is their psychological capital on need satisfaction in the schools sampled. This means that teacher assistance goes a long way to motivate learners to think and plan their own learning. Also, students' psychological resources aid them in choices and adjustment.
2. Psychological capital significantly and positively predicts the students' self-regulated learning and their need satisfaction. This implies that with effective students' psychological capital, they can handle personal studies efficiently and be satisfied with their needs.
3. Need satisfaction impacts self-regulated learning of the students in the schools. That is any improvement in students' need satisfaction would correspondingly propel their ability to engage in quality self-regulated learning.

4. Psychological capital partially mediates the relationship between instructional scaffolding and students' self-regulated learning. This is to say that how learners think somehow determines how well they make use of teacher assistance and also how they plan their learning, likewise need satisfaction and its link between instructional scaffolding and students' self-regulated learning.
5. Students need for satisfaction made a partial mediation effect on the association between psychological capital and students' self-regulated learning. This is to say that, when learners are comfortable with things surrounding them, it goes a long way to boast their thought processes which in turn influence how they plan their life.

Conclusions

Teachers' instructional scaffolding has been touted as one of the effective ways that teachers can use to promote the performance of students in schools. The concept offers help to students to improves upon their skills, plan and coordinate their learning strategies and experience for enhanced academic performance. Particularly, in this study, instructional scaffolding and students' psychological capital has found expressions having a significant influence on students' characteristics such as, students' self-regulated learning need satisfaction. Thus, in connection with the thrust of the study and following the findings documented,

1. Teachers' instructional scaffolding is essential for enhancing the quality of students' traits including self-regulated learning and need satisfaction. Thus, through instructional scaffolding, the students can approach problem-solving in school with self-confidence. Therefore,

the schools are encouraged to provide the needed facilities for scaffolding sort of teaching to take place. This will make the students develop the knowledge and skills to exhibit personalised form of learning in terms of regulating their process of learning and the learning situation. Based on the findings, as students receive support and constructive feedback regarding learning from their teachers, they will show organised process of learning.

2. Students who possess an appreciable level of psychological capital will be successful in their academic journey. The students tend to exhibit a great level of focus and determination to achieve academic excellence. More importantly, when the students are taken through psychological audits, such students become increased in psychological capital, and by extension, their self-regulated learning abilities would get them encouraged to seek out knowledge proactively. Hence students should be encouraged to think independently likewise teachers should embrace divergent views
3. Need for autonomy and competence make them desire to be able to make their own decisions and have psychological freedom to start and complete learning task on their own with little guidance from teachers. Therefore, when teachers deploy instructional scaffolding techniques holistically in lesson deliveries, it would have the tendency of improving the psychological capital of the students, and in turn, lead to their (students) self-regulated learning. This is because instructional scaffolding was found to be hinged on developing the students to think

critically about how to practically provide solutions to academic problems.

Recommendations

In respect of the research findings, the following recommendations were made to guide policymakers and stakeholders in the education sector of Ghana.

1. Policy makers (MoE, GES, NaCCA) and stake holders should make sure instructional scaffolding is properly implemented and psychological capital techniques embedded in the senior high curriculum. That is once it is embedded School management or managers will encourage teachers to adopt instructional scaffolding techniques to teach then also employ critical thinking activities to stimulate the students in senior high schools. The school can play a role in this process by organizing in-service training (INSET) or workshops to equip the teachers with the best practices or methodological approaches to instructional scaffolding and psychological capital.
2. School management and teachers should be interested in looking out for students who need special attention in the class in respect of their psychological capital. Given that psychological capital is critical in motivation students to practice self-regulated learning, it is imperative that they are brought to that knowledge. The teachers should also endeavour to activate the critical thinking skills of the students in ways in which the students could think independently and embrace diverse views.

3. School management should device strategies for students to follow through the learning process to self-regulate their learning by creating favourable environment conditions and flexible teaching timetable to pave way for personal studies. The timetable and academic calendar should be drawn in a way to cater for the needs of the students as well.

Contribution to Theory and Literature

a. This study brought to the fore the relevance of instructional scaffolding and psychological capital in promoting student satisfaction and self-regulation through their psychological needs (autonomy, competence, and relatedness) satisfaction within the Ghanaian educational sector.
b. The focus on Ghanaian senior high schools makes it particularly valuable in the context of educational research, as there is limited research on the topic in this setting.

Implications for policy and Practice

- The findings will help educators to better understand how to provide effective instructional support to promote self-regulated learning of students.
- The findings also have implications for curriculum development to incorporate instructional scaffolding strategies to promote the psychological capital activation and need satisfaction of students

Implications for Research: Future studies

1. Can focus on other regions in Ghana other than the Bono Region
2. Also, qualitative or mixed method can be used to assess the variables as a system. Views of the teachers should also be considered

3. Different sample like students in the Technical and Vocational Education and Training (TVET) and Private senior High Students can also be used to ascertain the Impact
4. Instructional scaffolding strategies and it impact on self-regulated learning.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

FACULTY OF EDUCATIONAL FOUNDATIONS

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

QUESTIONNAIRE

Dear Respondent,

The purpose of this questionnaire is to elicit your views and experiences regarding teaching and learning practices in Senior high schools in Ghana. Responses provided will be kept confidential and processed in aggregate, with no identification of individual responses. Even though I want you to respond to all the questions, you are free to withdraw from the study at any point, or refrain from answering a particular question, or a group of questions without any cost to you. There are no right or wrong answers. I am interested in your personal experience and opinion.

SECTION A

Demographic Data

1. **Gender/Sex:** Male **[ ]** Female **[ ]**
2. **Age……**

SECTION B

Instruction:

The following statements relate to your feelings about experiences as a student in your current class. Please read each statement carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond: ***1 = Not at all true; 2 = Not true; 3 = somewhat not true; 4 = somewhat true; 5 = true; 6 = very true***

Please tick the space that corresponds with your level of agreement or disagreement in the box to the right of each statement.

Statements	**Rating**					
My teachers encourage students to ask questions.	1	2	3	4	5	6
My teachers provide regular feedback on student interactions.						
My teachers promptly respond to students' needs or requests.						
My teachers are positive and supportive of students' comments to encourage students to continue participating in class interactions.						
My teachers provide regular announcements with students to communicate clearly what they expect in interaction activity.						
My teachers monitor how we interact with each other.						
My teachers provide basic guidelines to help students become aware of the importance of classroom						

interaction.						
My teachers tank an encourage students for contribution in classroom interactions.						
My teachers actively participate in classroom discussion by replying to students, summarizing discussion, or asking questions to students.						
During teaching and learning, teachers encourage students to share their concern or problems with the class.						
My teachers provide timelines for students' classroom interactions.						
If students' general interaction is low, teachers guide us to participate actively through leading question.						

SECTION C

Instruction: Below are statements that describe how you may think about yourself **right now**. Use the following scales to indicate your level of agreement or disagreement with each statement. ***1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = somewhat agree; 5 = agree; 6 = strongly agree.*** Please tick the space that corresponds with your level of agreement or disagreement in the box to the right of each statement.

Statements	**Rating**					
If I should find myself in a problem in class, I could think of many ways to get out of it.	1	2	3	4	5	6
Right now, I see myself as being pretty successful as a student.						
I can think of many ways to reach my current goals as a student.						
I am looking forward to the life ahead of me in my profession.						
The future holds a lot of good in store for me.						
Overall, I expect more good things to happen to me than bad.						
Sometimes I make myself do things whether I want to or not in class.						
When I'm in a difficult situation in class, I can usually find my way out of it.						
It is okay if there are people who don't like me in my school.						
I am confident that I could deal efficiently with unexpected events in class.						
I can solve most problems in school if I invest the necessary effort.						
I can remain calm when facing difficulties in class because I can rely on my coping abilities.						

SECTION D

Instruction: Below are statements that describe how you may think about yourself **right now**. Use the following scales to indicate your level of agreement or disagreement with each statement. ***1 = Strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = somewhat agree; 5 = agree; 6 = strongly agree.*** Please tick the space that corresponds with your level of agreement or disagreement in the box to the right of each statement.

Statements	**Rating**					
When I am trying to change something in school, I pay attention to how I am doing it.	1	2	3	4	5	6
I set goals for myself and keep track of my progress in the goals.						
Once I have a goal, I can usually plan how to get it done.						
I am able to finish goals I set for myself.						
If I make a plan to change something, I pay a lot of attention to how I am doing it.						
I usually keep track of my progress toward my goals.						
I have personal standards, and try to live up to them in school.						
I get easily distracted from my plans.						
I have problem following through with things once I have made up my mind to do something in school.						
I stop making decisions concerning academics in school.						
I give up quickly in school activities.						

I do not notice the effects of my actions in school until it is too late when doing something.						
Most of the time I do not pay attention to what I am doing in school.						
I have problem making up my mind about things I do in school.						
I do not seem to learn from my mistakes.						
I learn from my mistakes.						
As soon as I see a problem or challenge in school, I start looking for possible						
I can stick to a plan that is working well.						
I usually only have to make a mistake one time in order to learn from it in school.						
I can usually find different possibilities when I want to change something in school.						
I have problem making plans to help me reach goals in school.						
I have a difficult time setting goals for myself in school.						

SECTION E

Instruction: Please read each statement carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond: ***1 = Not at all true; 2 = Not true; 3 = somewhat not true; 4 = somewhat true; 5 = true; 6 = very true.*** Please tick the space that corresponds with your level of agreement or disagreement in the box to the right of each statement.

Statements	**Rating**					
I feel like I am free to decide for myself how to live my life.	1	2	3	4	5	6
I really like the people I interact with						
Often, I do not feel very competent.						
I feel pressured in my life.						
People I know tell me I am good at what I do.						
I get along with people I come into contact with.						
I pretty much keep to myself and don't have a lot of social contacts.						
I generally feel free to express my ideas and opinions.						
I consider the people I regularly interact with to be my friends.						
I have been able to learn interesting new skills recently.						
In my daily life, I frequently have to do what I am told.						
People in my life care about me.						
Most days I feel a sense of accomplishment from what I						

do.						
People I interact with on a daily basis tend to take my feelings into consideration.						
In my life I do not get much of a chance to show how capable I am.						
There are not many people I am close to.						
I feel like I can pretty much be myself in my daily situations.						
The people I interact with regularly do not seem to like me much.						
I often do not feel very capable.						
There is not much opportunity for me to decide for myself how to do things in my daily life						
People are generally pretty friendly towards me.						

THANK YOU.

APPENDIX B

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 0332091697
Email: dep@ucc.edu.gh

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: DEP/72*D*/Vol. 1

Your Ref:

1st August, 2022

The Chairman
Institutional Review Board
University of Cape Coast
Cape Coast

Dear Sir/Madam,

INTRODUCTION

I, Professor Mark Owusu Amponsah is the Head of Department of Education and Psychology, University of Cape Coast.

I wish to humbly indicate that, Mavis Ansu Amponsah with registration number EF/EPY/19/0001 is an PhD student studying Educational Psychology in the Department of Education and Psychology, University of Cape Coast.

I humbly request that you provide him with the necessary assistance. I hope this letter will be considered favourably.

Thank you.

Yours faithfully

Professor Mark Owusu Amponsah
HEAD

APPENDIX C

UNIVERSITY OF CAPE COAST
INSTITUTIONAL REVIEW BOARD SECRETARIAT
TEL: 0558093143 / 0508878309
E-MAIL: irb@ucc.edu.gh
OUR REF: IRB/C3/Vol.1/0095
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0011497

6TH APRIL 2023

Ms Mavis Ansu Amponsah
Department of Education and Psychology
University of Cape Coast

Dear Ms Amponsah,

ETHICAL CLEARANCE – ID (UCCIRB/CES/2022/113)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research on **Impact of Teachers' Instructional Scaffolding, Psychological Capital on Students' Self-Regulated Learning and Need Satisfaction: The Case of Senior High Schools in Bono Region.** This approval is valid from **6th April 2023** to **5th April 2024**. You may apply for a renewal subject to the submission of all the required documents that will be prescribed by the UCCIRB.

Please note that any modification to the project must be submitted to the UCCIRB for review and approval before its implementation. You are required to submit a periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Kofi F. Amuquandoh
Ag. Administrator

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST

APPENDIX D

PART II: VOLUNTEER'S AGREEMENT DOCUMENT

This document describes the benefits, risks and procedures a study that seeks to examine "Impact of Instructional Scaffolding and Students' Psychological Capital on Senior High School Students' Self-Regulated Learning and Need Satisfaction" Has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Volunteer's Name:…….. Volunteer's Mark/Thumbprint……

Date: **……**

If volunteer cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Witness's Name: …… Witness's Mark/Thumbprint: ……

Date: **……**

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Researcher's Name: Mavis Ansu Amponsah

Researcher's Signature: 

Date: 8th February, 2023

CHECKLIST

Name of Principal Investigator: Mavis Ansu Amponsah

Proposal ID (To be given by the Secretariat) ……..

<table>
<tr><td colspan="3">Title of Proposal:
"Impact of Instructional Scaffolding and Students' Psychological Capital on Senior High School Students' Self-Regulated Learning and Need Satisfaction</td><td colspan="3">PI TO COMPLETE</td></tr>
<tr><td colspan="3"></td><td>Yes</td><td>No</td><td>N/A</td></tr>
<tr><td colspan="6">Vulnerable/High Risk Group</td></tr>
<tr><td>1</td><td colspan="2">Is a vulnerable population being studied?</td><td>☐</td><td>✓ ☐</td><td>☐</td></tr>
<tr><td colspan="6">If yes, tick the vulnerable population being studied?</td></tr>
<tr><td colspan="2">☐ Pregnant women
☐ Adolescents / Children
☐ Incarcerated / Prisoners</td><td>☐Elderly (above 60yrs)
☐Refugees
☐Those who cannot give consent (unconscious)</td><td colspan="3">☐Persons with mental or Behavioural disorders
☐ Others</td></tr>
<tr><td>2</td><td colspan="2">Is the justification for studying this vulnerable population adequate?</td><td>☐</td><td>☐</td><td>✓ ☐</td></tr>
<tr><td>3.</td><td colspan="2">Have adequate provisions been made to ensure that the vulnerable population is not being exploited?</td><td>☐</td><td>☐</td><td>✓ ☐</td></tr>
<tr><td colspan="6">Comment(s) of chair of faculty/school/organisation review committee:</td></tr>
<tr><td colspan="6">Scientific and Technical Issues</td></tr>
</table>

1.	Is the rational for the study clearly stated in the context of present knowledge?	✓	☐	☐
2.	Is the hypothesis to be tested fully explained?	✓	☐	☐
3.	Is the project design scientifically sound?	✓	☐	☐
4.	Where present, is the control arm adequate?	✓	☐	☐
5.	Are the inclusion and exclusion criteria complete and appropriate?	✓	☐	☐
6.	Are the types and methods for participant allocation appropriate?	✓	☐	☐
7.	Are the procedures for participant recruitment, admission, follow up and completion appropriate?	✓	☐	☐
8.	Are the drugs and/or devices to be used fully described?	✓	☐	☐
9.	Does the project design include appropriate criteria for stopping and discontinuing the research?	✓	☐	☐
10.	Are the clinical procedures to be carried out fully described and appropriate?	✓	☐	☐
11.	Are the laboratory tests and other diagnostic procedures fully described and appropriate?	✓	☐	☐
12	Is the Statistical basis for the study design appropriate and is the plan for analysis of the data appropriate?	✓	☐	☐
Comment(s) of chair of faculty/school/organisation review committee:				

Proposal ID (To be given by the Secretariat) ……..				
Yes			**No**	**N/A**
Informed Consent, Decision-making & Confidentiality				
1.	Is the information sheet free of technical terms, written in laypersons' language, easily understandable, complete & adequate?	✓	□	□
2.	Does it make it clear that the proposed study is research?	✓	□	□
3.	Does it explain why the study is being done and why the participant is being asked to participate	✓	□	□
4.	Does it clearly state the duration of the research**?**	✓	□	□
5.	Does it provide participants with a full description of the nature, sequence and frequency of the procedures to be carried out?	✓	□	□
6.	Does it explain the nature and likelihood of anticipated discomfort or adverse effects, including psychological and social risks, if any-and what has been done to minimize these risks, and the action to be taken if they occur?	✓	□	□
7.	Does it outline the possible benefits, if any, to the research participants	✓	□	□
8.	Does it outline the possible benefits, if any, to the community or to society?	✓	□	□
9	If confidentiality is not possible due to the research design, has this been conveyed to all relevant persons?	□	□	✓

10	Does it inform the research participants that their participation is **voluntary** and refusal to participate (or discontinue participation) will involve no penalty or loss of medical benefits to which the participant was otherwise entitled?	✓	□	□
11.	Does it describe the nature of any compensation or reimbursement to be provided?	✓	□	□
12	Does it provide the alternatives to participation?	✓	□	□
13.	Does it provide the name and contact information of a person who can provide more information about the research project at any time?	□	□	✓
14.	Has provision been made for participants incapable of reading and signing the written consent form (e.g. illiterate patients)? (Please attach)	✓	□	□
15	Does it conclude with a statement such as ‘’I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any question I have asked have been answered to my satisfaction. I consent voluntarily to participate as a respondent in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care’’	✓	□	□
16.	Does it provide information to the research participants on the costs to the participants involved in terms or time,	□	□	✓

	travel, man-days lost from work, etc. and reimbursements, if any?			
17.	Has provision been made for respondent's incapable of giving personal consent (e.g. for cultural reasons, children or adolescents less than the legal age for consent in the country in which research is taking place, respondents with mental illness, etc)? (Please attach).	☐	☐	✓
18.	Does it outline the procedure that will be followed to keep participants informed of the progress and outcome of the research?	✓	☐	☐
Comment(s) of chair of faculty/school/organisation review committee:				
Other materials, documents and study instruments (Patient recruitment material, Questionnaires)				
.		**Yes**	**No**	**N/A**
1	Is the Participant Recruitment Material (e.g. advertisements, notices, media articles, transcripts of radio messages) provided both in English and in the local language?	☐	☐	✓
2.	Do these materials make claims that may not be true?	☐	☐	✓
3.	Do they make promises that may be inappropriate in the research setting (e.g. provide undue incentives or emphasize remuneration?)	☐	☐	✓

4.	Does the study involve questionnaires, diaries, study instrument?	✓	□	□
5.	Are these attached to the proposal (In English and local language)?	✓	□	□
6.	Are the questionnaires written in lay language and easily understood?	✓	□	□
7.	Are the questionnaires relevant to answer the research question?	✓	□	□
8.	Are the questionnaires worded sensitively?	✓	□	□
9.	Does the consent information and form describe the nature and purpose of the questions to be asked?	✓	□	□
10.	If applicable, does the consent information and form make it clear that some of the questions may prove embarrassing for the participant?	□	✓	□
11.	Does the proposal describe how confidentiality of the questionnaires will be maintained (i.e. will they be coded or anonymised)?	✓	□	□
12.	Does the consent information and form state that the participant is free to not answer any question?	√	□	
13.	Where applicable, does the informed consent form make it clear that the in-depth interview or focus group discussion is likely to be audio or video taped?	□	□	✓
14.	Where applicable, does the consent form mention how and for how long these tapes are going to be stored?	□	□	✓

Comment(s) of chair of faculty/school/organisation review committee:				
. **Yes**			**No**	**N/A**
Clinical Trials				
1.	Is this a new drug or vaccine trial?	□	□	✓
2.	If applicable, is clearance from the national drug regulatory authority attached?	□	□	✓
3.	Is the Investigator's Brochure (including safety information) attached?	□	□	✓
4.	Is the Adverse Drug Reaction/Adverse Event Reporting form attached?	□	□	✓
5.	Has a Data Safety Monitoring Board been established?	□	□	✓
6.	Are the names of the chairperson and members of the DSMB available for the records?	□	□	✓
Comment(s) of chair of faculty/school/organisation review committee:				
Human Biological Materials		**YES**		**NO**
N/A				
1,	Will human biological materials (tissues, cells, fluids, genetic material or genetic information) be collected as part of the research?			√
2.	Does the consent information and form fully describe the nature, number and volume of the samples to be obtained		□	√

	and the procedures to be used for obtaining them?			
3.	Does the consent information and form indicate if the procedures for obtaining these materials are routine or experimental and if routine, are more invasive than usual?	✓	□	□
4.	Does the consent information and form clearly describe the use to which these samples will be put?	✓	□	□
5.	Does the consent information and form include the provision for the respondents to decide on the use of left-over specimens in future research of a restricted, specified or unspecified nature?	□	□	✓
6.	Does the consent information and form cover for how long such specimens can be kept and how they will be finally destroyed?	✓	□	□
7.	Does the proposal describe how specimens will be coded or anonymised?	✓	□	□
8.	Where applicable, does the consent form mention that genetic testing/genomic analysis will be carried out on the human biologic materials?	□	□	✓
Comment(s) of chair of faculty/school/organisation review committee:				

APPENDIX D (A)

PARTICIPANT CONSENT FORM

Title of Research Project: Impact of Instructional Scaffolding and Students' Psychological Capital on Senior High School Students' Self-Regulated Learning and Need Satisfaction

Name of Researcher: Mavis Ansu Amponsah

Please tick in the box

1. I confirm that I have read and understand the information dated *[……..]* explaining the above research project and I have had the opportunity to ask questions about the project. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. ☐

3. I understand that my responses will be kept strictly confidential (only if true). I give permission for members of the research team to have access to my anonymous responses. I understand that my name will not be linked with research materials, and I will not be identified or identifiable in the report or reports that result from the research. ☐

4. I agree for the data collected from me to be used in future research ☐

5. I agree to take part in the above research project. ☐

Name of Participant (or legal representative)	Date	Signature
Name of researcher (if different from lead researcher)	Date	Signature

APPENDIX D (B)

ASSENT FORM

Name of the Study: Impact of Instructional Scaffolding and Students' Psychological Capital on Senior High School Students' Self-Regulated Learning and Need Satisfaction

I understand that my ward has willingly agree to participate in a study about: Teaching practices and will be asked to answer some questionnaire, which will take about 30minutes. I understand that the ward does not have to participate, if not willing to participate and can quit at any time. I also understand that the ward is not oblige to answer all questions he/she doesn't want to answer or do anything he/she doesn't want to do.

The teachers, or anyone else will not know what he/she has said or done in the study. No one but the researchers will know. This study is being done by Mavis Ansu Amponsah, a PHD candidate at University of Cape Coast. Her phone numbers are 0204801761/0542270404 and her e-mail address is lynampo224@gmail.com. If there is any questions or concerns about the study, I can call and ask her about them. When I sign my name, this means that I have agree for my ward to participate in the study and that all questions have been answered. I have also been given a copy of this form.

Name_____ Date_____

Signature_____

APPENDIX E

PUBLISH WORK

Vol. 4(2), 2024, pp. 37-53

Teacher Instructional Scaffolding Improves Psychological Capital of Learners and Boosts their Self-Regulated Learning Capacities

Mavis Ansu Amponsah[1] & Lebbaeus Asamani[2] & Eric Addae-Kyeremeh[3] & Rebecca Akosua Afrah Assie[4]

[1,2,4] Department of Education & Psychology, University of Cape Coast, Ghana
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DOI: 10.53103/cjess.v4i2.218

Abstract

The present paper investigated psychological capital as an intervening variable that explains how teacher instructional scaffolding accounts for self-regulated learning of senior high school students in a cross-sectional survey. Data were obtained with adapted standardised scales from a sample of 455 (192 males and 263 females) senior high students from 15 public schools and analysed with partial least squares structural equation modelling. The results indicated that instructional scaffolding positively predicted both psychological capital and self-regulated learning of the students. Psychological also positively predicted self-regulated learning, and partially mediated the relationship between instructional scaffolding and self-regulated learning. We therefore concluded that instructional scaffolding and psychological capital are critical for the development of self-regulated learning capabilities of students in senior high schools. In light of this, we recommend, among others, that senior high school teachers should be trained and empowered in the use of scaffolding strategies in their interaction with students to enhance their psychological capital and self-regulate in their learning.

Keywords: Psychological Learning Resources, Students' Self-Regulated Learning, Self-Engaged Learning, Learning Optimism

Introduction

Quality education is an essential factor in the development and progress of any society. As such, it is imperative that educational systems are designed to meet the educational needs of students. Meeting these goals and needs of students require more than just providing them with a curriculum. The use of appropriate and effective instructional methods and strategies are very core requirements to provide quality education. Likewise, the psychological resources and mindset of the students are equally critical for effective transfer of learning and the acquisition of knowledge and attainment of instructional objectives. The present study therefore argues that teachers' use of instructional scaffolding for classroom interaction and students' level of psychological capital could interact to contribute to meeting the needs of students, and that the interaction of these variables would ultimately imbibe in students the capacity to engage in self-regulated learning senior high school students in Ghana.

Teacher instructional scaffolding would provide students with the support they need to learn and grow, while psychological capital enables them to overcome challenges and persist in their academic pursuits (Zimmerman, 2000). The development of psychological capital enhances self-regulated learning, which involves the use of strategies to actively manage and monitor one's learning process. Given that self-regulated learning involves ability to self-engage in planning, setting goals, monitoring progress, and evaluating performance (Zimmerman, 2000), it is our argument that students who have higher levels of psychological capital are more likely to be self-regulated learners.

Teacher instructional scaffolding has been found to enhance students self-regulated learning at various levels and in different subjects (e.g. Ansari & Saleh, 2021; Ihechukwu, 2020; Pereira et al., 2016; Tai et al., 2021). For instance, Ihechukwu (2020) found instructional scaffolding to be a critical learning facilitator and enhancing mathematical performance of secondary school students in Nigeria in a quasiexperimental study. Tai et al. (2021) also found instructional scaffolding to be an important element in the learning of students and academic success in motor and cognitive abilities writing and communication in English language. The dynamic support, assessment and

feedback provided to the leaner during the learning process shapes the confidence of the student and he/she gains the confidence to self-regulate and learn independently, with little support. This invariably leads to enhanced understanding and performance in learning. Self-regulated students are generally held to a higher standard in their consistent use of metacognitive, motivational, and behavioural strategies (Zusho, 2017). This requires self-belief and making efforts to meet the high expectations and often preparing for and reflecting on learning. They engage in effort management skills for working diligently and effectively with challenging tasks that are important in their academic success in the classroom (Pintrich, 2004).

Although educational scholars emphasise the relevance of the instructional scaffolding to the achievement of educational outcomes, it appears that it lacks precise definition. The concept has its roots in the socio-cultural theory of mind and the concept of Zone of Proximal Development (Shabani et al., 2010). Instructional scaffolding generally represents a teaching approach that provides temporary support and guidance to learners as they engage in challenging learning tasks or activities. Gonulal and Loewen (2018) defines instructional scaffolding as the support given during the learning process which is tailored to the needs of the student with the intention of helping them achieve their learning goals. The process involves breaking down complex tasks into manageable steps, offering prompts, cues, and support, and gradually reducing the support as learners develop competence and independence (Windle & Miller, 2019). Scaffolding must therefore be linked to ongoing assessments of students' skills and must expand on what the learner already knows (van de Pol et al., 2010). As a result, instructing students verbally does not constitute scaffolding because it does not elicit and build upon what the students already know.

This requires that the selection of the ideal level of support for the learner is always based on outcome of a dynamic assessment of the progress of the learner. Support is decreased if the outcome of the dynamic assessment indicates that the learner is developing their abilities to complete the learning task independently (Pea, 2018), and increase support if the learner is finding it difficult to make meaningful progress (Koedinger & Aleven, 2007).

It is very important that the learner completes the task as unassisted as possible, and so the teacher only tries to assist the student in tasks that are beyond his/her current ability. Learner mistakes are expected, but the student can achieve the task or goal through teacher feedback and inspiration.

Psychological capital represents the positive psychological resources that are inherent in individuals that enable them to resilient, overcome challenges to rebound from difficulties (Avey et al., 2009). It encompasses hope, efficacy, resilience, and optimism, and these components can be nurtured and enhanced, thus facilitating both personal and organizational growth (Luthans et al., 2007). Optimism entails positive expectations for the future, while hope represents the driving that motivates an individual to establish and pursue goals to facilitate personal growth. Self-efficacy represents positive psychological state of individuals that is exhibited in self-belief their abilities, while resilience entails a proactive mindset to persevere through challenges, the capacity to recover from setbacks **(**Avey et al., 2011). These psychological resources are essential for cultivating and nurturing personal growth, well-being, and performance in various contexts.

Hope and optimism are personality characteristics linked to the physiological and mental well- being (Du et al., 2015). Therefore, Hope is an awareness-raising process that motivates the finding of will-power (goal determination) and path-power (planning ways to achieve goals) (the expectation of meeting desired goals).

Psychological capital has been found to be an important determinant of self-regulated learning of students (e.g. Mannion et al., 2021; You, 2016; Riolli et al., 2012). For instance, Mannion et al. (2021) found that teacher dialogic scaffolding with students is importance for the development of psychological capital (self-efficacy, optimism, hope, and resilience) in students as well as effective encouragement in student learning. Interestingly, psychological capital is not only relevant for student learning, but also for teacher to better engage in the academic environment (Mannion et al., 2022). Thus, the psychological resources of the teacher, such as hope, self-efficacy, resilience, and optimism generally give the teacher the capacity to effectively engage with students. We therefore postulate accordingly that psychological capital of

senior high student will significantly predict their self-regulated learning behaviour.

Self-regulated learning entails a process where the student actively and purposefully controlling his/her behaviour, motivation, and cognition on academic activities (Wolters & Brady, 2021). Self-regulated learning is also explained as the control and modification of motivational beliefs, such as efficacy and goal orientation, in order to help students to adjust to the demands of a course (Huh & Reigeluth, 2017). Additionally, students can learn effective methods for managing their emotions and affects, such as anxiousness, to enhance their academic performance. That is, self-regulated learners critically analyse what they read to see if they understood it and take appropriate action, such as rereading, to increase her understanding (Carpenter et al., 2020). The process involves goal setting, task-strategy development, self-monitoring, and self-evaluation (Dabbagh & Kitsantas, 2013). Self-regulated learning (SRL) provides a core framework for an understanding of the cognitive and motivational aspects of learning. In the end, students who self-regulate can improve academic performance, value their own learning process and become efficient learners as soon as they become employees in the future. As a result of moving from a teacher-centered approach to a learning environment that is more student-centered, students must be more responsible and control their learning processes. Alsancak Sirakaya and Ozdemir (2018) state that SRL is advocated as an important competence in learning environments for students where students are actively engaged in knowledge development and interpretation. The characteristics of self-regulated learning (SRL) are presented by students via a range of learning strategies to control and monitor their cognizance, motivation and behaviour (Bin Jwair, 2018).

Zumbrunn et al. (2011) conclude that self-regulated learning appears to be an influential concept that has a great deal of bearing on the academic success and failure of many students. Hence, effective student self-regulation, task requirement analysis, productive objectives and strategies to be selected, adapted or invented for its objectives must be selected carefully by the learners (Zumbrunn et al., 2011). Students must also monitor their own progress, as the

task is comprehensive, manage intrusive emotions, decrease motivation and adapt successful policies. Seker (2016) added that these are the students who ask questions, take notes, and allocate the time and resources for themselves. That is, good self-regulators cultivate their abilities and routines necessary to be successful students, displaying successful study techniques, effort, and tenacity. Therefore, understanding how to develop and practice these skills in all students is crucial for educators.

Theoretical Foundation: Self-Determination Theory (Deci & Ryan, 1985)

The Self Determination Theory (Deci & Ryan, 1985) was modified in the year 2000 to encompass all aspects of the motivation and personality of an individual. This theory indicates that three fundamental psychological resources are required for to support the intrinsic motivation of individuals to be engaged in a certain behaviour. These resources are autonomy (volitional feeling), skill or competence (effectiveness) and relatedness are important (Deci & Ryan, 2000). Autonomy takes place when people feel that their behaviour is caused by themselves. However, autonomy is not independence or full freedom, but an internal acceptance and commitment to a motivated conduct. Supporting autonomy means choosing and providing a meaningful justification where choices cannot be made (Filak & Sheldon, 2003). Competence on the other hand, occurs when the behaviour is effective and its support means trusting and providing sensitive mentoring and feedback on the ability of students to face challenges. Relatedness occurs when one feels linked to or understood by others and this brings about the selfdetermination structure. This structure is similar to the need for belongingness and support connectivity seen in accepting, respecting, and caring for others (Filak & Sheldon, 2003). The Theory of Self-Determination provides the theoretical foundation for this study to explain the dynamic interplay between classroom environment, a supportive system and the personal growth of the learners through exhibited through mastery of selfregulation.

Statement of the Problem

Instructional scaffolding and psychological capital are regarded important human tools for the efficiency of learning such as self-regulated learning (Combs et al., 2009).

Despite the fact that teachers' instructional scaffolding and psychological capital are key determinants of students' self-regulated learning, research studies treating instructional scaffolding and psychological capital, self-regulated learning as a system of nomological network where each would play a complimentary role appear limited in the Ghanaian context. While some studies in this area examined the relationship between instructional scaffolding and student engagement (e.g. Nguyen et al., 2020), others have investigated the impact of psychological capital on academic performance (Appiah-Kubi, 2020; Ortega-Maldonado & Salanova, 2017). There is a paucity of studies that examined the direct and indirect roles of both instructional scaffolding and psychological capital in promoting self-regulated learning among senior high school students in Ghana.

Previous studies investigated, for instance, the influence of instructional scaffolding (Dignath, 2016; Zhu & Mok, 2018), students' need satisfaction (Liu et al., 2014; Sierens et al., 2009), psychological capital (You et al., 2014) on students' self-regulated learning, without looking at any intervening nomological system of interaction between these constructs in student learning. Also, previous studies on self-regulated learning have been done largely outside Africa (e.g. Dignath, 2016; Liu et al., 2014; Sierens et al., 2009; Zhu & Mok, 2018). It is important to obtain Ghanaian context specific evidence for relevant interventions strategies to be designed and implemented to improve self-regulated learning of senior high school students in Ghana. *The present study examined the mediating roles of psychological capital in the relationship between teacher instructional scaffolding and self-regulated learning of* senior high school students. The partial least square structural equation modelling (PLS-SEM), using the SmartPLS 4.0 was used to test the proposed model of nomological system of interaction between the variables as afore-mentioned.

The following hypotheses we formulated based on the research problem and purpose of the study as well as the theoretical and empirical literature reviewed:

1. Teacher instructional scaffolding will significantly predict psychological capital
2. Teacher instructional scaffolding will significantly predict self-regulated learning
3. Psychological capital will significantly predict self-regulated learning
4. Psychological capital will significantly mediate the relationship between instructional scaffolding and self-regulated learning

Methods

Study Design

The study was a cross-sectional survey involving 455 students sampled from 15 public senior high school in the Bono region of Ghana, with an accessible population of 18,548 Form 2 students. The cross-section survey enabled us to collect reasonably large amount of data at the same point in time from different schools and students with different characteristics that have implications for possible differences across the variables of interest (Kothari et al., 2017). An initial sample of 510 students was taken from the accessible population based at a confidence level of .05 (Krejcie & Morgan, 1970). The final sample used for the analysis was the 455 (192 males and 263 females), due to non-response and screening of incomplete responses and bad data, a response rate of 89 percent. The ages of the students ranged between 15 and 21, with average age of 17 years.

Data Collection Instruments

The data were collected with adapted standardised scale as described below. The measurement model (see Table) presents the construct validity and reliability coefficients obtained in the present study.

Teachers Instructional Scaffolding

We measured instructional scaffolding with the uni-dimensional 12-items instructional scaffolding scale (Cho & Cho, 2016). Cho and Cho (2016) reported a reliability coefficient of .95. The items are rated on a six-point Likert-type scale, ranging from 1 (not at all true) to 6 (very true). Totals scores

range from 12 to 72, and higher score indicate higher level of teacher instructional scaffolding.

Psychological Capital

The 12-item uni-dimensional psychological capital scale (Lorenz et al., 2016) was used to measure psychological capital. The scale has four dimensions: hope (3-items, α= .85), optimism (3-items, α= .60), resilience (3-items, α= .91) and self-efficacy (3items, α= .80). The responses are rated on a six-point Likert-type scale, from 1(not at all true) to 6 (very true), with total composite scores ranging from12 to 72. Higher score indicates higher level of psychological capital.

Self-Regulation Learning

The 22-item short self-regulation questionnaire (Chen & Lin, 2018) was adapted for the to measure student's self-regulate learning. The scale had five dimensions such as goal attainment (7-items, α=.88), mindfulness (7-items, α=.86), adjustment (3-items, α=.84), proactiveness (3-items, α= .80) and goal setting (2-items, α=.82). The responses are rated on a six-point Likert-type scale of 1 (strongly disagree) to 6 (Strongly agreed), and overall composite scores range from 22 to 132, with higher score denoting higher level of Self-regulated learning.

Ethical Issues

We obtained ethical approval from the University of Cape Coast Institutional Review Board (ID number: UCC-IRB/CES/22/113). Copies of the letter of approval were sent to the Municipal and District Directorates of Education and the head masters of the selected schools to obtain their approval. Ethical issues such as confidentiality, anonymity, right to withdraw from the study at any time without suffering a penalty and other issues pertaining to research were discussed with respondents. The data collection process lasted three weeks.

Results

This study sought to investigate how teacher instructional scaffolding relates with self-regulated learning of senior high school students through their psychological capital. The data were analysed using the PLS-SEM to test the hypotheses. PLS-SEM involves evaluation of measurement and structural

models to assess the quality of the measures and the path coefficients and their significance to test the hypotheses simultaneously.

Common Method Bias and Measurement Model

Meaningful and accurate findings are obtained when the measures meet relevant quality criteria (Hair et al., 2019). In view of this, relevant measurement criteria and data quality requirements were tested, including test for Common Method Bias. The Variance Inflation Factor (VIF) was used the ascertain the presence of common method bias (CMB) of the responses that may influence the validity of the findings (Podsakoff et al., 2012). A VIF of less than 5.0 (Becker et al., 2015) indicated non-existence of CMB.

The indicator loadings and construct validity and reliability were assessed to evaluate the quality of the measurement model. Indicator loadings of 0.7 and above are generally considered good, but loadings between 0.4 and 0.7 could be retained if their deletion would not improve the overall model reliability and the average variance extracted (Hair et al., 2016). We evaluated construct validity with average variance extracted (AVE) for convergent validity, and heterotrait-monotrait (HTMT) for discriminant validity, while reliability was established with Cronbach's alpha and composite reliability (Hair et al., 2019; 2021). AVEs equal to or greater than .50 is considered good convergence because it means the indicators account for more 50% of variance in the construct. Heterotrait-Monotrait ratios less than lower than 0.90 (Henseler et al., 2016) signify sufficient discriminant validity. The results presented in Tables 1 and 2 indicated that all the constructs had good measurement quality, meeting all the criteria afore-presented.

Variable	Cronbach's alpha	Composite reliability	AVE
TIS	0.812	0.851	0.52
PC	0.767	0.831	0.58
SRL	0.778	0.829	0.50

Table 1: Construct reliability and validity coefficients of the measures

PC = Psychological capital, TIS = Teacher Instructional Scaffolding, SRL = Self-regulated Learning

Table 2: Heterotrait-monotrait (HTMT) ratio between the pairs of constructs for Discriminant Validity

Paths	HTMT Ratios
SRL <-> PC	0.640
TIS <-> PC	0.609
TIS <-> SRL	0.593

Evaluation of Structural Model

The structural model presents the path coefficients that indicate the nature and strength of the relationships between the exogenous and endogenous variable to test the hypotheses. Figure 1 presents the analytical model and the path coefficients with their respective significant values.

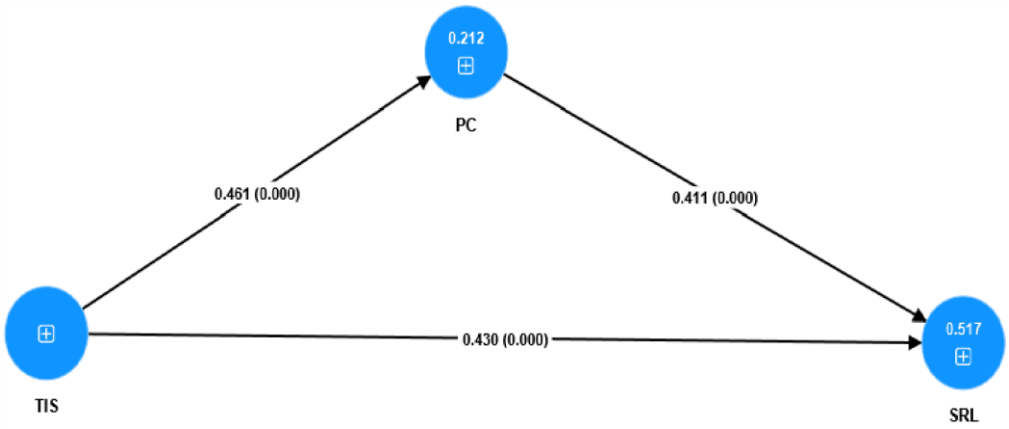

Figure 1: Structural model of the study

PC = Psychological capital, TIS = Teacher Instructional Scaffolding
SRL = Self-regulated Learning

Table 3: Results of the structural model

Paths	Standardised Effects (β) Direct	Indirect	Total	f^2	R^2	Sig.
TIS -> PC	.461		.461	.269	.212	<.001
PC -> SRL	.411	-	.411	.276		<.001
TIS -> PC-> SRL	.430	.189	.619	.301	.517	<.001

PC = Psychological capital, TIS = Teacher Instructional Scaffolding, SRL = Self-regulated Learning

The first hypothesis sought to test the relationship between instructional scaffolding and psychological capital. The results (see Table 3) indicated that instructional scaffolding positively predicted psychological capital ($\beta = .461$, $p < .001$) and accounted for 21.2% pf the variance in psychological capital. The results therefore support hypothesis 1. Also, hypothesis 2 postulate that psychological capital would significantly predict self-regulated learning of senior high school students, and this was supported by the results ($\beta = .411$, $p < .001$). Hypothesis 3 that sought to test assess the relationship between teacher instructional scaffolding and self-regulated learning was also supported ($\beta = .430$, $p < .001$). Instructional scaffolding and psychological capital together accounted for 51.7% of the variance in self-regulated learning. Hypothesis 4 tested the mediating role of psychological capital in the relationship between instructional scaffolding and self-regulated learning of SHS students. The results showed that psychological capital partially mediated the relationship between instructional scaffolding and self-regulated learning ($\beta = .189$, $p < .001$) of SHS students. Psychological capital thus, played a critical role in how teacher instructional scaffolding could enhance self-regulated learning capabilities of students in SHS.

Discussion of Findings

The present paper found that instructional scaffolding positively predicted psychological capital of the students. This implies that the more teachers adopt instructional scaffolding in their lessons, the better the psychological capital of the students would become. This finding is consistent with previous studies (Lorenz et al., 2016; Mannion et al., 2021). Thus, instructional scaffolding could enhance the self-efficacy, optimism level, hope and resilience of the student when they encounter difficult situation in their learning and discovery process. Also, through instructional scaffolding, the self-efficacy of students is enhanced and they find their way around difficult academic tasks and cope with challenges situations (Lorenz et al., 2016). The finding in the current study supports the propositions of the self-determination theory (Deci & Ryan, 2000), suggesting that the provision of the requisite support and guidance to

students enable them to handle challenging academic situations and become focused and self-directed.

Teacher dialogic instructional scaffolding with their students enables students to become exposed to new insights that enhance their psychological capital (Mannion et al., 2021). Such students therefore demonstrate greater self-efficacy and optimisms, become hopeful of successful academic engagement, and resilient (Mannion et al., 2021). Instructional scaffolding and guidance build the confidence of the student to be free to ask questions and receive resourceful feedback and support, not only from the teacher, but also from other colleagues. teachers in learning new material. This process encourages the student to pay more attention in class and become interested in the learning process, and demonstrate effective learning skills and engage in analytical academic discourse with convictions (Benlahcene et al., 2021; Reeve et al., 2019).

The findings also indicate that instructional scaffolding positively predicted self-regulated learning of senior high school students. This finding is consistent with various studies from different countries. Extant literature indicated that teacher instructional scaffolding enhances students self-regulated learning at various levels and in different subjects (e.g. Ansari & Saleh, 2021; Ihechukwu, 2020; Pereira et al., 2016; Tai et al., 2021). For instance, Ihechukwu (2020) found instructional scaffolding to be a critical learning facilitator and enhancing mathematical performance of secondary school students in Nigeria in a quasi-experimental study. Tai et al. (2021) also found instructional scaffolding to be an important element in the learning of students and academic success in motor and cognitive abilities writing and communication in English language. The dynamic support, assessment and feedback provided to the leaner during the learning process shapes the confidence of the student and he/she gains the confidence to self-regulate and learn independently, with little support. This invariably leads to enhanced understanding and performance in learning. Self-regulated students are generally held to a higher standard in their consistent use of metacognitive, motivational, and behavioural strategies (Guo & Wei, 2019; Zusho, 2017). This requires self-belief and making efforts to meet the high expectations and

often preparing for and reflecting on learning. They engage in effort management skills for working diligently and effectively with challenging tasks that are important in their academic success in the classroom (Pintrich, 2004). Employing scaffolding progressively enabled students to become independent utilise self-regulated technique (Pereira et al., 2016), and have higher level of motivation (Guo & Wei, 2019; Hyland & Hyland, 2019; McMillan, 2014).

We also found that psychological capital further promotes self-regulated learning, consistent with extant literature (e.g. You, 2016; Riolli et al., 2012) and the self-determination theory. Riolli et al. (2012) noted that students with high psychological resources have better perspectives of challenging academic activities, strategize and adopt appropriate learning strategies in their learning. This invariably boosts their appreciation and engagement with the learning environment appropriately regulate their learning activities (You et al., 2014) and perceive insightful possibilities that boosts their learning and personal growth. Psychological capital, as a psychological resource, thus empowers the student in the learning environment to self-regulate in the academic and learning process (Paloș et al., 2020) and directs the focus of the student to attain success in academics pursuit (Luthans et al., 2007) through the hope and willpower (Jafri, 2017) offer by the scaffolding process. As supported by our finding in the mediation analysis, instructional scaffolding both directly and indirectly influences self-regulated learning by first boosting the psychological capital of the students. The combined effect of teacher scaffolding and psychological capital on self-regulated learning is enormous, as observed in this study.

When the confidence of the students is enhanced through instructional supporting and guidance, they gain the capacity and the knowledge to take control and schedule their own learning activities (Paloș et al., 2020; You et al., 2014). Thus, the present study concludes that instructional scaffolding is a critical educational strategy that engenders confidence and resilience in students to take charge of their learning process and outcomes.

Practical Implications and Recommendations

Given the relevance of self-regulated learning in the academic experiences and learning outcomes of students, it is important for educational stakeholders to adopt pragmatic measures to promote self-regulated learning in students. We recommend that teachers should be trained and empowered in the use of scaffolding strategies in their interaction with students to enhance their psychological capital and self-regulate in their learning. Headmasters also need to encourage instructional scaffolding and other social and psychological processes to enhance psychological capital of students in senior high schools. In addition, educational administrators and authorities should ensure that educational curricula are designed to encourage instructional scaffolding within the learning environment. This, invariably would enhance the self-confidence, efficacy and resilience of the students to optimistically pursue their learning agenda.

Conclusions

In conclusion, our study emphasised the relevance of teacher instructional scaffolding in the development of psychological capital of students in senior high schools. It is also important to note that both scaffolding and psychological capital are critical for self-regulated learning of students. Psychological capital is one critical intervening mechanism through which instructional scaffolding could boost self-regulated learning capabilities in students. Essentially, teacher instructional scaffolding feedback effectively enhance self-regulation learning of students through their use of metacognitive strategies, resilience, resource management strategies, intrinsic motivation, self-efficacy and other psychological resources.

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