



University of
**Southern
Queensland**

**A CASE STUDY OF A SCHOOL ACCREDITATION JOURNEY, FOCUSING ON
HOW THE SCHOOL COMMUNITY CATER TO THE NEEDS OF FUTURE-
ORIENTATED TWENTY-FIRST CENTURY LEARNERS**

A Thesis submitted by

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ABSTRACT

In the current literature, there is a lack of research information concerning the impact that the school accreditation process can have, including through the generated insights, and the potential transformational journeys, of a diverse group of stakeholders with a shared purpose. The research offers unique insights, via a case study, of an Indian International School undergoing joint accreditation (Council of International Schools, New England Association of International School, and International Baccalaureate). As this was a case study, the sample size was 5. The Research Question is: What is the impact of the NEASC accreditation process on meeting the needs of twenty-first-century students? The researcher, as the school's Head of Design and Technology, and also a foreigner, remains close to the action of the participants, recording different insights of various stakeholders via anecdotal notes, regarding the effects and effectiveness of the accreditation process at the school. Additionally, as this accreditation process occurred during COVID-19 the case study reveals various stakeholders' perspectives conducted as face to face, online and hybrid. The researcher connects case study findings within the larger research framework of school accreditations, including digital transformations and global trends; to offer fresh perspectives and value to the field.

CERTIFICATION OF THESIS

I Jonathan Guy Kelly declare that the Thesis entitled: *A case study of a school accreditation journey, focusing on how the school community cater to the needs of future – orientated twenty – first century learners*, is not more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references, and footnotes. The thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

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The truly collaborative and supportive nature of everyone, I am truly humbled and grateful.

DEDICATION

I trust this Thesis, offering perspectives within a collective journey, will be helpful for those specifically interested in the value of school accreditation; to those dedicated in best serving and meeting the needs of future 21st-century Century Learners.

To my two daughters: Beatrice and Isabella, (generation Z) my unreserved belief, the value, and rigor of accreditation, ultimately to adapt to the skillsets you'll require to navigate and flourish.

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ABBREVIATIONS

Accrediting Council on Education in Journalism and Mass Communications (ACEJMC)

Association to Advance Collegiate Schools of Business (AACSB)

Association of Master of Business Administration (AMBA)

Atlanta Quality Assurance Association and Executive Master of Business Administration

Council for the Accreditation of Educator Preparation (CAEP)

Council of International Schools (CIS)

Diploma Programme (DP)

European Quality Improvement System (EQUIS)

International Baccalaureate (IB)

Middle Years Programme (MYP)

National Centre for Curriculum and Textbook Development (NCCT)

New England Association of Schools and Colleges (NEASC)

New England Association of Schools and Colleges Architecture Culture Ecology (NEASC ACE programme)

Primary Years Programme (PYP)

Science, Technology, Engineering, and Mathematics (STEM)

CHAPTER 1: INTRODUCTION

The focus of this study is to investigate, through a case study approach, reflections on the experience of being part of an international school's accreditation process. Over the years, international school accreditation has emerged as a growing research topic due to its impact on not only institutions' competitiveness but also the perspectives of students and employees who wish to be associated with accredited international schools (Jacqmin & Lefebvre, 2021). The increased publications in the area over the last decade demonstrate the research community and academia's growing interest in accreditation. Nonetheless, there is a dearth of literature on the potential benefits and challenges of international school accreditation from the perspective of internal stakeholders within schools. While many researchers have focused mainly on external stakeholders' perspectives, it is also essential to conduct research based on the views of stakeholders in such schools.

To a large extent, previous studies have exclusively examined the impact of school accreditation on students' enrolment and learning, which is not a focus of this research. For instance, Jacqmin and Lefebvre (2021) revealed that international school accreditation such as the Association to Advance Collegiate Schools of Business (AACSB), the European Quality Improvement System (EQUIS), and the Association of Master of Business Administration (AMBA) had a positive and significant impact on enrolment. Jacqmin and Lefebvre's (2021) findings indicate that the certification of educational programmes and institutions influenced students' decisions to join the schools. As a result, students were more likely to join business schools that were certified, as this was indicative of their reputation in creation and diffusion of knowledge.

In another study, Istileulova (2013) convey those international accreditations such as Association to Advance Collegiate School of Business (AACSB) and Executive Master of Business Administration (AMBA) facilitated the mobility of exchange programmes and dual degree programmes. In this case, mobility referred to the ease with which academic programmes would be transferred between institutions without affecting the quality of education or training. Although Istileulova (2013) examined accreditation processes in higher education environments, other researchers also reviewed school-based accreditation systems, such as the National Centre for Curriculum and Textbook Development (NCCT; Jingqi & Ulmet, 2019). The current research

therefore focuses on international school accreditation processes which are adopted within an international school setting.

Although researchers have examined international schools over time (Istileulova, 2013; Jingqi & Ulmet, 2019; Jacqmin & Lefebvre, 2021), a problem that has yet to be addressed regards the insufficient research detailing the benefits of international school accreditation from a narrative perspective. A gap therefore exists both in terms of lack of literature and the adoption of a narrative methodology to solve the problem. Insights from the examination of studies in the field (Istileulova, 2013; Jingqi & Ulmet, 2019; Jacqmin & Lefebvre, 2021) convey that many researchers opt to adopt an external perspective to examine how accreditation processes impact international schools. A plausible explanation for the preference of external perspectives is that most scholars are not affiliated with the international schools and are 'external' to the schools. However, in the current study, the researcher is among the stakeholders involved in the accreditation process, and he consequently offers an internal perspective.

The findings also revealed that adoption of external perspective methodologies mainly focused on examining the impact of accreditation on student and school performance, for instance, reviewing published information on schools' websites (Jacqmin & Lefebvre, 2021) or conducting a comparative analysis of accreditation processes (Istileulova, 2013). The current research adopts a unique insider perspective where the researcher is part of the institution's accreditation process. In this regard, the current research argues that there is a need to address the methodological gap in terms of adopting an insider perspective to understand the impact of accreditation process in international schools and add to the body of literature.

The aim of the current research is to demonstrate, via self-reflection of the accreditation team of an international school community, the challenges faced, and benefits enjoyed during accreditation processes, as well as the outcomes of the process. The New England Association of Schools and Colleges (NEASC), which is the oldest accreditation in the U.S., works in close partnership with schools to ensure that schools meet international standards of excellence are benchmarked (NEASC, 2017). Furthermore, Raccio (2020) posits that the NEASC Architecture Culture Ecology (ACE) programme represents a metaphor of a house which is designed through thoughtful architecture, enlivened by the culture of the occupants, and embedded within an ecology which specifies both time and space. In this case, the NEASC ACE highlights what is learned and why, beliefs which underpin effective learning, and the emotional and physical space

where learning occurs. However, attainment of the NEASC ACE joint accreditation poses a direct challenge to school communities to consider and enact ways of performance to ensure they are meeting the needs of twenty-first century students and equipping them for future design-oriented thinking (NEASC, 2017).

New England Association Schools and Colleges (2017) requires international schools to specifically focus on ‘reflecting on future design which necessitates identifying where the schools want to be, thereby closing the gap between current reality and future aspiration of educational performance’ (p. 7). Via a case study, (5 teacher participatory representatives across primary, middle, and secondary schools) the current research drew on narrated experiences in which the researcher is involved, as well as interviews and documented reflections in overseeing a group engaged in utilising Learning principle 9 (L9). In this regard, the researcher investigates the experiences of a group which includes the researcher regarding accreditation of an international school. Learning principle 9 is a part of this accreditation which regards the construction of learning spaces and time as specified by NEASC ACE. Table 1 outlines all accreditation learning principles.

Table 1 ACE 10 learning principles

Principle 1	Learning goals
Principle 2	Dimensions of learning
Principle 3	Assessment for, of, and as learning
Principle 4	Learning perspectives
Principle 5	Learner engagement and autonomy
Principle 6	Research and reflection on learning
Principle 7	Inclusiveness of learning
Principle 8	Governance and leadership for learning
Principle 9	Learning space and time
Principle 10	Learning community

Learning principle 9 is based on the argument that the design of learning spaces and learning time is driven by the community's intended or prioritised outcomes. As such, the community's perspectives regarding what learning ought to achieve shapes the space of learning and the structure of learning time. The principle is based on its support for learning ecology, which describes the physical and emotional space where learning occurs, including the interconnections within communities, relationships, and interactions. As part of learning principle 9, the investigation also draws on experiences which emerged in the context of meeting students' needs to be future orientated and meeting their needs for twenty-first century. The importance of examining both principles stems from the fact that they illuminate the impact of accreditation on the learning environment and communities which are involved in the research.

1.1 Significance of the Research

The trademarks of education encompass the reputation of academic staff and their focus on the achievement of quality (Akareem & Hossain, 2016). From this perspective, the hallmarks of education are linked to the accreditation process which seeks to ensure existent systems meet learners' needs. As Akareem and Hossain (2016) reveal, the trademarks of education (e.g., quality assurance systems) have been in existence for many years and emphasise education's ability to meet the needs of twenty-first century students. However, with the onset of COVID-19, the need for quality education was underscored and brought to the fore, given that technology-based platforms were rapidly adopted for learning and teaching (Dhawan, 2020; Muthuprasad et al., 2021). In these studies, the researchers revealed that the COVID-19 pandemic jeopardised the learning calendar, as schools had to close and digital platforms were adopted to ensure learning continuity. However, the debate on quality learning emerged given the shift to the digital platform. In this case, although the quality of learning has long been discussed by scholars, a shift has occurred in what is prioritised in education (Dhawan, 2020; Muthuprasad et al., 2021).

Based on a large body of knowledge amassing around the quality of learning for twenty-first century learners, the literature identifies an existing link between twenty-first century learning and embracing the ideas of critical thinking (Salama, 2018); inquiry-based approaches (Chu et al., 2017); interdisciplinary knowledge (Styron, 2013); portfolio development (Boes et al., 2001); and continual assessment rather than a focus on summative testing (Camacho & Legare, 2016). The synthesis of various studies indicates that twenty-first century learners must

develop a wide range of skills, including critical thinking, portfolio development, and knowledge related to various disciplines. As such, there is an emphasis on developing quality knowledge.

Additionally emerging from the literature on the needs of twenty-first century students are notions of blended, hybrid, and online approaches to teaching in both synchronous and asynchronous modes (Hastie et al., 2010; Koi-Akrofi,; Singh et al., 2021). Singh et al. (2021) found that hybrid and blended learning were useful in ensuring optimal learning experiences for students during the COVID-19 pandemic despite the elimination of face-to-face instruction. Koi-Akrofi et al. (2020) further revealed that the adoption of hybrid learning was integral in enabling distance education for twenty-first-century students. The emergence of these approaches to online learning (Hastie et al., 2010; Koi-Akrofi et al., 2020; Singh et al., 2021) further raises a debate on their impact in meeting the needs of twenty-first-century students. In the context of the current study, the emergence of these learning approaches emphasizes the need for accreditation processes and adherence to the L9 guidelines to ensure that the intended impact of learning shapes learning spaces and times. Similarly, the emergence of diverse learning approaches leads to challenges for school staff to be able to achieve the required quality and thus meet the accreditation requirements, which would make understanding their experiences important.

During the current global pandemic, many of these twenty-first-century ideals appear to have been fast-tracked, and future-focused pedagogies are being enacted in classrooms worldwide. For instance, the international school community has adapted to offer educational opportunities online, although they faced technical challenges in the transition to online environments (Doll et al., 2021). Similarly, Dhawan (2020) revealed that while many schools were reluctant to adopt blended and online learning platforms before the pandemic, they rapidly shifted to online teaching and learning following the emergence of COVID-19. Various researchers (Doll et al., 2021; Pokhrel & Chhetri, 2021; Singh et al., 2021) have also postulated that because the COVID-19 pandemic disrupted traditional face-to-face learning, the shift to the online form of pedagogy was no longer an option but rather a necessity, given that public health interventions restricted in-person interaction. While such studies (Doll et al., 2021; Pokhrel & Chhetri, 2021; Singh et al., 2021) have indicated that learning and teaching in the twenty-first century has been significantly transformed by adopting technological platforms, the need for quality is still emphasised (Hastie et al., 2010; Koi-Akrofi et al., 2020). Alongside this process, the aspirations, and ideals of International Baccalaureate education, formulated in 1968 to ‘help

to create a better world', as asserted in International Baccalaureate Organization's mission statement are as significant today as they were then.

The emphasis on conceptual and global understanding, appropriate action, and mutual respect, as well as interdisciplinary and transdisciplinary thinking, is pertinent. Global understanding is important for meeting the needs of students of different nationalities, while interdisciplinary and transdisciplinary thinking allows learners to acquire diverse skills across fields. In this regard, the current research emphasizes the fact that future-focused learning design is more applicable than before, given the rapid shift to online digital spaces for learning. As a result, it is sensible for accreditation processes to embrace this shift and require international schools to demonstrate how they are undertaking the adoption of digital spaces. This research therefore aims to investigate and understand what joint accreditation involves from the perspective of internal stakeholders regarding how they learned about new pedagogies to meet the challenges of an evolving digital world and of the COVID-19 pandemic.

1.2 Background

This thesis focuses on the key aspects of an international school's joint accreditation process: International Baccalaureate (IB), New England Association of Schools and Colleges (NEASC), and Council of International Schools (CIS) in an Indian context. As such, it reveals how the three organisations exert their demands on Indian international schools. The knowledge will contribute to the existing literature on accreditation of international schools from an insider perspective, as the researcher interacts with stakeholders involved in the accreditation process. Council of International Schools is chiefly concerned with particulars such as health and safety and policies, whereas IB and NEASC work in unison via the ACE programme and focus on the self-reflection stage of the journey. The main intent and interest of this research study is to understand the accreditation process of international schools and its impact on meeting the needs of twenty-first century students, especially in the post-COVID-19 world. Drawing on the NEASC (2017) ideology, the objective of this project is to reflect the ACE philosophy. The philosophy argues that ACE accreditation requires a new set of skills on the part of the team members. They become ethnographers, anthropologists, and qualitative researchers as they seek to understand, interpret, and assess a community's learning eco-system and culture (NEASC ACE Learning Introduction, 2017).

The aim of this study is to investigate and understand what joint accreditation involves from the perspective of internal stakeholders regarding how they learned about new pedagogies to meet the challenges of an evolving digital world and the COVID-19 pandemic. The insider perspective focuses on the learning space and interactions that exist between communities as is clearly revealed in Learning Principles 9 and 10. The researcher leveraged their capacity as head of design and technology, leading this group within a self-review process, with the objective of providing a nuanced perspective of the challenges experienced in joint accreditation processes. The perspectives are balanced, as the researcher draws upon data from various stakeholders involved in the accreditation process in the international school setting.

The research significance is also underscored by the fact that it is set during and around the COVID-19 pandemic. As a result, the emergence of the online learning platforms leads to a further challenge brought about by NEASC regarding considering the physical and emotional spaces where learning occurs (NEASC, 2017). Additionally, including the interconnections within the learning communities in the international school, relationships, and interactions allows their perspectives and voices of the stakeholders to be revealed. At the time of writing in October 2021, COVID-19 is still prevalent and there are acute increases in infections reported in U.K. schools. Media reports reveal that despite vaccination, there is an expected increase in the COVID-19 cases among students in U.K. schools (Morales, 2021). Likewise, Sabino et al. (2021) reveals that many European and Asian countries which had successfully contained the COVID-19 virus are also experiencing resurgences in second and third waves of infection. This conveys an urgent need for learning environments to adapt to future needs through online platforms. In this regard, a blend of accreditation and critical professional learning is necessary to ensure the needs of twenty-first century students are met even with the shift to the digital platforms.

The concepts of hybrid learning blended and flipped classroom are consequently being brought to the fore, whereas previously they were mainly discussed in academic circles. Saboowala and Mishra et al. (2020) further reveal that the COVID-19 pandemic has prompted experts to rethink suitable teaching and learning pedagogies with blended modes being considered the most viable solutions in the post-pandemic period. However, a further concern has arisen regarding the accreditation processes which began before the onset of the pandemic and continue in the post-pandemic period. The main issues of concern are the international

school community interactions within the new learning spaces and the students' online platform environments.

The study intends to compile and present various stakeholders' collective written statements and evidence, by coordinating semi-structured interviews.

These data findings are expected to be useful in the sense that they facilitate weaving a story and understanding the current situation. As a result, important lessons are identified regarding the roles of internal stakeholders in the accreditation of an international school during the COVID-19 pandemic period and the benefits and challenges associated with the process. The study also illuminates the new pedagogies which emerged via digital platforms. The study's interest is less in accreditation than in the participants' involvement in the process. The value of the current thesis is therefore to provide a viewpoint and expression of experiences faced during the accreditation of an international school during the COVID-19 pandemic period and impart key lessons that may be adopted to improve accreditation in international schools.

As diverse researchers (Noh & Karim, 2021; Taleb, 2012) have postulated, design thinking focuses on the need for creativity and innovation to improve current situations. Since the COVID-19 pandemic has led to the transformation of the learning environment, design thinking is helpful in allowing students to develop innovative and creative ways of attaining learning during the pandemic period. The need to be resilient, adjust, and adapt is hence highlighted in the educational environment. Many educationalists predict that this global pandemic will affect the education landscape in terms of disrupting and transforming education (Sandeep, 2020). With the increased adoption of blended learning (BL) as an alternative mode of pedagogy, there is a need for teachers and students to be increasingly technologically literate (Saboowala & Mishra, 2021).

1.3 Statement of Research Problem

The key issue addressed in the current research focuses on elaborating how an accreditation process can potentially take a diverse group of stakeholders with a shared purpose within an international school on a transformational journey as the school achieves accreditation status. The research issue central to the NEASC accreditation process, which views the ACE programme as aiming to improve schools and reshapes accreditation into an instrument to enable systemic change (NEASC, 2017). The uniqueness of the research arises from its affiliation to the

NEASC ACE accreditation process. The intention to achieve accreditation is positioned within the context of a global pandemic, which may or may not also have a significant impact on how future design-oriented thinking is imagined and enacted. The core issue in the research is to comprehend what joint accreditation involves from the perspective of internal stakeholders regarding how they learned about new pedagogies to meet the challenges of an evolving digital world and the COVID-19 pandemic.

1.4 Significance of the Research

The researcher first offers perspectives from an Indian international school on how education is preparing the youth of today and tomorrow to face the future. The importance of India in the researcher's positioning offers many insights, especially due to the researcher's role in overseeing the discipline area as it is integrated into curriculum and fused across the primary, middle, and secondary schools. From the literature, it emerged that in the twenty-first century, learners must learn a wide range of skills including critical thinking (Salama, 2018); inquiry-based approaches (Chu et al., 2017); interdisciplinary knowledge (Styron, 2013); and portfolio development (Boes et al., 2001), among others. Furthermore, following the onset of the COVID-19 pandemic, learners have also been required to adapt to digital platforms (Doll et al., 2021; Pokhrel & Chhetri, 2021; Singh et al., 2021).

Secondly, this research is significant to the body of knowledge, as it reveals the role of accreditation processes in ensuring quality is maintained in international schools despite the shift to digital platforms due to the COVID-19 pandemic. Furthermore, as the study is conducted within an international school setting, key insights on the roles of stakeholders in the accreditation process are identified. Additionally, the study reveals the impact of the COVID-19 pandemic on accreditation processes and how adoption of digital learning platforms influences the attainment of twenty-first century students' needs.

A third significance of the research is that it generates actionable insights from an insider perspective regarding the process of international school accreditation. In this manner, stakeholders from other international schools can leverage insights from this research to guide their future activities regarding accreditation. For instance, important lessons on how the international school managed accreditation processes during the COVID-19 pandemic can be integrated in future crisis events. Equally, the research illuminates the role of digital platforms in

the accreditation process and encourages other international schools to adopt similar systems to achieve accreditation status.

1.5 Research Question

The research addresses the following main research question: ‘What is the impact of the NEASC accreditation process on meeting the needs of twenty-first century students?’.

1.6 Summary

The chapter introduced the background of the study and highlighted the urgency of the adoption of future design-oriented thinking in education and pedagogy, especially in the wake of the COVID-19 pandemic (Hastie et al., 2010; Koi-Akrofi et al., 2020; Singh et al., 2021). Despite the dearth of research in the field, design-oriented thinking is becoming increasingly important for twenty-first century students in the complex modern world, with the global COVID-19 pandemic providing a case in point. International Baccalaureate schools are in a key position to engage in this thinking, as their imperative is to make the world a better place. Furthermore, as this education system has grown in popularity, there is an increasing need to maintain educational rigour by meeting accreditation standards (Istileulova, 2013; Jingqi & Ulmet, 2019; Jacqmin & Lefebvre, 2021).

The researcher intends to leverage their unique position as an insider in the school with a view to gather and document the lived experiences of the stakeholders and to provide rich insights. as the school community seeks to become one of the first schools in India to be accredited by the NEASC ACE programme, in which future design-oriented thinking has a central role. The current research adopts a case study approach to facilitate recording insights on the ground, as witnessed through the researcher’s involvement, with the goal of providing fresh, authentic perspectives regarding how twenty-first century students’ needs are met. The intended knowledge contribution is that the researcher’s reflections of the school’s accreditation journey will be of value to other school communities and educational jurisdictions. The study will thus be in a position to add to the body of knowledge regarding school accreditation and communities.

1.7 Thesis Overview

The thesis divides into six chapters. Chapter 1 introduces the research background, problem statement, aim, and question. Chapter 2 details the literature review and highlights the

existent research gap addressed in the work. The review establishes current knowledge on the research problem and establishes the conceptual links between the research themes. Chapter 3 details the research methods adopted in the study. Chapter 4 presents the results in the research, while Chapter 5 discusses the findings and addresses the research question. Chapter 6 delineates key recommendations for practice and future research and outlines the study conclusions.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The focus of this chapter is to detail current knowledge regarding the process of accreditation of international schools, challenges affecting the process and areas that must be addressed to ensure the needs of twenty-first century students are met. In this regard, examination of the available literature on the subject facilitates the development of a foundation upon which the current research is based. It is also noteworthy to highlight that this research mainly focuses on investigating and understanding what joint accreditation involves from the perspective of internal stakeholders regarding how they learned about new pedagogies to meet the challenges of an evolving digital world and the COVID-19 pandemic. The researcher discusses the processes adopted by accreditation organisations in India from the literature, as well as how the needs of twenty-first century students must be adhered to. Although the research acknowledges that numerous studies have addressed standards of accreditation in international schools, a prevalent gap which necessitates this study regards the need to identify how twenty-first century students' needs are being met by the accreditation standards, particularly NEASC.

The current study fits into the overall objective of international school accreditation by indicating how needs of twenty-first century students in international schools are met with the evolution of digital platforms and the onset of COVID-19. This chapter presents an examination of the literature exploring the knowledge which informs the key conceptual study elements. Based on the aim of the research, the following key elements are examined further: characteristics of joint accreditation, new pedagogies in the digital platform, and challenges of the COVID-19 pandemic on the accreditation process of an international school. The body of knowledge frames the NEASC challenges presented to schools and communities undergoing accreditation to reflect how they meet and cater to needs within their context. The insights also indicate how international schools adapt to the NEASC ACE programme.

The chapter is structured into seven main sections, with each section examining the literature relevant to the aim of this study. Section 2.2 briefly introduces the concept of International School accreditation where term is defined and the accreditation process detailed further as well as the different organisations that are involved in accrediting International Schools including IB, NEASC and CIS. Section 2.3 discusses the benefits of accrediting

international schools. Section 2.4 elaborates twenty-first century learners' needs, and Section 2.5 addresses future design-oriented thinking concerns which regard the adoption of digital platforms for pedagogical purposes. Section 2.6 discusses the conceptual framework guiding the research, and Section 2.7 outlines the literature gap in the study. Section 2.8 highlights the key insights in the chapter.

2.2 Overview of International School Accreditation

This section presents a discussion on the definition of accreditation and the process involved in accrediting international schools.

2.2.1 Definition

The term 'accreditation' is synonymous with 'inspection' and 'certification', as the terms are used interchangeably to describe the attestation of products, systems, or persons by third parties (Potkar, 2014). However, over the years, numerous definitions have emerged which emphasise the lack of a common or formal definition of the term. For instance, Desveaux et al. (2017) describe accreditation as a process which involves the certification of institutions, programmes, or services by external bodies or authorities through processes which evaluate performance with respect to standards that are established to facilitate continuous improvements. In another study, Ibrahim (2014) argues that accreditation in education refers to a process by which an agency assesses a programme of study or institution and formally recognizes it to either meet or satisfy predetermined educational standards of quality. Areen (2011) indicates that accreditation or validation refers to a process where an external body grants and approves an institution to undertake a specific task or range of tasks. The confluence observed from the synthesis of the various definitions of accreditation (Areen, 2011; Ibrahim, 2014; Desveaux et al., 2017) is that the studies agree that accreditation adheres to the same principles despite the route taken. Here there is an emphasis on self-regulation and continuous improvement based on periodic reviews as guided by the recognised accrediting agency or body.

Accreditation is applicable to not only education but also healthcare services (Alkhenizan & Shaw, 2011; Valori et al., 2013). Alkhenizan and Shaw (2011) indicate that healthcare institutions which adopted voluntary accreditation programmes and processes were able to improve overall performance and quality of services delivered by comparing their services against pre-established standards. Valori et al. (2013) also reveals that accreditation in healthcare

provided a pathway to facilitate quality improvement over time. In a further study, Hussein et al. (2021) identify accreditation as a reputable tool which allows health services to evaluate and enhance the quality of their services. Additionally, Pomey et al. (2010) note that accreditation involves a rigorous process conducted by an external evaluation process comprised of self-evaluation against established standards, an on-site survey, generation of a report with recommendations, and the awarding or denial of the accreditation status. While this research does not focus on the healthcare sector, it is important to review accreditation within healthcare settings to identify the similarities with the educational sector in terms of the process involved in accrediting the institutions.

Despite the conceptualisation of accreditation as a tool (Hussein et al., 2021) or pathway (Valori et al., 2013), the current research aligns to the definition of accreditation by Desveaux et al. (2017), whereby the process involves an agency or external body validating an educational institution or its programmes through established processes and in alignment to set standards with a view to enhance continual improvement. Furthermore, based on the side-by-side comparison of accreditation studies in education (Areen, 2011; Ibrahim, 2014; Desveaux et al., 2017) and healthcare (Pomey et al., 2010; Valori et al., 2013; Hussein et al., 2021), a confluence emerges in that the accreditation process is similar in its approach. From a close analysis of the studies, accreditation is identified as a stepwise approach which is characterised by four main aspects: (i) the external body or agency involved in certifying the institutions, (ii) established processes and standards of certification, (iii) results of the assessment which led to improved performance for the institution, and (iv) the award or denial of the accreditation status. In the current study, there is a need to examine international school accreditation in the context of the processes which characterise the process.

2.2.2 Accreditation Processes

This section further discusses the process of international school accreditation. The review of diverse accreditation frameworks adopted by international schools reveals a confluence, in that they all advocate for a framework-based or standardised approach in accrediting the institutions. In support of this assertion, Gibbons and White (2019) reveal that accreditation models or frameworks were adopted in diverse disciplines such as library and information science (LIS) with a view to ensure the curriculum was guided by professional practice. Drumm et al. (2020) observe that despite the variation of accreditation processes based

on the activity being undertaken, they were structured into distinct phases to ensure rigor in the assessment of educational activities, thereby providing assurance that educational activities met established standards. For instance, an accreditation process was associated with an aim, target learners, established standards to evaluate performance, and various stages of the accreditation process (Drumm et al., 2020). As a result, this led to an understanding that accreditation is undertaken via a phased approach.

The insight from Gibbons and White (2019) and Drumm et al. (2020) is that accreditation across disciplines is completed via standardised or structured frameworks which ensure rigor in assessing performance of an institution before it is recognised as an institution that creates value. In the international school domain, various accreditation frameworks have been adopted, including Council for the Accreditation of Educator Preparation (CAEP; Alkhateeb & Romanowski, 2021); Atlanta Quality Assurance Association and Executive Master of Business Administration (Istileulova, 2013); and Association to Advance Collegiate Schools of Business, Environmental Quality Information System, Association Members Benefits Advisors Association (Jacqmin & Lefebvre, 2021), among others. Based on the argument by Gibbons and White (2019) and Drumm et al. (2020), it emerges that these individual frameworks follow a structure when evaluating an international school.

Bunnell (2021) reveals that with the rapid growth of international schools on different continents which has arisen from globalisation trends, the need to provide an elite educational experience is underscored. As a result, more international schools opt to be accredited through established standards as a demonstration of commitment to a system of continuous improvements. The researcher further argues that accreditation is completed in a systematic manner, whereby assessments are made for the premises, health, safety, governance, learning, teaching, student welfare, marketing, and systems management with respect to the institution (Bunnell, 2016). Alkhateeb and Romanowski (2021) support Bunnell (2021) by arguing that accreditation enables international schools and higher education institutions to deliver education which meets established and acceptable quality standards. Kafaji (2020) also reported that students who were knowledgeable on the accreditation status of their international schools were 60% more likely to perform well in their academic work and to have better future career prospects. The implication is that structuring the accreditation process into distinct steps allows schools to continuously assess their performance, and as a result, students who attend such

schools can be assured of career success. One argument is therefore that accreditation of international schools by adhering to a rigorous standard framework is beneficial, as it enables the institutions to guarantee their education quality.

On the contrary, it is argued that accrediting international schools is not a guarantee for the success of students (Bieker, 2014). Bieker (2014) reports that students enrolled in AACSB-accredited schools did not display greater career success than their counterparts from non-AACSB accredited schools. Such views suggest that despite the framework-based approach advocated by accreditation processes, the intended outcomes of improved student performance may fail to be achieved. In turn, the accredited schools fail to meet the demands of learners in the twenty-first century. A different view explaining the difficulty in meeting the needs of international school students in accredited schools posits that their learning demands have become complicated especially due to the diversity in their recruitment (Wu et al., 2015). International schools recruit students who are more diversified and as a result, the institutions' needs are challenging. However, as Pletser (2019) argues, inclusive strategies which aim to eliminate barriers to learning for the learners are integral in promoting learning.

Despite the numerous advantages attributed to international school accreditation, further review indicates that the accreditation process is challenged by diverse factors. Donovan (2010), for instance, explains that accreditation is a costly process both in terms of financial investment and the duration of time required by a recognised external entity to ascertain the education quality standards. The review of the AACSB accreditation fees aligns with Donovan's (2010) argument, as institutions seeking initial business or accounting accreditation are required to pay up to USD \$15,000 in application fees (AACSB, 2022). In addition, the report reveals that business schools seeking AACSB accreditation also must pay USD \$6,500 as the commitment fee and a USD \$2,000 eligibility application fee (AACSB, 2022). From this perspective, the high financial cost of the accreditation process may discourage international schools from seeking to be accredited.

Secondly, Hinnenkamp et al. (2019) report that the accreditation process is associated with high opportunity costs since it is time consuming. Furthermore, the researchers argue that as international schools achieve more accreditations, they experience more difficulties to maintain them due to the time investment required to evaluate the quality of the education systems. The arguments are similar to Zammuto (2008), who also report that achieving and maintaining

multiple accreditations was both time consuming and expensive for international institutions. Zhao and Ferran (2016) align with Zammuto (2008) by revealing that accreditation of international schools requires long-term commitment. In support of the arguments, the review of the Council of International Schools (CIS) accreditation shows that it requires up to five years for a school to receive full-membership accreditation status (COIS, 2022). The implication of these insights is that school owners and managers must invest both time and financial resources to facilitate the accreditation process and acquire an accredited status.

2.3 Benefits of Accreditation

With the understanding of accreditation as a rigorous process (Valori et al., 2013) which involves external organisations (Pomey et al., 2010), a further need emerges to examine the underlying factors that influence the institutions to engage in the process. One argument in this research is that many educational institutions are willing to engage in the rigorous processes of accreditation due to the numerous benefits that emerge from the award of the accreditation status (Elliott & Goh, 2013). For instance, Elliott and Goh (2013) report that Canadian business schools which adopted the AACSB accreditation achieved strategic alignment of their institutional objectives and were provided with a unique opportunity to re-assess their mission and vision. In turn, the process of acquiring accreditation enabled the business schools to not only improve organisational learning efforts, but also boost performance management. In another study, Garfalo and L’Huillier (2015) argue that accreditation, as a formal and public assessment process, led to similar benefits of performance improvement as observed with informal performance evaluation processes. The difference observed indicated that the informal performance evaluation process was not aligned to any structured approach and findings were not publicised, whereas with accreditation it was mandatory to adopt a formal process and publicise the results. Despite the difference, learning approaches improved and both learners and teachers were proud to study in accredited institutions.

From the examinations of the Elliott and Goh (2013) and Garfalo and L’Huillier (2015), a consistent theme emerged which emphasised two main benefits that motivated institutions to engage in accreditation processes: (i) benefits of accreditation for schools, and (ii) benefits of accreditation for students and employees in the schools. The review of the studies indicated that the benefits were achieved simultaneously; as schools sought to enhance their quality through the award of an accreditation status, the improvement in learning and teaching processes also

benefited the students. In this section, holistic review of the benefits of accreditation is undertaken to understand how the award of the status benefits the institutions, students, and employees associated with the schools. The section concentrates further on the benefits of international school accreditation to provide context for the study.

2.3.1 Benefits of Accreditation for International Schools

Studies have revealed that accreditation enables international schools to improve the quality of their educational offerings. For instance, Thompson and Hayden (1998) postulate that accreditation presented an opportunity for the school or learning institution to enhance the quality of education through a rigorous process of self-evaluation review against criteria and critical feedback through an objective external appraisal by a team of seasoned experts. The researchers add that an overarching benefit of accreditation to the school was that, once integrated as part of a programme of self-examination and improvement, the process was ongoing and cyclical in nature. As such, once initiated, the process ended in accreditation or re-accreditation and became part of the school ethos and organisation (Thompson & Hayden, 2012). Acevedo-De-los-Ríos and Rondinel-Oviedo (2021) also support Thompson and Hayden (2012) by revealing that institutions adopted accreditation voluntarily with a view to enhance the quality of academic standards as well as the quality of the training process. By way of explanation, the researchers argue that with the globalisation of education, more institutions are becoming aware of the need to rank highly and considered accreditation as one route to this goal (Acevedo-De-los-Ríos & Rondinel-Oviedo, 2021). The advanced arguments therefore emphasise the link between accreditation and the enhancement of the quality of training which was observed to be cyclical in nature and which improved over time as part of the ethos of the school.

In another study, Desveaux et al. (2017) report that accreditation contributed to improved performance of international schools, as the leadership was provided with feedback on how the institution fared relative to established standards of performance. The insight from Desveaux et al. (2017) contributes to the debate by Thompson and Hayden (2012) and Acevedo-De-los-Ríos and Rondinel-Oviedo (2021) by revealing that accreditation positively impacted the quality of the international schools through providing insight on how the institutions performed relative to established standards. In this case, the researchers have argued that accreditation enabled international schools to enhance their performance both in delivering training and regarding adherence to international standards. Analysis of these studies (Acevedo-De-los-Ríos &

Rondinel-Oviedo, 2021; Thompson & Hayden, 2012; Desveaux et al., 2017) indicates that interest in accreditation of educational institutions including schools arises from the fact that the process provides important feedback which facilitates continuous improvements. As a result, the schools improve their training processes and deliver quality education standards as they adopt best practices and continually improve their performance.

The literature indicates that international schools also pursue accreditation with a view to enhancing their reputation or status (Sohlo & Nätti, 2019). Sohlo and Nätti (2019) reveal that international schools sought accreditation in their quest for enhanced reputation, whereby the accreditation process affected business school performance by changing everyday activities which affected all levels of the organisation (e.g., the dominant logic, culture, systems, and structures). The findings of Sohlo and Nätti (2019) underscore the impact of accreditation on leading change in international schools by identifying the aspects of the international school which are impacted by the accreditation processes (e.g., the culture and dominant systems). Widarsyah et al. (2016) also support Sohlo and Nätti (2019) by revealing that international hospitality schools sought accreditation with a view to improve their academic reputation in the campus community. In turn, accreditation enhanced the value of their educational offerings and market position. Analytically, the synthesis by Widarsyah et al. (2016) and Sohlo and Nätti (2019) indicates that an underlying motivation for seeking accreditation by many international schools is that the process enhances the credibility of its programmes in the marketplace. As a result, accreditation leads to prestige as it signals that the institution provides quality education.

A third motivation for pursuing accreditation regards its impact in improving brand recognition and perception of the international schools (Bryant, 2013). In the research, accreditations such as Association of Collegiate Business Schools and Programmes (AACSB) were argued to add value to the perceived quality of the international schools, thereby signalling trustworthiness and legitimacy. Bryant (2013) adds to the debate by Widarsyah, Ghiselli, and Adler (2016) and Sohlo and Nätti (2019) by revealing that accreditation enhances reputation of the international schools not only through signalling the quality of educational programmes offered, but also through brand recognition enhanced by the types of certifications with which the schools are associated. Nonetheless, the findings underscore the impact of accreditation on the schools' perceived trustworthiness.

The analysis of the various studies thus far indicates that international schools are motivated to pursue accreditation based on its anticipated impact on the school either through improved educational and training offerings (Acevedo-De-los-Ríos & Rondinel-Oviedo, 2021; Thompson & Hayden, 2012; Desveaux et al., 2017) or reputation or the prestige of the international institution (Bryant, 2013; Widarsyah et al., 2016; Sohlo & Nätti, 2019). These insights indicate that the international schools voluntarily take up accreditation with a view to leverage the benefits for the institution.

However, further review indicates that international schools pursue accreditation due to pressure and rising concerns from stakeholders. For instance, Gupta (2008) argues that accreditation meets a growing demand from parents, students, and politicians and parallels a steady rise in international schools. As a result, the pressure by these stakeholders influences the schools to seek international accreditation. In another study, Al-Amri et al. (2020) observe that stakeholders' perceptions regarding the accreditation of higher education institutions in Oman also influenced the uptake of accreditation standards. As a result, the uptake of the standards following pressure from the stakeholders ensured that the schools adopted international accreditation and that the needs of quality education for the learners were met through rigorous transformation of learning functions and processes.

From this perspective, students and staff were concerned about the quality of higher education institutions which motivated their accreditation process to meet demands for quality, effectiveness, and efficiency. Sukoco et al. (2021) also support Al-Amri et al. (2020) by revealing that external stakeholders in higher educational institutions exerted pressure on higher education institutions to attain a world-class status. The synthesis of Gupta (2008), Al-Amri et al. (2020), and Sukoco et al. (2021) indicates that while the international schools may not be motivated to voluntarily pursue accreditation in anticipation of improving their educational offerings, quality of training or brand recognition, they may end up implementing such processes due to the pressure from their stakeholders. Nevertheless, despite the motivation for the accreditation, the adoption of the process leads to similar outcomes as the schools achieve a prestigious status. In addition, the adoption of accreditation processes is also important in enabling the international schools to enhance their reputation as well as encouraging their employees and students regarding the status of their education standards.

2.3.2 Benefits of Accreditation for Learners, Educators, and Employees

This section reviews the processes of accreditation to which international schools adhere. The findings from the previous section revealed that accreditation of international schools was important in enhancing not only the reputation and recognition of the institutions as brands, but also the quality of educational and training offerings. Close inspection of the findings suggests that institutions would be motivated to acquire an accreditation status because it transforms their condition in terms of overall competitiveness in the market as reputable institutes. The argument is supported by Widarsyah et al. (2016), who reveal that accreditation enhanced the reputation of international schools. Similarly, Nguyen and Ta (2017) find that by acquiring accreditation status, the school's management, teaching, learning, and research processes were further enhanced, thereby positioning the institutions to be more competitive in the market. The schools therefore benefited not only in terms of having their processes of learning, teaching and management conforming to the world-standard, but also through the award of the actual accreditation status.

However, further study also revealed that the strive for accreditation status was motivated by its impact on the perceptions of students and employees within the institutions. For instance, Staub (2019) argued that international schools were pressurised to acquire accreditation status as it assured both parents and students that graduating with a diploma in the schools would lead to better employment prospects. A similar argument was also advanced by Pasinringi et al. (2021) who reported that a positive and direct relationship existed between perceptions of service quality and the accreditation of hospitals. As a result, patients were more likely to pay for services in accredited healthcare institutions because the accreditation status assured them that they would get required treatment. Although the current study does not focus on the healthcare sector, similarities can be identified in terms of accredited institutions enabling individuals to obtain their targets. From the perspective of international schools, accreditation status implied that the schools would enable students to have better employment prospects.

In addition to guaranteeing better employment prospects, further study revealed that accreditation status assured students that they would receive quality learning (Chang et al., 2016; Mattar, 2021). Mattar (2021) find that accreditation status ensured academic institutions delivered learning with integrity and avoided forms of cheating and plagiarism. As a result, learners joining the schools were assured that they would acquire quality learning through

academic integrity and without any form of deceit or cheating. Chang et al. (2016) compares performance of Taiwan colleges with AACSB accreditation against those that did not have it and show that where schools were accredited, learners were assured of quality learning.

2.4 Needs of Twenty-first Century Learners

This section discusses the characteristics of learning and challenges experienced in the twenty-first century.

2.4.1 Learning in the Twenty-first Century

Santos (2017) argues that there have been developments in the twenty-first century regarding training or teaching skills, mode of learning, information sources for students in the learning environment, the nature of resources used to facilitate learning, and the processes adopted to facilitate learning. As a result, learning in the twenty-first century involves use of digital technologies and interaction with diverse types of resources. As such, more student-centric classrooms have emerged, where students play an active role in the learning process (Keiler, 2018). The researcher reported that with student-centred learning, classroom activities are more focused on the students (e.g., via interaction, communication, and collaboration), while the teacher mainly directs learning. Various arguments explain the radical shift from the teacher-centred to student-centred pedagogy which have characterised the twenty-first century. For instance, there was increased criticism against behaviourist learning because it advocated for the human mind as a ‘black box’ that could not be observed and as a result, internal processes involved in learning were deemed unscientific (Murtonen et al., 2017). In this regard, there was an emphasis on students displaying desired outcomes without paying attention to the conditioning methods used in reaching the desired outcomes. Agarkar (2019) argued that in place of the behaviourist learning, two paradigms emerged: constructivism and cognitivism. From this perspective, the learners would acquire different skills by interacting with course material and engaging with others within the same environment.

In another study, Kim et al. (2019) report that in the period, the classroom focuses and information sources for the learners had evolved significantly in contrast to the previous century. In explanation, the researchers argued that learners were mainly passive recipients of information from the teacher in the twentieth century, as classrooms were teacher-centred, and the teacher acted as the main source of information for the learners. Murphy et al. (2021) support Kim et al.

(2019) and reveal that with teacher-centred pedagogy methods, the teacher exclusively provided required information, thereby controlling learner experiences while the students were allowed few opportunities to interact with one another or to think out loud. The synthesis of Kim et al. (2019) and Murphy et al. (2021) indicates that control and order in the classrooms was a key aspect that led to the popularity of the teacher-centred pedagogy, as the teacher exercised full control of the students while they remained quiet. The relation between teacher-centred pedagogy and accreditation in the research arises, in that standards advocating for the pedagogy are likely to influence international schools to deliver education that does not equip twenty-first century students with necessary skills required in the current period. Understanding the demerits of the pedagogy therefore sheds light on the need for accreditation to align to twenty-first century learners' needs.

In another study, Serin (2018) argues that the teacher-centred pedagogy was founded on the principles of the behaviourist theory, whereby changes in behaviour were attributed to external stimuli. Analytically, the teacher was considered the external stimuli in charge of learning, whereas the students were passive and responded to the stimuli. Agarkar (2019) shares similar sentiments, observing that educational psychologists who advocated for behaviourism argued that modification of behaviour was the main purpose of education. Through the principles of behaviourism, learners' behaviour argued to be deliberately modified by forces in their environment as opposed to free will (Agarkar, 2019). Evaluating Serin (2018) and Agarkar (2019) suggests that learning environments in the twentieth century are mainly teacher-centred due to prevalent psychological theories (e.g., behaviourism) which argue that information is learned through the careful shaping of morality and desirable behaviour. In this case, teachers are viewed as instrumental in influencing learning, as they could help their students to learn by conditioning them. Kay and Kibble (2016) agree with the assertion by revealing that under behaviourist theories, repetition of a meaningful connection led to learning and teachers reinforced desirable behaviours when students displayed them.

Therefore, unlike previous periods where the learning environment was observed to be mainly teacher-centred due to the prevalent intellectual movements and psychological theories of education which underscored behaviourist thinking in enhancing learning, the twenty-first century actively involves the students in the learning platform (Agarkar, 2019; Serin, 2018). A second argument explaining the dominance of the teacher-centred pedagogy was that due to the

highly industrialised nature of the twentieth century, behaviourist learning facilitated mass education (Murtonen et al., 2017). In this case, industries demanded highly skilled workers and high-level professionals who were trained in mass-learning facilities. Furthermore, as graduated students were required to demonstrate competency in industries, a behaviourist approach towards learning where the teacher was the main source of information was underscored. Murtonen et al. (2017) revealed that human learning was thought to be controlled and studied based on observable behaviour. Such insights mainly underscored desired outcomes as evidence of learning.

2.4.2 Difficulties in Meeting the Needs of Twenty-first Century Students

Although twenty-first-century learning has been defined in multiple ways, it essentially emphasizes what students do with their learning, rather than their knowledge, which is relevant to this investigation. Classrooms today reflect a fast-paced, technological world and are thus different from the traditional classrooms of previous generations, which were intended to meet the requirements of the agricultural and engineering eras. Educational literature is chiefly absorbed in preparing students for a series of ‘unknown unknowns’, characterized by the rise of Industry 4.0, which involves environmental instability and possible social upheaval (Hughes, 2020). Teasdale (1999) aptly states, ‘We live in a world that is shrinking. Transport and communications revolutions have brought us closer together (p. 81). In many ways, the speed of change has left teachers and parents behind, as many norms of traditional teaching have become outdated. Warlick (2007) observes, ‘They have powers that would have seemed alien to me growing up’ (p. 1). The argument therefore emphasises learning which equips students with skills for Industry 4.0.

Many studies focus on the implications of curriculum reforms, the acknowledgment of their importance, and how best to meet constant shifts and new opportunities. These topics are of interest to many stakeholders from the OECD Partnership for Twenty-first Century Skills as well as other diverse stakeholders. The literature identifies the need for education to prepare students for contemporary relevant twenty-first century jobs to ensure they have adaptable and relevant skills: ‘People need gradually to become world citizens without losing their roots and while continuing to play an active part in the life of their nation and their local community’ (Delors, 1996, p. 17). In this case, the insights suggest that reforms ought to also align to the learners’ needs in the current century.

2.5 Future Design-Oriented Thinking

This section further examines studies elaborating on design thinking to understand its impact on meeting twenty-first century learners' needs. According to Razzouk and Shute (2012), design thinking is a process which is analytic and creative where an individual is engaged in opportunities to create and prototype models, as well as collect feedback and conduct a redesign. Noh and Karim (2021) also define design thinking as a way of learning which serves as a cycle and series of methods useful in developing innovation and creativity. Panke (2019) refers to design thinking as problem-solving approach which encompasses diverse creative strategies to steward projects with multiple stakeholders by dealing with ambiguities, articulating the appropriate kinds of questions and formulating possibilities and potentials. Brief evaluation of these definitions emphasises that design thinking is a learning process which facilitates problem solving and further development of innovation and creativity.

Razzouk and Shute (2012) posit that design thinking can generate positive impact on twenty-first century education, given that it is associated with creative thinking and generating solutions to problems. Kijima et al. (2021) support Razzouk and Shute (2012) by revealing that design-thinking interventions have a significant impact on the interest and performance of female students in science, technology, engineering, and mathematics (STEM). In the study, a three-day design-thinking intervention was observed to produce positive change for female youths regarding their performance in STEM subjects. In another study, Novak and Mulvey (2020) also report that design thinking was successfully adopted as an educational framework which supported both education and work contexts. In this regard, design thinking enhanced not only creativity and innovation, but also problem solving, communication, and collaboration skills among learners. The evaluation of Novak and Mulvey (2020) and Kijima et al. (2021) reveals that students in the twenty-first century could leverage design thinking as a strategy to enhance understanding of both course material and improving their problem-solving skills. From this perspective, studies have indicated that adopting design thinking would ensure learners acquire more effective skills to manage eminent problems in their learning environments.

Further work by Noh and Karim (2021) also emphasises the importance of adopting a design-thinking mindset with a view to improve the competitiveness of Education 4.0 which uses digital technologies for learning. By adopting such mindsets, students are equipped with not only knowledge and information, but also the ability to process information and enhance their

problem-solving skills as well as creative thinking (Noh & Karim, 2021). In another study, Panke (2019) argues that design thinking is useful in placing students into contexts which allow them to think and work like experts by adopting empathy, cultural awareness, and risk taking. Such findings emphasise the fact that in the twenty-first century, there is increased focus on the student learning through problem-solving and creative-thinking skills. Koh et al. (2015) support Panke (2019) by reporting that design thinking is also integral in facilitating the acquisition of learning and skills for twenty-first century students (e.g., socio-cultural, metacognitive, technological, and productive dimensions to boost learning for the students). As a result, the insights indicate that while twenty-first century students require competency in a wide range of skills, design thinking offers a solution to ensure the necessary skills are acquired.

According to Kijima et al. (2021), social constructivists such as Jean Piaget and Lev Vygotsky argued that learning was attained in a process, whereby students constructed their own value of knowledge through cumulating ideas, interpretation, and organisation. Vygotsky's 1978 work, the theorist emphasised that learning was a social activity where new knowledge was created through peoples' previous experiences (Gunduz & Hursen, 2015). Close inspection of the principles in social constructivist learning and design thinking leads to a conclusion that the two are interlinked. From the evaluation of Noh and Karim (2021), Panke (2019) and Razzouk and Shute (2012), it emerges that design thinking is deeply rooted in social constructivist learning paradigms. A plausible explanation of the assertion is that design thinking allows learners to embrace ambiguity, as it advocates for skills such as exploration of new ideas, openness to new ideas, creative thinking, and competencies which are metacognitive (Pande & Bharathi, 2020). From this perspective, design thinking helps learners in the twenty-first century to acquire a wide range of skills within a social context. In other instances, researchers underscore the importance of adopting design thinking for teachers in twenty-first century learning environments. For instance, Orthel (2015) argues that where design educators have clear understanding of design thinking, they are in a better position to improve learning and teaching and re-frame interdisciplinary and design-based inquiry. Li (2021) aligns with Orthel (2015) by revealing that design thinking can be adopted in problem solving and idea generation processes to help students to learn and enhance their creative mindsets, thereby fostering exploration that is interdisciplinary in nature. As such, future design eschews long-range action planning in favour

of more agile, nimbler strategies which are refined and adapted regularly based on evidence of success and desired modifications of the organisation's preferred future.

2.6 Conceptual Framework

Accreditation represents and ensures schools meet an agreed-upon benchmark, standard, and target. As such, international benchmarking is helpful in terms of contemporary sharing of notions and transfer and reinforces pedagogical understandings, inquiry, critical thinking, and collaboration. Institutions must embrace collaboration and cooperation across institutions and across time and spatial boundaries by relying on technology to create a conducive environment where the activities can be undertaken (Meyer & Wilson, 2011).

Many concepts and traits recommended for twenty-first century learning, such as Delors' (1996) idea that people need 'gradual exposure', Taleb's (2012) concept of 'anti-fragile', and Hughes' (2020) 'future-ready' have been propelled forward greatly as people have needed to adapt and adjust quickly and be flexible and resilient in the context of the COVID-19 pandemic. There has been an explosion of digital communication tools, such as Microsoft Teams. The tools faculty used during lockdown for teaching and learning through online modes included Zoom, Google Hangouts, Skype, Google classrooms, LMS, ICT, and YouTube, among others (see Figure 1; Shenoy et al., 2020, p. 3). These unprecedented times give rise to transformative adoption of new methods to overcome, survive, and navigate.

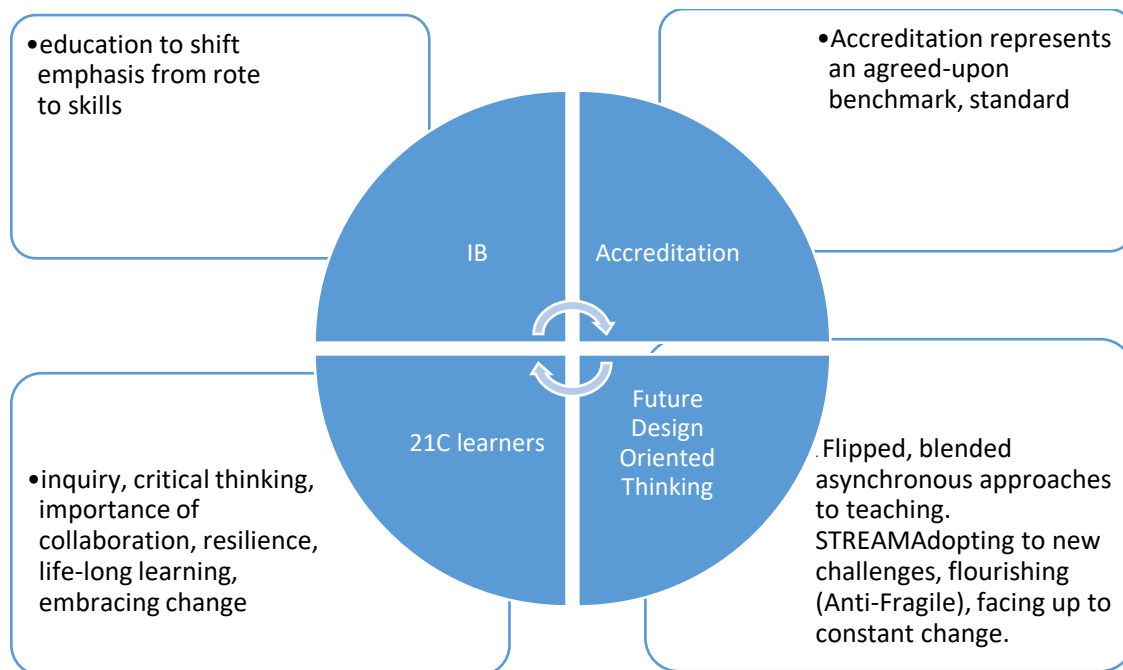


Figure 1 Diagram highlighting key aspects of Pedagogical model that combines elements.

The pedagogical model consists of four interrelated concepts: (i) IB, which focuses on the shift of education from rote learning to skills; (ii) accreditation or certification which outlines the benchmark of agreed upon standards in education; (iii) future-oriented design thinking where there is an introduction of diverse teaching approaches such as flipped and blended classrooms; and (iv) diverse skills required for twenty-first century learners including inquiry, critical thinking, collaboration, and resilience. The conceptual framework argues that the various aspects of the conceptual framework are interlinked or interconnected.

Many skills and attributes recognised as twenty-first century skills (e.g., inquiry, critical thinking, importance of collaboration, resilience, life-long learning, and embracing change) are at the forefront of the skillset now required. As the framework emphasises the interrelation between concepts, an emphasis on reliance on technology to liberate and improve communication via different channels is also underscored. Keiler (2018) argues that in the twenty-first century, more student-centric classrooms have emerged, where students are active players in the learning process. Subsequently, there is a need for parents and teachers to equally adopt technology in the learning pedagogy to ensure their skills and thinking do not lose relevance and fail to meet twenty-first century learners' needs.

Figure 2 further illustrates major shifts which have occurred in twenty-first century learning. It highlights the major shifts which have occurred from when the first IB school was established, including how accreditation has needed to keep pace with growing needs and the surge in international schools, adjustments to the twenty-first century learning model, the effect of COVID-19, and future design orientated notions which are taking precedence as educationalists grapple and contend with change. The analysis of the major shifts in the pedagogical approaches reiterates the elements of the conceptual framework, where there is an emphasis on the existent interrelation between accreditation, future-oriented design thinking, skills required by twenty-first century learners, and the International Baccalaureate. As learning approaches have evolved over time and become more student-centred with the uptake of flipped and blended learning as well as future oriented design thinking, the shift has influenced the adoption of accreditation processes to ensure learners achieve skills which help them meet the demands of the twenty-first century.

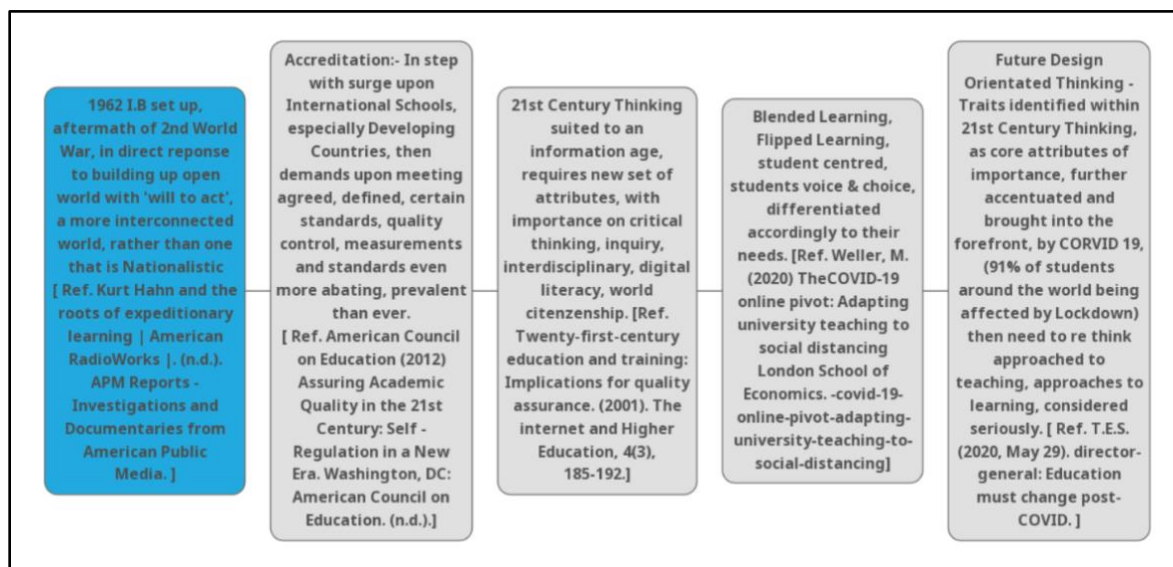


Figure 2 Mapping major shifts which have occurred.

2.7 Literature Gap

The diverse literature review in this chapter reveals that accreditation of international schools is highly important in ensuring improvement of institutions' training (Acevedo-De-los-Ríos & Rondinel-Oviedo, 2021; Thompson & Hayden, 2012; Desveaux et al., 2017) and reputation (Bryant, 2013; Widarsyah et al., 2016; Sohlo & Nätti, 2019). In addition, accredited schools attracted many students due to the guarantee of better employment prospects (Staub,

2019). As a result, many international schools were willing to engage in rigorous accreditation processes to leverage the different benefits. In other instances, the schools were required to complete accreditation processes as a mandatory requirement. Further analysis also indicated that in the twenty-first century, learning environments are fast-paced and highly technological, which necessitated different learning approaches to equip students with required skills to survive in such environments (Hughes, 2020). For instance, design thinking was recommended as a possible solution to enhance acquisition of problem-solving skills (Kijima et al., 2021; Novak & Mulvey, 2020). However, despite the recommendation of design thinking, a further challenge emerged from the fact that accreditation processes were not aligned to twenty-first century learners' needs. The review also indicated that over time, different pedagogical methods were introduced in the learning environment with technological platforms (e.g., video conferencing) and modern approaches (e.g., blended and flipped classrooms) being a central feature in the twenty-first century. The twenty-first century was also challenged by crises such as the COVID-19 pandemic which disrupted learning processes and pressurised institutions to adopt digital learning platforms to facilitate operations. However, a further gap emerged in that, with the adoption of pedagogical approaches and reliance on technology for learning, few studies examined the experiences of stakeholders involved in the joint accreditation of international schools. The current research therefore addresses the existent gaps in literature and illuminates the accreditation experiences of stakeholders within international schools.

2.8 Conclusion to Chapter 2

In this chapter, the evaluation of thematic topics on the research area revealed the need for international schools to be accredited, as it not only enhanced their competitive position, but also guaranteed learners that they would be equipped with quality skills, thereby obtaining value for money. However, further evaluation of the accreditation process indicated that it was phased in its application as many stakeholders were involved in the actual stepwise procedure. The evaluation also indicated that in the twenty-first century, diverse pedagogical approaches were introduced to meet learners' needs. These approaches centred mainly on technological platforms and the student-centeredness of classrooms via blended and flipped classroom modes. The need to adopt technology was also emphasised by the emergence of crises in the twenty-first century, such as the COVID-19 pandemic which necessitated that schools shift their learning from traditional setups to the digital platforms. However, as revealed in the literature gap, there was a

dearth of literature on how accreditation was influenced by the rapid shift to digital platforms and the COVID-19 pandemic.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology guiding the study and the kind of data needed to answer the research questions. At the foundational level, research aims to identify solutions to social and scientific problems through a systematic approach (Rajasekar et al., 2013). Through research, scholars and industry practitioners can better understand unknown phenomena and bridge gaps in knowledge, thereby solving problems challenging society (Jette, 2018). Research can therefore be conceptualised as an important tool for building knowledge and enhancing learning for both professionals and non-professionals alike as they seek to understand the world better. Additionally, Osuagwu (2020) argues that research encompasses a systematic search for new knowledge through understanding and applying appropriate methods with a view to develop answers and generate conclusions. From this perspective, research is further conceptualised as comprising of two main phases: the process which regards the method used in addressing the research problem, and the product which describes the results of the process (Sá & Serpa, 2020).

In this study, the main objective was to critically examine the challenges faced in joint accreditation in an international school and strategies which can ensure that accreditation processes meet the needs of twenty-first century students. The research also focused on Learning Principle 9 of NEASC, which encompasses the design of learning spaces and time. To achieve the objective, the current chapter details the research methodology adhered to facilitate data collection and analysis. This chapter is structured into nine sections in alignment with the research onion framework (Saunders et al., 2009; see Figure 3.1).

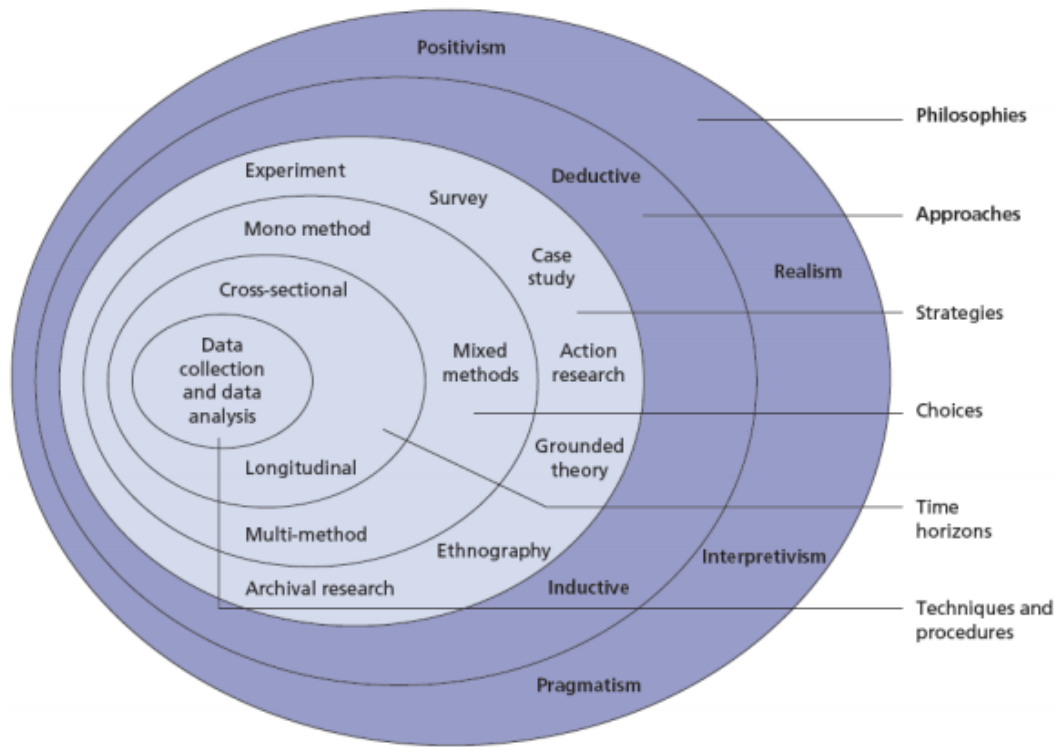


Figure 3 Research onion framework (Saunders et al., 2009)

The research onion framework is organised into distinct steps ranging from philosophy and approach to strategy, choice, and techniques. The premise of adopting the research onion framework is that it advocates a step-by-step approach to developing and executing the study. It aims to consider concerns regarding the research such as the epistemological and axiological positions, data collection and analysis, and research ethics.

The first phase of the research onion framework entails the philosophical paradigm which guides knowledge creation in the research. Section 3.1 thus details and justifies the research philosophy. Section 3.2 presents the selection of the appropriate research approach which aligned to the philosophy. The researcher justified the choice for the inductive approach and outlined the factors which made the deductive approach unsuitable. Section 3.3 describes the research design, and Section 3.4 presents the time horizon where the cross-sectional timeline was selected. Section 3.5 outlines the research choice and justifies the use of the mono method. Section 3.6 described the research strategy where semi-structured interviews and review of secondary materials were identified. The considerations for thematic analysis were outlined in the Section

3.7, where the stepwise process in conducting the analysis was detailed. Section 3.8 describes data analysis considerations and Section 3.9 considers research ethics. 3.10 looks at methodology, whereas 3.11 looks like a Summary. Section 3.9 considers the research ethics and 3.10 looks at the limitations and delimitations of the methodology were described. By adhering to a stepwise approach in developing the methodology, the researcher enhanced the reproducibility of the research.

3.2 Research Philosophy

Research philosophy describes the belief or assumption regarding the procedure informing the data collection, analysis, and utilisation for a given phenomenon (Kothari & Garg, 2016). Hürlimann (2019) added that the belief about knowledge regarding a phenomenon helps scholars perceive reality, and they can create new knowledge as a result. Additionally, Žukauskas et al. (2018) postulated that although multiple ways of understanding reality exist, four main philosophies are widely adopted: positivism, interpretivism, realism, and pragmatism. Furthermore, review indicated that the four philosophies are distinguished by their epistemology, axiology, and ontologies (Pasian, 2015). The author describes axiology as the role of values in the research, whereas ontology describes the researcher's view on the subject being studied. Epistemology elaborates on what the researcher considers to be acceptable knowledge (Pasian, 2015).

In the current research, an interpretive philosophy is advocated based on its epistemology which argues that knowledge about reality is socially constructed whereby it is shaped by actors in their own environments (Žukauskas et al., 2018).

Chowdhury (2014) also reported that with the interpretivist philosophy, researchers assume that access to reality is only through social constructions, including shared meanings, language, and instruments. The justification of an interpretivist epistemology in this research derived from its objective to make sense of meanings and subjective intentions of individuals within a particular context and without imposing any generalisations. As such, there is a focus on understanding the world from the perspectives of multiple participants where the researcher adopts an interpretive perspective (Bonache & Festing, 2020).

Secondly, epistemology was suited to the research, as it argues that multiple socially constructed views of reality exist as opposed to a singular social reality. As a result, the philosophy argues that there is a need for the researcher to be a social actor to appreciate the

differences between people. From this perspective, the researcher interpreted the multiple experiences of teachers and other stakeholders involved in the joint accreditation of an international school setting. In the current research, emphasis is therefore placed on the epistemology's suitability in developing knowledge through examination of social interactions between stakeholders involved in joint accreditation in the international school. The research revealed the multiple experiences of stakeholders involved in joint accreditation within the contemporary world.

The interpretive ontology is justified in the context of this study because it underlines that reality is subjective. Hence, people experience reality in different ways. In this regard, adoption of the paradigm facilitates understanding of the underlying problems in a subjective manner (Kothari & Garg, 2016). In this study, close inspection of interpretive ontology indicated that the researcher only views subjective insights from the interaction between stakeholders in the international school and the joint accreditation as the acceptable knowledge. Evaluation of perspectives on how different stakeholders therefore view the accreditation process and the kinds of challenges faced allowed the researcher to establish recommendations to improve the process in future scenarios.

Thirdly, the interpretive axiology is justified in the current research, as it argues that the researcher is part of the study and cannot be separated from it (Kothari & Garg, 2016). In this study, the researcher was involved in the joint accreditation process and participated in evaluation assessments. Additionally, the researcher's values about the role of accreditation in enhancing the performance of international schools influenced the understanding of the kinds of challenges faced in the process. The researcher employed a subjective perspective in analysing how accreditation impacts the performance of the particular international school.

By adopting an interpretive philosophy, an emphasis on empathetic understanding is placed to understand the accreditation process from the perspective of the stakeholders in the international school. In this research, the interpretivist philosophy is justified, as it allows the researcher to understand the challenges of joint accreditation from the perspective of stakeholders involved in implementation within the international school setting. The alternative positivist philosophy is not adopted in the research, as it advocates for an objective position in understanding reality, whereby the focus is on establishing a single truth about reality which is external of world actors (Collins, 2015). From the examination of the research problem, the

challenges of joint accreditation must be addressed subjectively, as different researchers may identify diverse answers to the problem.

3.3 Research Approach

According to Glaser (2014), research theory is developed using one of three approaches: deductive, inductive, or abductive. This study adopted the inductive approach, as it aligns to the interpretive philosophical paradigm. The inductive approach first collects empirical observations, and the theories influencing them are then identified (Trochim et al., 2016; see Figure 3.2).

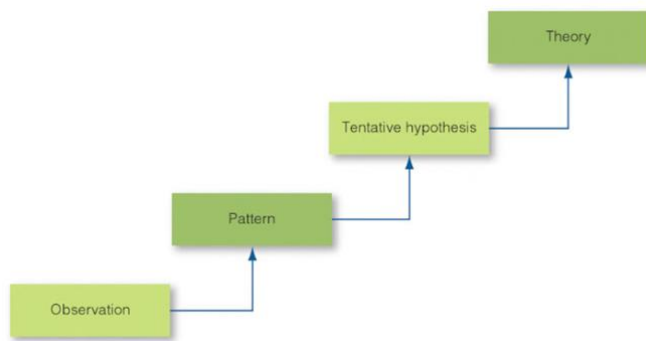


Figure 4 Inductive research approach (Trochim et al., 2016)

The inductive approach begins with observations and thereafter proceeds to examine them to identify patterns and tentative hypotheses which exist between study variables. In this case, the inductive approach allowed the researcher to generalise patterns on challenges of joint accreditation across departments within the international school by examining the theoretical observations. The inductive approach enables the researcher to understand the lived experiences of the participants regarding the underlying problem in a subjective manner (Glaser, 2014). To that end, the researcher aimed to review qualitative findings which detailed the lived experiences of the study participants and thereafter identified theories influencing the interrelation between the study variables. Further, an abstraction of these ideas led to the basis of further inductive techniques. As a result, when taking an inductive approach, the study begins with the issue and then develops an idea by using this methodology to produce theories or come to conclusions (Azungah, 2018). Consequently, it was employed in this study to determine if accreditation enables international schools and higher education institutions to provide instruction which adheres to recognised and respectable criteria of quality.

3.4 Research Design

To ensure that trustworthy conclusions are attained in the study, there is a need to adopt an appropriate research design (Creswell, 2014). Anastas (2012) explains that research design is integral in enabling researchers to identify the essential of information which ought to be collected, thereby addressing formulated research questions. Creswell (2014) highlights that one of four research designs may be adopted in social research: exploratory, explanatory, evaluative, or descriptive. Before selecting the research design, the researcher evaluated the suitability of the designs in alignment to the research objectives. From the evaluation, insights demonstrated that the explanatory design was unsuitable, as it merely explains the underlying reasons why a given phenomenon occurs (Anastas, 2012). It is widely used for experimental research such as randomized control trials and quasi-experimental research (Creswell, 2014). Descriptive research is often used to give a thorough account of events, complete gaps in knowledge, and deepen comprehension. Consequently, as much data are gathered as possible rather than creating educated assumptions or complex models to forecast the study results. However, exploratory research design is executed to frame a question for a more focused examination. A descriptive study examines a person, group, or circumstance by discovering concepts and ideas (e.g., analysing secondary data using journal articles). Furthermore, explanatory research aims to investigate the causal factors of a clearly defined issue, whereas exploratory research helps to analyse the key parts of an understudied subject via methods such as interviews and focus group observations.

Therefore, based on the unsuitability of the explanatory, descriptive, and evaluation research designs, the exploratory research design was adopted, as it allowed the researcher to gain an in-depth understanding of the problem that was not clearly defined (Sarstedt & Mooi, 2014). In particular, the researcher sought to critically explore the challenges of joint accreditation of international schools both before and during the COVID-19 pandemic period. The researcher examined the accreditation process and how the adoption of the virtual platforms during the COVID-19 pandemic period affected it. As a result, this provided insights on strategies which could be adopted to address the various problems.

The exploratory design was also adopted by the study, as other scholars have utilised the design in examining outcomes of accreditation processes. Specifically, Thomas et al. (2017) examines the benefits of quality accreditation and evaluated the financial impact and chief

executive officer perspectives. Hvalič-Touzery et al. (2018) adopt the exploratory design to examine the provision of accredited higher education on dementia in European countries. In another study, Miles et al. (2015) employs exploratory design to measure deans' perceptions of the revised AACSB accreditation standards. Likewise, Heriot et al. (2009) uses exploratory design to examine the costs of applying for initial AACSB accreditation. The choice of exploratory design was underscored further by its adoption in other studies which examined accreditation processes.

The exploratory understanding of Alkhateeb and Romanowski (2021), Gibbons and White (2019) and Drumm et al. (2020), accreditation across disciplines is conducted using standardised or organised frameworks which guarantee rigour in reviewing an institution's performance before it is acknowledged as an institution which provides value. Various accrediting schemes have been established over the years in the field of international schools. Through analysis of these studies, the researcher identifies the successful application of exploratory research design and its impact on addressing research objectives where minimal research was undertaken. Exploratory design was further suited due to the unavailability of information on the problem area (Bentouhami et al., 2021). In this study, there was a focus on understanding the challenges of joint accreditation of international schools both before and after the onset of the COVID-19 pandemic. The key goal was to identify key factors which facilitate joint accreditation processes in the post-COVID-19 pandemic period in other international school settings.

3.5 Research Time Horizon

Saunders et al. (2009) argue that the research time horizon delineates the timeframe of the research where two variations are considered. The first is the cross-sectional time horizon, which involves collecting data at one point in time, while the second regards the longitudinal research which collects data repeatedly over a long period of time with a view to compare the data (Saunders et al., 2009). The current research adopted a cross-sectional time horizon, for interview data, which was collected at one point in time. Essentially, participants were contacted once to provide the required data, where interviews were held with stakeholders in the international school, and the materials used in the accreditation were also examined. The research adopted the cross-sectional time horizon, as the researcher intends to collect data at two points in time (Saunders et al., 2009). As a result, participants were contacted once to provide the

required data where interviews were held with stakeholders in the international school and evaluation of materials used in the accreditation also examined. The justification for selecting the cross-sectional horizon stemmed from the fact that the study variables were not anticipated to change over time. Consequently, adopting the longitudinal time horizon was not justified as it advocates for contacting participants at different periods. Additionally, by adopting cross-sectional time horizon, the researcher was able to undertake the research process both quickly and in an inexpensive manner (Wang & Cheng, 2020). The importance of the cross-sectional time horizon was therefore that it allowed the researcher to focus on data collection within a short timeframe to address the research questions.

3.6 Research Choice

According to Saunders et al. (2009), researchers are provided with three possible research choices when determining the kind of data to be collected in research: mono, mixed, or multi method. Ojebode et al. (2018) explain that the difference between the research choices emerge from the fact that the mono method advocates for collection of only one type of research data: either qualitative or quantitative. However, with the multi and mixed methods, the researcher collects both the qualitative and quantitative data to address the research questions. Regnault et al. (2018) also reports that with mixed methods, a researcher combines the qualitative and quantitative data types for a single population, whereas in the multi method, the two data types may be collected using different methods (e.g., two qualitative approaches).

The current research adopted a multi method, where qualitative data from two sources are collected. Specifically, the research focuses on the subjective viewpoint in addressing the research questions; data are gathered from interviews and relevant published documents. The choice of the multi method also stems from the fact that the research is aligned to a cross-sectional and longitudinal time horizon where data are collected within a single point in time for interviews and over a prolonged period for different published sources. The researcher also justified the multi method since there is a focus on describing the lived experiences of stakeholders involved in the joint accreditation process. Examining descriptive accounts of their experiences is therefore justified, as this reveals in-depth details on their perceptions regarding joint accreditation and its value.

3.7 Data Collection Strategy

To collect the qualitative data in the research, two strategies were adopted: semi-structured interviews and document reviews on the joint accreditation process. The data collection was undertaken in one international school undergoing accreditation. The researcher interacted with the stakeholders from the school involved in the process and reviewed data generated from the accreditation process. This section describes the implementation of the data collection process involving semi-structured-interviews and secondary data sources. Essentially, semi-structured interviews reveal the sampling and data collection procedure used, while the secondary methodology covers steps taken in sampling articles used for review.

3.7.1 *Semi-structured Interviews*

The first strategy involved conducting semi-structured interviews where the researcher developed a set of questions to facilitate the data collection process (Brinkmann, 2014). The researcher interviewed five stakeholders involved in the implementation of accreditation processes within the joint international school. In particular, the researcher interviewed teachers in the school. Aspects such as language and the relationships that the researcher shared with the teachers were also influential in justifying the interviews as a data collection strategy since they enabled the gathering of detailed data. The interviews were conducted via the Zoom digital platform to facilitate interactions with participants who were in different geographical regions.

Before gathering interview data, the researcher followed the ethical principle of informed consent, which entails briefing targeted individuals on the study objectives and allowing them to voluntarily sign up as participants (Hardicre, 2014). Individuals who agreed to become participants were sent interview questions via email. According to Conroy (2022), sharing interview questions in advance allows interviewees to familiarise themselves with questions, as well as understand the interviewer's interest and underlying aim. In this regard, the participants can marshal their experience and knowledge to sustain the conversation during interviews. The participants were then invited to the interviews via a link, and the interviews lasted 30–45 minutes. Similarly, the digital interviews were advocated as a strategy to minimise the transmission of the COVID-19 virus.

The purposive sampling technique was adopted to recruit study participants, whereby the researcher only considered participants who fulfilled certain pre-conditions (Jupp, 2009). In this

regard, the purposive sampling technique considered only stakeholders who are knowledgeable on the accreditation processes of international schools and involved in their implementation.

3.7.2 Secondary Review

Secondly, the researcher aimed to collect data by reviewing secondary data pertaining to the accreditation process. The NEASC accreditation involved a reflective review of various aspects of the learning environment, including the design of the learning spaces and times. Essentially, the researcher reviewed the stakeholders' responses. The examination of the primary document was important in the current research, as it aligned to the adopted interpretivist philosophy where viewpoints of different authors were considered to increase understanding on the study topic. Self-review is a process of data gathering in research which involves the methodical data collection, documenting, analysis, and organising. Document analysis is a technique of qualitative study in which the investigator interprets documentation to offer context and meaning to a topic under evaluation. In document analysis, material is coded into themes in a manner akin to how focus group or structured interviews are examined (Bowen, 2009).

Fundamentally, interpretivism emphasises that there are many social truths because people experience a similar objective reality in different ways due to differences in educational background, gender, and culture (Chowdhury, 2014). From an interpretivist philosophical standpoint, the analysis of the self-review reports therefore generated insights on the experiences of the stakeholders involved in the joint accreditation process.

The document analysis was conducted in the study based on identifying the mapping of the desired learning impacts, definitions, and principles into the design of learning spaces. The key issues of interest included analysing the stakeholders' experiences in defining learning impacts and aligning them to learning principles and spaces during the joint accreditation process. Self-review analysis mapped the learning space and structure of the learning time to contribute to the learners' achievement. It also involved the perspectives of the stakeholders involved in joint accreditation and how they mapped the learning space and time to enhance learning. Lastly, document analysis determined stakeholders' perceptions on the impacts of the learning community.

Given that the accreditation process was undertaken collaboratively, different materials including photographs of the school learning spaces and documents of the learning calendars and time were reviewed. The documents included:

- i. Policy documents on the responsibilities of stakeholders in the international school.
- ii. Presentations on how learning was achieved in the school.
- iii. The staff and timetable calendar.

The documents were adopted from the accreditation process. For example, the stakeholders explained the ways in which the learning spaces were designed to ensure maximum learning was attained. Furthermore, as the accreditation was completed both before and during the COVID-19 pandemic, they were stored in different folders dated between 2019–2021. The choice of the documents as a rich source of data were justified by the fact that the accreditation process was comprehensively analysed. They presented comprehensive insights into how the accreditation process was completed and its distinct features.

3.8 Data Analysis Considerations

3.8.1 Justification of Thematic Analysis

The qualitative data from the interviews and secondary literature were analysed using a thematic analysis approach, whereby themes were extracted from the data and utilised to address the research questions (Nowell et al., 2017). The choice of thematic analysis arose from its effectiveness in reducing the raw and descriptive qualitative findings into distinct themes. Castleberry and Nolen (2018) state that thematic analysis is suitable in qualitative research, as it facilitates the identification, analysis, and report of patterns or themes in the data. Thematic analysis was thus deemed appropriate, as it reduced the data in a flexible way. Kiger and Varpio (2020) highlight that thematic analysis is an effective method which is appropriate when the research goals are to understand a set of experiences or behaviours across a given dataset. A further justification of thematic analysis therefore emerged from its effectiveness in identifying unique meanings from the qualitative dataset. To apply thematic analysis, a stepwise process was adhered to, as detailed in the next section.

3.8.2 Preparing Data for Analysis

The first process involved compilation of the qualitative data for thematic analysis. In this study, qualitative data were collected by conducting semi-structured interviews and reviewing documentation from the accreditation review process.

3.8.2.1 Interview Data

Semi-structured interviews with five participants were saved in audio files on the university server (see Figure 3.3). The interview audio files were named according to the pseudonyms of the participants (i.e., V, W, X, Y, Z) to conceal their personal details and positions at the school.

3.8.2.2 Secondary Source Data

Secondly, documents from the accreditation process were compiled on the university server to facilitate their analysis (see Figure 3.4). The researcher organised the documentation materials into distinct folders to separate the policy documents from learning timetables. After compiling all qualitative data materials, the researcher proceeded to transcribe the audio files to facilitate their analysis. To ensure data confidentiality and comprehensive understanding, the researcher transcribed the audio files rather than outsourcing to a third-party transcription service.

3.8.3 Data Review

3.8.3.1 Interview Data

In the second process, the researcher closely examined all results from the interviews to understand their key insights. In the process, the researcher gained understanding on the kinds of answers which the participants provided regarding different learning spaces and time. The researcher developed initial notes to facilitate understanding the analysis process. Essentially, reviewing of the interview data ensured that the researcher became familiarised with the specific issues related to this topic highlighted by participants.

3.8.3.2 Secondary Source Data

Meanwhile, data from published documents were reviewed to gain a general understanding of major issues on the topic. The review entailed perusing through the sampled documents to identify how the findings obtained helped to achieve the set objective and the major conclusions drawn from documents. The review of documents complemented the interview data which were collected. The documents were organised in university disk drives to ensure security. Before beginning to analyse specific things, it was crucial to have a complete overview of all the data gathered. This might entail listening to the audio and transcribing it,

reviewing the text and making some preliminary notes, and clearly going over the material to become comfortable with it. Next, from codes, find commonalities between them, and In general, themes are developed more broadly than codes (Nowell et al., 2017). Furthermore, data were supported using secondary data such that interview responses were analysed in comparison with secondary data to critique findings and highlight how the recent study findings contributed to the research area.

3.8.4 Identifying Codes and Labels

In the third process, the compiled data were disassembled using coding processes to draw meaningful inferences from it. Castleberry and Nolen (2018) describe coding as a process in which raw data is gradually converted into usable data to facilitate identification of themes or ideas which are connected to each other. Walsh et al. (2019) add that during the coding process, researchers identify sections of text and label them as an index which relates to a theme in the data. As a result, coding allowed the researcher to identify interesting data features across the dataset by evaluating units of data which varied in size, such as phrases and paragraphs. Based on the views of Walsh et al. (2019), a high-quality code or label captures the qualitative richness of a given phenomenon.

3.8.4.1 Interview Data

To code the interview data, coding strategy was developed which helped answer questions such as, ‘What is happening in the text?’, ‘Who are the actors in the research?’, ‘What are their roles?’, ‘Where is it happening?’, and ‘How is it happening?’. In the coding strategy, the researcher focused on identifying phrases and sections of text from the transcribed interviews which revealed issues in the data. The step involved reviewing the answers of each participant and highlighting in the key ideas expressed. Essentially, ideas which focused on the same issue were highlighted using a similar colour to enable patterns in the dataset of the five interviews to identified later. In this manner, the identified codes and labels succinctly summarised the data and described the content (see Table 3.1 in the appendix).

3.8.5 Identifying Themes

After developing the various codes and labels for the five semi-structured interview responses, the next phase involved summarising them into themes. In identifying the research

themes, the researcher mapped the code categories in context with each other. Essentially, the researcher reviewed the five interview files and identified the codes of highlighted sentences. The sentences were selected and grouped under the same theme in a tabular format. For each theme, subthemes were developed to indicate how a particular issue was discussed from various perspectives by the participants. Similar codes were identified across the participants (e.g., learning spaces; see Table 3.1). Similar codes were grouped into subthemes which were later categorised as the main themes. Table 3.2 displays the process adopted in the theme review.

3.8.5.1 Secondary Source Data

Data from published documents were also analysed by identifying the codes generated from the previous step and classifying them under various themes. Codes developed from authors who expressed similar ideas on the same issue were grouped under the same theme. The process of theme generation was summarised in a table in which the themes and subthemes were supported by authors' quotations.

3.8.6 Summarising and Reviewing Themes

In the final phase, the researcher reviewed the themes and ensured they summarised the findings from all participants and document authors. The themes from the document and thematic analyses were combined to ensure extensive discussion of the findings. Findings from interviews were compared with those of document analysis. Thereafter, the researcher developed a report to provide an account of the data across the themes. By adhering to a stepwise process in thematic analysis, the researcher provided an audit trail to ease the reporting process.

3.9 Research Ethics

Various research ethics were considered in the study due to the involvement of human participants. This section discusses concerns regarding recruitment, consent, data collection and use, and report dissemination.

3.9.1 Recruitment

The first ethical issue entails recruiting the study participants, where the researcher sought individuals who had participated in the joint accreditation process. Essentially, the recruitment process was done by requesting the administration to email individuals who were part of the L9 team. The strategy ensured that only individuals who had in-depth knowledge in

accreditation process and had been involved in NEASC accreditation were recruited as study participants.

3.9.2 *Consent*

The second concern regards seeking for permission from relevant authorities before commencing the research (Hammond, 2016). The premise of seeking permission from the authorities is that it allows the researcher to clarify privacy and confidentiality concerns (i.e., for the data to be collected to protect the intellectual property of the organisations). It is also essential to ensure that the participants take part in the research voluntarily and without coercion (Hesse-Biber & Leavy, 2011). To achieve this ethical principle, the researcher prepared a consent letter which specified the kind of data to be collected, how it was collected, and the rights which the participants have regarding withdrawing from the study. Saris and Gallhofer (2014) report that researchers must allow the participants to exit from the research without consequence, as well as to skip questions if they choose.

3.9.3 *Data Collection, Use, and Management*

Thirdly, while gathering data via interviews, there was a need to respect the participants' privacy and confidentiality (Schneider et al., 2012). The researcher therefore masked the organisation from which the data were collected. Similarly, participant details were concealed by using alphabetical codes to ensure the data is re-identifiable since participants can be reached to verify the data. The researcher developed pseudonyms by combining letters and numbers to generate unique and anonymous names. Private information gathered (e.g., participants' phone number and email address) were hidden to protect the participants against victimisation in the future based on the information shared in this study. The interview data gathered in this study are stored on a password-protected computer to enable verification by examiners and will later be destroyed. Meanwhile, while using data from primary documents during analysis, it was ensured that results lack bias and reflect the exact responses of the interviewees.

3.9.4 *Dissemination of Research Outputs*

Additionally, to protect participants' confidentiality, there was a need to ensure the data shared by the participants were not divulged to third parties without the participants permission. Additionally, the researcher developed a plan to disseminate the findings through a scientific

report which will be shared with the research participants. The researcher also ensured that identifiable information which can be matched to the participants is not included in the published reports. The researcher plans to publish this study in the *Journal of Research in International Education* to reach a wider audience.

3.10 Methodology Delimitations and Limitations

A key delimitation of this study involved the data collection by conducting interviews with stakeholders, as well as by sampling published documents on joint accreditation processes in international schools. The data collection techniques were selected because they enabled gathering of comprehensive data and in-depth insight into the challenges affecting joint accreditation of international schools and how to address them. The strategy was crucial in ensuring that underlying reasons for trends on the topic are adequately analysed. The other delimitation of this study is that it only included individuals who had engaged in accreditation process of international schools as participants. The strategy was crucial in ensuring that the participants had the required knowledge and skills which they could share in the interviews and enabled the achievement of research objectives.

The main limitation in the research is that it only focused on the joint accreditation of one Indian international school. Although the researcher justifies its selection, there is an associated limitation in that the findings are not generalisable across all international schools. Additionally, the use of only a few participants implied that there was a high risk of missing many key points related to the accreditation of schools thereby adversely affecting the generalisation of the obtained results. Secondly, there was a further limitation regarding the data collection via digital tools for the interviews, such as Zoom and saving the interviews in audio recording devices, as they are associated with a likelihood of failure. Essentially, there are potential risks of bad weather (rain, wind, lightning) which could affect connection and limited analysis of body language of interviewees to determine any additional issues they may want to explain. To overcome the issue, the researcher provided backup solutions (i.e., Skype) for the interviews and saved them on the university server.

3.11 Conclusion to Chapter 3

An interpretative philosophy is promoted in the present study based on its epistemology, which holds that knowledge of reality is socially created. This is justified, based on its goal of

making sense of people's meanings and subjective intents within a specific situation without imposing generalisations. The inductive technique was used for the study to help the researcher to grasp the participants' subjective lived experiences with the underlying issue. The exploratory research strategy was chosen because it enabled the researcher to fully comprehend the specific issue, which was not well-defined (i.e., to critically assess the difficulties associated with joint certification of international schools under COVID-19). For interview data, which were gathered at a single moment in time, a cross-sectional temporal horizon was used.

The chapter also provided justification for the implementation of the mono-multi approach by emphasizing the need to report and analyse the lived experiences of those participating in the joint accreditation process. Furthermore, various approaches were used to collect data (e.g., interviews and literature review). In sum, interview data were gathered from five participants, and secondary data from policy documents, staff calendars, and presentations on learning processes.

For analysis, thematic analysis was conducted for the five interview responses, as well as for the sampled secondary source data. The findings from secondary sources and interviews were then compared to reveal major patterns and issues on the topic. When attempting to comprehend a group of experiences or behaviours across a particular dataset, thematic analysis was utilized as an efficient and potent tool. The ability of thematic analysis to extract distinctive meanings from the qualitative dataset thus provided an additional argument for its use.

CHAPTER 4: CHAPTER 4: FINDINGS

4.1 Introduction

Research on accreditation of international schools has been emphasised over several decades. (Donovan, 2010). At its core, this research aimed to critically explore the impact of an international school accreditation context through a case study of a school in India. A core objective of the accreditation team's focus – NEASC, with its newest ACE programme – was to seek relevance to the needs of twenty-first century students, focusing upon Learner Principle 9: time and space.

Initially, interviews were conducted, and thematic analysis was used to investigate the personal experiences of the teachers at the international school. The stakeholders, including the researcher, responded to a series of directive questions issued by the NEASC study, as it is disclosed in Chapter 5 Discussions, p.118. The interviews followed up on participants' experiences with the NEASC research, its effects, and the difficulties they encountered.

An evaluation where the stakeholders work together to explain how the research process was attained is a collaborative self-review (Accreditation, 2020). The second approach was based on conducting self-review evaluation on the design of learning spaces and time influenced by the anticipated impacts of the learning community. The research also primarily focuses on L9, which covers the planning of learning space and time, learning environments, and schedules. The NEASC certification was based on a cooperative self-review and challenges the learning community to be future design oriented. As a result, teachers were asked to conduct a self-evaluation by responding to a set of guiding questions on the effect of the research process. Key stakeholders in the chosen IB international school were asked to describe how they overcame research process issues.

The findings of this research were thus advantageous since they offered distinct viewpoints on how hybrid or virtual research operated in the international school and how research was impacted by the modification to virtual platforms. The study findings determined perceptions on the representation of the certification journey and offered insights and information on many topics affecting the research process.

4.2 Thematic Analysis

This section includes findings from the thematic analysis for all the themes derived from the interviews coding and document analysis for self-review, followed by a discussion.

4.2.1 *Learning Space and Time Designs which Promote Student achievement.*

The key theme established from the interviews was associated with learning space and time designs which promote student achievement. Learning space and time design divides into four subthemes: interaction, safety and security, use of art forms, and lesson scheduling.

4.2.1.1 *Interaction*

The first subtheme relates to the interaction factor within learning spaces. According to Agarkar (2019), as per the guidelines provided from behaviourist thinkers, the interaction of students in classroom is focused primarily on behaviour modification. Studies by Gunduz and Hursen (2015) find that constructivist activities in classroom help to empower the learners in terms of gaining access to their beliefs and experiences, which reshapes the previous knowledge considering the applied course content. Panke (2019) adds that interaction among the participants in the team can influence the implementation of design thinking. Certain previous studies support the application of interaction in student learning environments. Findings from studies such as Painter et al. (2013) also support the implementation of interaction within learning spaces and designs. Students perform better when they collaborate and interact with other learners rather than competing or studying independently. The study participants shared a similar perception, suggesting that interaction is a major factor which positively impacts the student performance and achievements. Participant W shared a similar perspective: *'We design the tables and everything in such a way that student can sit face to face, and they can have interaction during the learning time'*. According to Participant V, *'Certain learning spaces [should be] designed for children in their own homes, like a reading corner, an inquiry corner'*.

The idea of interaction within learning environment is supported by Agarkar (2019), where the study found interaction to be the greatest factor which positively affects the student's chances of achievement in education. Moreover, Kay and Kibble (2016) state that learning is as an individual construction process and that learners construct knowledge as they interact with the environment. Therefore, classroom arrangement is a key factor in promoting positive student interactions. Furthermore, Murphy et al. (2021) add that students prefer teaching methods

involving both the teacher and student-centred preferences or a combination of lecture and student interaction. The responses from the interview participants supported this finding, as some believed that study rooms help to develop a student's accessibility to reading materials and to create an encouraging environment for learners to have greater opportunities to study, read, and learn in their everyday routines.

4.2.1.2 Safety and Security

Another important subtheme was safety and security, which plays a key role in students' learning and achievement frequency. Safety and security are among the essential factors which enable students to feel comfortable and free in the classroom. According to Li and Sullivan (2021), physical characteristics of the school environment (e.g., thermal comfort, indoor air quality, noise, and lighting, and building condition) can influence learning. Safe learning environments therefore often lead students towards academic achievement. A secure learning environment is the key to attaining achievements within learning areas (Kafaji, 2020). In addition, Serin (2018) suggests that, as per behaviourist theory, students are passive and likely to respond to environmental stimuli because a sense of security enables them to develop their learning skills. The supportive environment encourages their social and creative learning. Safety and security may be meant literally or in terms of students freely expressing their thoughts. It is an essential factor affecting the student learning process and achievements within learning spaces and time designs. Moreover, most participants stated that learning spaces are set up with safety and security in mind to maintain the feasibility of the learning environment. Participant U stated, *'So we set those up completely looking at safety and security, how is going to be feasible, how they're going to take it forward'*.

The thematic analysis also helped to establish that safety and security concern more than the learning process. The classroom is the place where learners observe their teachers' skills (Kim et al., 2019). Li and Sullivan (2021) suggest that exposure to suitable environment can positively impact student learning experiences. Lack of security may negatively impact students' learning and achievement process. Moreover, students may become irritated, tense, or uneasy throughout the school day if they sense that their safety is at risk. Therefore, more emphasis should be placed on student engagement of as means of achieving the strategic objectives of the course (Kafaji, 2020). Interview participants noted the importance of student safety and its impact on their learning. Participant Z stated, *'Along with the learning spaces, it had to do with*

the safety of the children also. So, we were looking at a lot of things, where cameras could be installed, or where they're already installed'.

The analysis also found that student safety and security should be maintained in open learning spaces where they can widen their perspectives and think outside the box (Wenger & Wenger-Trayner, 2020). If safety is maintained fully, students can enjoy the outdoor learning environment in an improved manner while focusing on their learning processes. Students appreciate the environmental importance of the open space design and the value it brings to their learning. In addition, the analysis determined that students develop strong awareness of the vibrant state of nature when they study in open spaces since they can clearly perceive various learning materials integrated within the open learning atmosphere. Open spaces help the learners learn about transformation (Bosma et al., 2016). Cross et al. (2019) suggest that open spaces offer recreational opportunities for learners and help them to update their learning techniques and strategies. This ultimately leads to better outcomes in the form of student achievements, which is the main theme of this analysis. According to Participant W, *'Basically, how the street space has been designed to make learning meaningful for children how the space can be used, open ended areas where there are open ended materials where children can make their own meaning using the material.'*

Furthermore, Keskin and Yurdugül (2019) highlight that easy accessibility to learning environments allows for improved student outcomes. This thematic analysis established from participant responses that open and safe learning spaces allow students to observe across their environment, which helps them create their own meaning for the learning material. The literature is supported by interview participants who agreed with this perspective and suggested that high-quality outdoor spaces with open-ended learning materials are linked to better student outcomes, especially in children.

4.2.1.3 Use of Art Forms

Another subtheme relates to the use of art forms in student learning. This subtheme is justified since previous studies have found that students' development of motor skills, language skills, social skills, decision making, risk taking, and creative abilities to be associated with the use of art forms within learning spaces (Zammuto, 2008; Zhao & Ferran, 2016). These benefits result from participation in arts education (Garfolo & L'Huillier, 2015). Another study finds that students attain an understanding of colour, composition, perspective, and balance via the study of

visual arts, all of which are necessary for presenting quality academic work (both visual and digital; Wen et al., 2021).

Nguyen and Ta (2017) studied this phenomenon in depth and contrasted other forms of media with art in relevance to the students' academic performance. The findings of the study suggested that art has the potential to deepen a learner's comprehension of not only their own history and culture but also that of others' lives and experiences (Nguyen & Ta, 2017). The previous literature, in accordance with participant responses, indicates that arts education has proved to improve the academic performance of students. According to Participant W, *'First thing in visual art, we have learning spaces, which are very specially designed according to the need of extra days according to the need of the subject department'*.

A review of the relevant literature led to the conclusion that pictures had a beneficial influence on the behaviour, engagement, and creative output of students, in addition to their academic accomplishment (Kijima et al., 2021). Young learners may learn to be more inquisitive thinkers and more creative problem solvers as a result of this strategy. Knapp (2018) finds that improvement of both manual dexterity and practical abilities among students are fostered by participation in art activities within learning space and time. Art also teaches them how various topics interconnect; for instance, while mixing paint colours, children learn how science applies to art (Knapp, 2018). According to Participant Y, *'I mean, it was the visual arts, it was the performing arts and the visual arts department together. And we all had to put our points forth regarding learning principle number 9, which is learning in space and time.'*

Music has a major influence on students' learning and accomplishment processes, particularly in relation to the visual arts (Pande & Bharathi, 2020). Pande and Bharathi (2020) identify that young learners can improve their language abilities by participating in artistic endeavours. Both the interview participants and the existing literature agree that the use of music and visual arts within learning processes improves students' learning achievements. However, Razzouk and Shute (2012) specify that learners in primary school may benefit from participating in art activities since it helps them to develop language skills. The use of music and art in education is thus critically justified from various perspectives. The previous literature has also suggested that the development of students' (especially primary students') language, reading, and communication skills should not be neglected in favour of art and music (Kay & Kibble, 2016). From a medical perspective, Murphy et al. (2021) finds that students who begin their

musical instruction at a young age establish mental regions concerned with communication and reasoning. The participants of interviews within this study were also of the opinion that music is an important component in educational settings for both students and teachers. Participant Y stated, *'So, for music, since I was the music teacher at Pathways... I was tasked with just discussing the infrastructure, putting down points regarding how we are creating and setting up the space within the music department.'*

Another benefit of musical education is that it encourages the growth of language and reasoning among learners, which contributes to student achievements (Murphy et al., 2021). Musical jingles and poems could make it easier for younger brains to remember knowledge, as well as boost the growth of the left hemisphere of the brain (Murtonen et al., 2017).

4.2.1.4 Lesson Scheduling

Another significant subtheme relates to the function of organising educational activities to improve the overall performance of the student body. A study plan is beneficial to learners since it enables them to specify what they are targeted to achieve or learn daily, as well as divide their coursework into achievable steps (Bieker, 2014). The research found that this habit frees up more of the students' time, allowing them to focus on other important aspects of life. The literature suggests that student is then able to learn and understand more in a shorter period of time. The interviewees' responses were practically identical to the idea of this subtheme, which is appropriate given the subject matter. Participant W stated, *'So during that time, there was a lot of changes in the timetable. And now the learning time is extended, which is one hour which is very good for learners to enhance their studies'*.

Another study highlights the importance of schedule in student learning through a different perspective. Blome et al. (2021) find that scheduled lessons assist students in breaking poor habits such as lethargy, which may have prevented them from achieving their full potential in terms of learning and achievement. However, the interview participant believed that multiple changes in the study timetables provided the students with an extra hour for learning, which proved to be effective for student learning.

4.2.2 Challenges of Joint Research in an International School

A major theme developed from the interview responses related to the challenges of joint research in the international school, which refers to a study involving the collaboration by

participants involve in the accreditation. This theme emerged from the issues students face in terms of joint research (e.g., difficulty in execution, approval, cooperation via online platforms, and team member collaboration). Since most participants stated and highlighted these challenges, this theme has been developed for the analysis which is divided into challenges of joint research in an international school. It divides into subthemes: task execution difficulty, approval challenge, online platform cooperation challenges, and collaboration.

4.2.2.1 Difficulty in Execution

Another major challenge relates to difficulty in execution. The participants held the view that execution remains a key challenge that negatively affects the overall research process. Participant U stated, *'How we are going to do the execution? Because it was a huge task for the execution to happen'*.

The analysis revealed that execution is a core challenge of the research process. Hence, this challenge must be resolved, and the task should be made simple to improve the overall process. The execution can further be negatively affected if there are conflicts in the team. However, execution can be conducted in a simple way if the stakeholders detect and eliminate negative elements from the process. Hence, the focus should also be on reducing conflicts to improve the overall joint research process and remove obstacles. Participant W stated, *'We have explored a lot of new perspectives in that which was not possible in physical space'*.

The responses revealed that new perspectives could not be successfully applied in the physical space and indicates that new perspectives require a flexible environment free from bias and discrepancies. However, the physical space also provides opportunities to understand new perspectives that may not be possible in digital space. Lange and Costley (2020) further argued that difficulties in arranging and adequate learning space tend to have a negative effect on the research process which can eventually negatively affect education quality. The hurdles must be managed efficiently by the active stakeholders to boost the education quality. According to Participant Z, *'We were still not aware of all the areas we have in school, like me being in the primary was not very well aware of what the senior school space could be used'*.

The aforementioned response indicates a major difficulty in educational transformation from primary to secondary school space. It indicates that the members may not be aware of every area in the school. It is important to have a broad understanding of all areas in the school to successfully execute the research process. To gain the research, it is necessary to have sufficient

understanding and awareness of all areas in the school. Travlos et al. (2017) explain that the challenge can be resolved if the stakeholders work collaboratively and have enough knowledge of the execution and awareness of all areas in the educational institution. This aspect further requires active collaboration and coordination among the stakeholders to boost the education quality and eliminate negative elements from the research process.

4.2.2.2 Approval Challenge

The approval challenge is another subtheme developed from the main theme. It is considered the key challenge related to research. Participant V noted, *'Getting the approvals done was the major challenge'*. The responses revealed that gaining the approval is a major challenge which stakeholders faced. A challenge is to obtain approval, which refers to achieving competencies and skills. Eaton (2016) explained that competency-based teaching associated with educational mastery of competencies and skills is recognised by schools for credit, regardless of time spent on task. However, the approval challenge can also affect education quality. If the institution struggles to gain approval, it may eventually affect the school's reputation for competency-based teaching and may have a damaging influence on the overall education quality. Critical analysis revealed that this may also arise due to mismanagement in the schools, as the management is not confident in gaining research approval.

The COVID-19 pandemic was a major challenge for the school. Adedoyin and Soykan (2020) support the notion that the COVID-19 pandemic made the approval challenge more complex. Since it was a challenging task to shift to the online platforms, the focus was to gain the approval by demonstrating effective online strategies. Hence, during the crises, it was important to transform practices to gain the approval in a timely manner and attain the desired educational outcomes. However, the critical analysis revealed that stakeholders must work collaboratively to deal with such challenges and gain approval. It further requires development of effective policies that minimise the conflicts among the members and encourage the focus on quality of education.

Participant W stated, *'Moving onto the virtual platform from the physical space was completely new for us. And initially, we thought that it is very challenging and specifically if I took from the visual arts perspective, we thought initially, how can visual art be taught online?'*

The participants argued that it was a challenge to shift towards online education specifically in case of visual arts and to teach subjects virtually which are required to be taught

physically. The main reason is that visual arts frequently require student activities and involvement in practical elements. Hence, physical space is beneficial for teaching visual arts and other similar subjects.

The critical analysis revealed that moving to online classes was difficult in terms of technical subjects. The COVID-19 pandemic forced schools to shift towards online education. However, the major challenge was to teach technical courses that cannot be taught comfortably through online means (Salimi & Fardin, 2020). The analysis further revealed that the schools may have performed better if they had implemented a system of checks and balances during for the online education. Toppin and Toppin (2016) support the notion that teachers' role is key in online education. Teachers had to find a way to enhance online education to satisfy the stakeholders. It was also a challenge that parents were not satisfied with online education. Many parents hence attempted to withdraw their children from the school and teach them at home. Additionally, parents were not confident that children would learn appropriately, compared to face to face learning through online classes. Some parents decided to home school their children during the COVID-19 pandemic.

The COVID-19 pandemic was also damaging for the accreditation approval process and schools. Salimi and Fardin (2020) argue that at the global level, difficulties arose such as a lack of strategic planning among managers and policy makers, adverse legislation, inadequate educational technology, and poor supervision. The issues of the new technologies' fragility, lack of liberty and autonomy, and interruption of the intended budget arose. Additionally, the pandemic created fear among parents that schools may not be able to maintain a high level of education quality. Moreover, as families' purchasing power was low, some parents decided to withdraw admission and teach their children online, which affected the overall reputation of the school and required active consideration from the stakeholders. Moreover, seeking approval was a core challenge that affected both the study and the school's reputation.

4.2.2.3 Challenges of Cooperation using Online Platforms

The COVID-19 pandemic had a major impact on the education sector, as it caused educational institutions to frantically search for ways to continue operating (Li, 2021). As an interview participant stated, *'Of course, it got stopped because of COVID'*. Nonetheless, the educational tools available online are beneficial.

During the last two years, a rise in expenditures on educational technology tools has occurred, particularly in the field of online education, which has resulted in significant technical advancements (Drumm et al., 2020). There are several advantages to receiving an education online, including portability, accessibility, a decreased need for physical infrastructure, reduced expenses, and greater flexibility. According to the findings of several studies, learners in general have a favourable impression of simultaneous online learning, especially regarding their ability to organise their time and their overall performance (Nguyen & Ta, 2017; Wu et al., 2015). Nevertheless, Potkar (2014) and Staub (2019) note that there are also operational (e.g., material distribution), technological (e.g., internet access and ineffective usability of tools), and behavioural (e.g., individual psychology) issues which create challenges for online learning.

A recent poll indicated that 60% of students who had switched to an online learning system considered the experience to be dull and found it difficult to concentrate in class. Previously, it was anticipated that the most dynamic mode of teaching for the next generation would be online education. (Kapasia et al., 2017). According to Participant Y, *'Because it was online, there needed to be more discussions, there needed to be more clarity online, because as you know, it's a challenge, you know, to just communicate all and everything that you want when you're not in the same space.'*

Students taking online classes may lack motivation to learn since there is less opportunity for student and instructor contact. Online learning does not consider the vital role that students' ability to engage with one another in person plays in the preservation of their interest (Jung et al., 2021).

The students also noted a variety of difficulties they had when participating in online classes. The effects of anxiety, despair, a lack of internet access, and an unfavourable home learning environment are all made worse for children who live in rural and poor areas. Gonzales et al. (2020) conclude that the isolation of pupils during the pandemic had a substantial and beneficial impact on their academic performance. This result runs counter to the findings of Kapasia et al. (2020), who ascribed these outcomes to the students' consistent use of various learning modalities, which resulted in an increase in the efficacy of their learning. Institutions must provide instruction which is engaging for students. Infrastructure is still necessary for online education, even though it does not require buildings, classrooms, seats, tables, blackboards, or chalk (Santos, 2021). There is a need for a computer, appropriate software,

consistent electricity, and high-bandwidth internet access. If a country cannot afford to build the infrastructure itself, many wealthy countries make it accessible to their citizens via public libraries.

A quantitative descriptive research study was conducted by Taleb (2012) and Hughes (2020) with the purpose of investigating the experiences that students had throughout the COVID-19 pandemic. They concluded that students valued their time spent studying online during the pandemic. Moreover, 50% of those who participated in the survey said that offline classroom instruction was more beneficial than online learning (Hughes, 2020).

4.2.2.4 Collaboration Challenges among Team Members

The ability to work together effectively is a key factor in an organisation's success. Since collaboration is critical to the accomplishment of any place of employment, ensuring that it is conducted in an efficient manner ought to be one of an organisation goal. Collaboration occurs when different people work together towards the achievement of a shared objective. When used in the context of the workplace, this term refers to co-workers and members of a team working together on projects that need ongoing collaboration and communication. No matter if a team is working together in the same location or part of its members are working from home, collaboration is necessary to successfully accomplish the job. Participant Y stated, *'One of the main challenges that everyone was supposed to be on the same page, and, you know, just making sure that we're functioning as a team in a very, you know, efficient manner'*.

When functioning on large-scale educational endeavours, it is important for all members of a team to communicate clearly, uncomplicated, and uninhibited to facilitate the efficient collaboration necessary for the creation of an effective learning process. It improves the effectiveness of the educational institutions' learning operations and increases the likelihood of its students becoming successful (Agarkar, 2019).

It encourages workers to have strong professional connections with one another. It is of the utmost importance to foster an environment in the school that encourages open communication between teachers and students. If team members do not feel at ease while speaking freely with one another or if there is not a common platform where each team member may share their thoughts and perspectives, then collaboration may be hampered. One participant suggested, *'Because the whole team, you have different kinds of people and different kinds of working styles. And for some adaptability is easy for some it is not'*.

If team members lack the necessary confidence in their capacity to communicate clearly and effectively with one another, they are less inclined to participate in the learning, which might lead to the students' failure. According to Donovan (2010), an inadequate amount of team engagement is the cause of failure for 33% of failing educational institutions. The comments of many participants in this research reveal that difficulties in the cooperation of team members are often the root cause of poor student performance and results.

Organisational leaders are obligated to participate as members of their teams and to motivate them to offer their perspectives and thoughts. They are obligated to facilitate employees to communicate openly with one another. In addition, they may need to invest in a collection of communication tools. Otherwise, it may be difficult for the team leaders to divide duties and tasks among the team members (Hinnenkamp et al., 2019). This, in effect, could lead to unfavourable perspectives towards the learning objectives which inhibit synergy in the learning process. When team members, teaching staff, or students are not provided with critical success factors to evaluate or do not understand how their colleagues contribute to the success of the learning processes, they are more likely to be resistant to collaborating with one another. This is also applicable in the case of student learning and achievements. According to multiple findings, team members require routine meetings at which they formulate and debate the educational objectives of the pupils (Mattar, 2021; Zhao & Ferran, 2016). To ensure that all members of the team are operating from the same playbook regarding evaluating performance and implementing required changes, each person on the team should be kept apprised of developments. In addition, it would be beneficial if they were able to interact on a single platform and see real-time learning changes.

4.2.3 Factors which Influence Successful Joint Research

The first theme derived from the interview responses for the current research is to identify and examine the impact of the certain key factors on the achievement of successful joint research in international school education. Research is advantageous for institutions and the students who attend them. While this study focuses on the certification process and its effects on personnel, it is equally important to comprehend how research on international schools may influence student enrolment and academic performance (Keiler, 2018). According to this viewpoint, the research procedure is connected to educational principles since it aims to guarantee that current methods are suitable for learners. The hallmarks of education, such as

quality management systems, have long existed and placed a focus on education's capacity to satisfy the demands of students in the twenty-first century (Cox et al., 2020). Therefore, considering the interview-based responses, the following subthemes were derived from the collected data as major factors influencing education via successful joint research: teamwork and collaboration, similarity in systems and structures between schools, and supporting each other.

4.2.3.1 Teamwork and Collaboration

The introduction of COVID-19 highlighted the necessity for high-quality education, given that innovation platforms were quickly accepted for learning and teaching with improved teamwork and collaboration (Dhawan, 2020). According to Nunes-da-Cunha and Fernandez-Llimos (2019), teaching methods such as interaction, communication, and teamwork are more geared towards students when learning is student-centred rather than teacher-driven. The profound transition in pedagogy that characterises the twenty-first century is attributed to a variety of factors, one of which is teamwork and collaboration (Serin, 2018). Participant Y stated, *'So we were working, you know, offline online, ...everyone was meeting at least two hours a day just discussing our work and how we can just make sure everything's, you know, in place'*. Participant Z noted, *'I think the collaboration worked very well. Wherever we needed help from each other wherever we could look at the areas, we were all there for each other'*.

These two statements convey that teachers following the joint accreditation tend to create an impact on student learning with effective collaboration since the COVID-19 pandemic began and online education increased. It has become important for teachers to work in collaboration to assure that students have a proper learning environment by discussing in meetings about the work (Cross et al., 2019). Student enrolment and learning may be affected by research on international schools. As a result, Serin (2018) highlights that teams must take calculated risks, be inquisitive and innovative, take initiative, and create new working methods. Teachers may love their profession and innovate when they are part of a teaching team that promotes diverse thinking, problem-solving teaching, and 'experimental reasoning'. Additionally, Kim et al. (2019) argues that the 'connection between teacher-centred pedagogy and research came from the probability that standards supporting teacher-centred pedagogy will affect how international schools offer education. Participant V noted, 'The group that we worked with was a lot of collaboration, a lot of thinking a lot of positive feed forward that was given'. Participant W stated, *'There is lot of interaction happening during the process across the subject one. So, in*

this process, we learn from each other'. Participant Y noted, 'It was it was just working together as a team and coming up with ideas.'

These statements clearly depict that when working in collaboration, it is significant for teachers to create a positive environment to influence joint research, as the process is linked to learning from each other with constructive feedback, creative thinking, and problem-solving ideas. A varied workforce across the school research has allowed businesses to become more integrated and collaborative. It is consequently crucial for workers to display effective cooperation abilities in both physical and virtual team dynamics (Agarkar, 2019). However, the participants agreed that the criteria for admission might vary. International schools contain a sizable percentage of students from outside the destination country, a diversified teaching staff, and a curriculum that incorporates multiple features of several national legal systems, and a supervisory board that is representative of the student population (Wu et al., 2019). The cooperation involves meeting and reviewing the standards for evaluating these resources before going over each one individually. Every resource should be categorised according to its kind, subject, language, and grade level. Nevertheless, Murphy et al. (2021) suggest that the success of the teacher-centred pedagogy was largely due to command and control in the classrooms, where the instructor exercised complete authority while the students stayed silent.

4.2.3.2 Similarity in Systems and Structures Between Schools

The second subtheme derived includes similarity in systems and structures of school as a significant factor influencing successful joint research in education. By highlighting the real characteristics of the international school which are touched by the certification procedures, such as the similarity in culture and prevailing procedures, Vlasses et al. (2019) highlight the significance of research on driving transformation in international schools. As a result, the certification improved their educational programmes' worth and competitiveness for the joint school infrastructure. The study participants also explained how similar school systems tend to increase the involvement of students regarding infrastructure developed for better education. Participant X noted, *'We were lucky enough to start with the infrastructure which run parallel in school systems in India, we have labs which are very spacious, which we have which were equipped with modular furniture when we jointed in'*.

When schools in India run on similar infrastructure and are equipped with quality equipment and furniture compared to private schools, education research is greatly influenced.

This resemblance in educational systems is an element of joint research because it relates to assisting students by progressing the education system in their place of origin. Consequently, Drumm et al. (2020) explain that comparative education enables students to have a greater insight into other nations' educational systems and to implement their best ideas in their own classrooms. A crucial element of early childhood education is comparable framework, which enables educators to plan out what they want their students to learn and how they should achieve that goal. However, in the absence of unified structure, it would be difficult for educators to complete the daily activities expected of them (Gibbons & White, 2019). In contrast, in the current study, while exploring structure as a factor affecting successful joint research, it was noted that there is a difference in the education involvement based on the online and offline educational structure in international schools. Participant X stated, *'So, for our first lesson, we do have a request break, but we also have a 10-minute break. That gives them enough time to properly corridor chit chat and that transition becomes a bit more convenient and efficient. And at the same time, when you're sitting at home, you're at times your physical involvement in your household jobs become much more. So that also had to be factored into the longer lunch break was designed for that.'*

The involvement in learning is increased when education is catered in a timely manner to be more convenient; however, the case is the opposite in online education systems. It is therefore effective to ensure similarities in structure to create a positive influence on joint research (Drumm et al., 2020). By disclosing that foreign hospitality schools pursued research with a view to enhance their academic ability in the campus community, Buse (2020) provided additional support for the recent study findings.

4.2.3.3 Support among teachers and students

The third factor identified which creates an impact on the successful joint research is the support among teachers and students in an international school environment. Murphy et al. (2021) observes that creating activities allows learners to cooperate and learn from one another when teachers support each other. Collaborative learning allows learners of all needs, abilities, and intellectual capabilities, but also increases their self-assurance and self-esteem. Teachers who work together have a positive effect on one another and inevitably help schools to improve, according to advocates of teacher cooperation (Pomey et al., 2010). Working in teams, sharing tasks, and giving feedback are specific forms of teacher cooperation. Similarly, study

participants highlighted the significance of support from each other influencing education. Participant V noted, *'And we did our work as a collaborative team. So, everybody 's viewpoints were taken into consideration and a common document, a common narrative was prepared'*. Participant X stated, *'And obviously it is not easy to accept that what you're doing is not 100% correct. And initially, they were certainly you can say, mental blocks, which existed. But once we got into the process, it did, we did realise that it is the whole system, and the process is able to capture our thought process.'*

Regarding working in support of each other, multiple viewpoints were shared which advocate teachers' cooperation. The purpose is to share a common narrative and boost education quality. According to Elliott and Goh (2013), managerial and pedagogical school operations could be significantly improved. Nevertheless, Murphy et al. (2021) explain that schools implemented modifications which went beyond the requirements of their affiliating mechanisms, such as improved student assistance and learning materials, a decrease in faculty burden, and faculty assistance for R&D. However, in the current study, this is also significant for addressing doubts and providing responses to key questions regarding technical issues. Participant Y stated, *'You know, if you had any doubts, if you had any questions, they were right there. To help us through if he, if he had any technical issues, if he had any online hiccups, everything was, you know, in place.'*

This statement highlighted how educators exchange their experience with one another in resolving technical and digital difficulties. This problem-solving procedure is outlined and used in teacher training in technical and vocational education. Similarly, Murphy et al. (2021) explain that work can be distributed between many team members and that a variety of expertise, points of view, and interactions could be implemented to handle the problem. Furthermore, group members can inspire one another, leading to increased creativity and improved efficiency. The study findings explained that collaborative problem solving has several benefits over personal problem solving. According to Santos (2017), there have been advancements in training and teaching techniques, learning styles, sources of information for learners in the learning environment, types of resources utilised to support the learning process, and procedures employed to support learning. Learning in the twenty-first century now encompasses a wide range of activities, such as using digital tools and interacting with a variety of materials.

4.2.4 Benefits of the Virtual Research Process

This theme of the study is based on the exploration of benefits of virtual research process. Since subspecialist entities are involved in the research process and play a major role in setting educational standards (Pomey et al., 2010; Valori et al., 2013), it is also necessary to examine the motivations that encourage schools to take an active role. One claim made in this study is that many academic institutions are eager to participate in demanding research procedures due to the various advantages of receiving certification (Elliott & Goh, 2013). As a result, this has allowed the business schools to enhance organisational learning initiatives as well as enhance performance management. The following sections examine the four subthemes based on how the virtual research process is vital to improving the standards and practices of living, enhancing learning spaces, assuring time management, and developing a positive culture.

4.2.4.1 Improves Learning Practices and Standards

The first subtheme derived from interview responses pertains to improving the standards and practices of learning as a benefit of the virtual research process. According to Valori et al. (2013), the process through which the organisation evaluates a course of study or an institution and officially acknowledges it as having met or satisfied established educational events and materials of quality is known as research in the field of education. Nonetheless, the study by Elliott and Goh (2013) explains that research or validation also describes the procedure through which an outside organisation authorises an institution to conduct a certain activity or set of activities. Participant U noted that, *'It invites the IB principles, the standards, strategy and practices, and it also broadens our horizons. So, it has been transformed'*.

From the above response, it is clearly depicted that standards and practices of learning of IB schools are vital to enhancing the educational outcomes. Similarly, as Murphy et al. (2021) note, IB emphasises the transition from routine learning to skills and research or certification, which specifies the benchmark of mutually agreed-upon standards in education. It is also noteworthy that IB standards of learning are linked to the emergence of various teaching strategies, such as reversed and blended classrooms. In addition, the many skills necessary for twenty-first century education (e.g., questioning, critical thinking, teamwork, and resilience) are also essential for future-oriented design thinking (Buse, 2020). Regarding this topic, Participant Y stated, *'I think it was quite transformative in terms of just getting perspective on, you know,*

the whole process of learning. And the research itself, you know, allowed us to delve deeper into, you know, sort of outcome-oriented thinking.'

This statement is a clear explanation of how it is significant to integrate transformation in educational system which is brought by the process of research to enhance the outcomes of experiential learning. Gupta et al. (2022) finds that stakeholders' opinions about the virtual research of higher education institutions also had an impact on the adoption of research standards. The noteworthy aspect of this research highlighted that the adoption of the standards as a consequence of stakeholder pressure meant that the schools accepted international research. The demands of learners seeking a quality education were thus satisfied via a thorough transformation of teaching functions and procedures. Buse (2020) supports the current study findings by highlighting that organisations would be driven to employ research standards to improve their position as respectable institutions in the marketplace. According to this viewpoint, higher education institutions' research processes were driven by student and faculty concerns about the institutions' ability to provide high-quality, effective, and efficient instruction.

4.2.4.2 Offers New Perspective of Learning Spaces

The second subtheme highlighted how offering new perspectives of the learning spaces is a key benefit of virtual research process. According to Gupta et al. (2022), advancements have occurred in training and teaching techniques, learning styles, sources of information for students in the educational environment, the material resources used to support learning, and overall procedures to support the learning process in the twenty-first century. The study conveys that using design thinking would ensure that students gain more useful abilities to address pressing issues in their educational contexts. Similarly, few study participants explained the significance of how learning spaces are significant for supporting learning in an educational setting. Participant V noted, 'Talking about them in detail has been a great learning, especially looking at learning spaces from a different perspective'. Participant W stated, '*We have got a new perspective during this process, which we applied in the classroom as well. And it is very, very fruitful in the learning process*'.

New perspectives are significant for implementing effective learning modes in a virtual research classroom. The literature elucidates that for submissions, virtual research advises using a digital storage file (i.e., Google Drive; Kaya et al., 2020). However, schools must ensure that their digital storage can accommodate all files. The current study explained how students who

attend virtual classes frequently can interact with peers from other countries, cultures, and perspectives. Noh and Karim (2021) find that children may develop their own problem-solving abilities by learning about how individuals from other cultures and backgrounds solve problems. Improved connections and communication between peers are fostered in learning environments, and students place greater emphasis on creativity than on efficiency which subject curiosity towards learning. According to this viewpoint, design thinking aids students in developing a broad variety of social abilities. Researchers emphasise the value of design thinking adoption for instructors in twenty-first century learning spaces in different contexts.

4.2.4.3 Improved Time Management of Lessons

The third subtheme attained from the analysis involves the improved time management of lessons as being a vital aspect impacting the virtual research process. According to Kumar et al. (2020), research is a procedure by which external agencies (i.e., research agencies) are likely to assign a specific status to an online school which verifies or endorses the level of quality being addressed by the courses offered by that specific online home school. In addition, it is a procedure created by non-profit or private educational entities to conduct external reviews of the programmes and courses run by universities, schools, and colleges to ensure they correspond to the desired quality levels. Research addresses a global aspect related to effective practice, enabling a wide-ranging comparability amidst high performing institutes, and providing an assurance to employers that graduates have adequate skills, knowledge, and time management. However, as Shahroury (2022) states, e-learning, blended, or distance learning during the COVID-19 pandemic tends to be surrounded by uncertainty or suspicion. Virtual learning allows for enhancement of students' time management, as learning from lessons depends on the manner which is suitable to students. Likewise, Participant V stated, *'And there's a thing in which we are able to deliver especially when it comes to management of time. As a science teacher, I'm really happy that we got the longer learning spaces because that helps us in delivering our curricula more efficient.'*

In the present era, most educational institutes are inclined to invest intensively in online teaching for better time management with virtual learning spaces. In addition, traditional teaching approaches have been criticised. This is due to advancement in technology, which has led towards the easiness of curriculum management and allowed teachers to deliver education in an effective and timely manner. The research enables the students to learn from home, which

suits their own time frame. According to Ferri et al. (2020), development in soft skills training is vital due to the increasing number of e-learning platforms developed by the academic entities, thus enabling teachers to effectively deliver the curriculum. Such universities are inclined to offer higher-level education courses, certification programmes, and corporate training.

Participant V stated, *'Trained in it helping to circumvent all the challenges which was a new phase theoretically rather than an error now everyone enjoys the process of longer lessons much more than anything else'*.

Moreover, another benefit of the research is that teachers are inclined to offer immediate feedback on the learning which is addressed towards the students. The research is deemed vital because it allows educational entities to enhance the effectiveness and efficiency of the emergency remote teaching and trainings for the students (Ferri et al., 2020).

4.2.4.4 Promotes a Positive Learning Culture

Another subtheme which has been developed for benefits of virtual research process is the promotion of a positive learning culture. According to Littlecott et al. (2018), the role of school support staff for developing the learning culture of a classroom alongside teaching staff tends to directly impact student well-being, as well as determine the teacher-student relationship and performance outcomes. The online learning environments have grown extensively in manner and application under the educational settings (Singh & Thurman, 2019). The increasing use of virtual techniques has developed adequate applications of such communication technologies to benefit learners. Nonetheless, culture is a complex construct encapsulating the shared valued, mental models, and communication approaches. According Heng and Sol (2021), culture impacts every facet of online learning course design during COVID-19. In addition, the technology-mediated communication which occurs in the online atmosphere is impacted by the culture since it produces new transferred knowledge and meaning. Participant Y noted, *'So we did, you know, go over a lot of the pointers, in terms of, you know, not just environment and infrastructure, but also teaching styles and cultivating a good culture for learning'*. Participant Z responded as follows: *'it was a new venture they had started and the learning of the space through this NASS project helped me a lot. Because I was able to apply that in the school where I was heading. And we could use the space we could see what the safety aspects are we had to keep in mind.'*

Virtual learning is regarded as a vital new avenue for student learning. According to Shinnars and Graebe (2020), implementation of virtual learning as a fundamental element of continuing education is deemed to increase students' learning effectiveness.

4.2.5 Improvement of Joint Research Programmes

Another main theme relates to improvement of joint research programmes. The participants were asked how improvement can be ensured in joint research programmes. The theme further divides into subthemes based on the participants' responses: open-mindedness, active participation, and increased representation from schools. The motive of this theme to understand the enhancements addressed under the matter of joint research.

4.2.5.1 Open-mindedness

The first subtheme is open-mindedness. The participants held the view that open-mindedness can enhance joint research programmes. Since the joint research programmes require active consideration from the stakeholders and teams, it is essential to understand how participants view open mindedness and how it can have a profound impact on the joint research programmes.

Participant V stated, *'I think the advice that I could give I would give to the new teams would be work with an open mind. It's a huge learning'*. The response indicates the need to have an open mind when working on joint research programmes. Mogren et al. (2019) argued that open-mindedness and creativity improve joint research programmes and encourage the stakeholders and new teams to work in a friendly environment. This is also significant for keeping an open mind while working on the program, which encourages the stakeholders to gain maximum knowledge and emphasise improving the education quality. Open-mindedness can further help to remove barriers when adopting the joint research approach and rating the institutions. It can eventually help to develop innovative and unique approaches that can enhance the learning capabilities of the twenty-first century. Moreover, it promotes the utilisation of digital channels for documentation, ratings, and review of the overall performance.

Kotzee (2018) and Dewey (1916) argued that open-mindedness can eventually help to meet twenty-first century learners' needs and prepare teachers to utilise unique strategies and techniques. Hence, the literature supports the responses from the primary research findings. Creativity can further encourage the school to have modern equipment and technological

elements which can improve the overall education quality. Twenty-first century students have technology integrated in their daily life, and it is a beneficial technique to utilise technology for teaching (Kotzee, 2018). It can eventually improve the research process and enable the school to improve education quality. Participant X stated, *'I would strongly recommend that the paperwork and the documentation of every process of this of your system, every process of your school should be in place, as in one line, I always put it you should do what you write.'*

This response identifies the need for online documentation. Documentation is also one of the key elements of joint research programmes, and it helps to monitor events and progress. Lagrosen (2017) further supported the notion that a well-documented and systematic delivery of curriculum is vital to educational system improvement. This aspect further indicates that designing, delivering, and implementing programme learning goals which relate to effective documentation is one of the core elements which help to evaluate the success of research programmes. The critical analysis further revealed that a core focus of research involves assuring that institutions meet the acceptable quality level. Hence, the archiving team has a crucial role in it along with efficient documentation. The participants emphasised keeping the documentation in place as it becomes evident in the future.

Mansour et al. (2020) explain that research programmes divide into four parts: research organisation, standards of documentation, survey procedure and assessors, and incentives that may help during the research process. If the person doing the required work shifts organisation, then there would not be sufficient evidence to demonstrate the overall performance and progress of the institution. The critical analysis revealed that it is essential to ensure creativity, keep things in line, and maintain documents. It plays a crucial role in conducting the research without hurdles or barriers. Additionally, for the research team, the process becomes easier, and the team can determine and identify the school's potential strengths and weaknesses.

This subtheme indicates the need to have an open mind, use efficient documentation, and have an archiving team in place. The new teams require a creative approach to generate unique approaches of managing documentation efficiently. Mohamed Hashim et al. (2022) argue that the focus should be on using digital technology related to joint research, so that it is easy to make a firm decision about the institutions and enhance the overall education quality. For twenty-first century learners, the research process improvement can positively affect their learning capabilities. The NEASC research process should also consider open-mindedness when rating

the institutions and meeting the needs of twenty-first century students. However, open-mindedness may also result in conflicts that should be addressed by the management in critical situations.

4.2.5.2 Active Participation

Another subtheme relates to active participation of the teams in the research process. Participant W stated, *'I would like to add that the process with which the Health Initiative should be continued and according to the need, according to the to the time and the challenges are coming all the way they should be defined.'*

When participating, the teams must predict the upcoming challenges and should continue as per the need of the environment and time. Participant W noted that the process should be clearly defined. Garira (2020) mentions that many education stakeholders emphasise student academic accomplishment as being the most significant; this outcome is perhaps most visible at the school level, and notably in the classroom, because most students' time is spent actively in the classroom. Nevertheless, cognitive performance is not the sole desirable outcome of education; it must also entail academic and professional preparedness. The COVID-19 crisis forced institutions to change their approach and strategies based on the changing environment. Hence, active participation and flexibility should be the key aspect that can eventually assist in improving the overall research process (Rice et al., 2020). The team members' active participation can further make changes in the research process through strong decisions, active meeting sessions, and discussion sessions. Participant Y stated, *'Don't get intimidated, don't feel pressurised, it's, it's, it's a process, it's a learning, it's, it's something that only, you know, allows you to grow as a teacher and as part of the learning community. So, I think you should just really knuckle down and sort of dig deep and to everything that it has to offer.'*

The responses revealed that teams must not feel intimidated or pressured. Major pressure and frustration can negatively affect research teams. Goshu and Woldeamanuel (2019) support Participant Y's argument that actively participating is a major process of improving quality of education, as it enables teachers to grow and enhance their overall learning. The teams must have a strong focus on providing a complete and proper analysis and eliminate barriers which damage their credibility.

The critical analysis revealed that teams involved in the research should have a rigorous process, checks and balances, and sufficient representatives; they should not feel pressured to

present them. As pressure may increase during the research, it is important to manage. It is a learning process that eventually meets the students' needs. Hence, the research process should also be strong enough to critically review the processes and ensure that the school is performing at the optimum level.

The role of research processes in ensuring quality must be maintained in international schools despite the shift to digital platforms due to the COVID-19 pandemic (Mishra et al., 2020). Hence, the participation should also be done considering the shift to digital channels and keeping in place all the required elements and documentation processes. Active participation enables research programmes to perform efficiently and bring major improvements to weak areas. Mishra et al. (2020) further supported the primary findings that stakeholders have a core role in enhancing the overall research programme, specifically in the case of crises such as COVID-19 pandemic. Participation requires that the teams present the digital opportunities able to be utilised if the schools are forced to shift to online channels. Hence, in this way, it is possible to ensure active participation of the teams and improve the overall education quality and meet twenty-first century students' needs.

The literature and primary findings reveal that the research process is a learning process for the teams and school. The school can learn from their mistakes if they are pointed out. Active participation assists in understanding the process and improving the overall school function. The students attain a high-quality education if they take an active part. Additionally, the school must take part in representing the learning by backing up through online means, such as Managebac. (A school-based management cloud system) if a crisis such as COVID-19 arises. The school should also be prepared to gain the research if there is a need to present their report through online means.

4.2.5.3 Increase Representation from Schools

The third subtheme relates to the need to increase school representation. This subtheme was developed based on the critical analysis of the responses. Participants indicated the importance of having more school representatives. Hence, the thematic analysis revealed that it is important to determine how increased representation from schools could profoundly impact the research process. Participant Z stated, *'We should have more representatives. It shouldn't be teams working on the spaces, then it would be more meaningful. Instead of one representative from each'*. This response identifies the need to have more representatives to eventually improve

the research programme's credibility and enable the successful review of the institution. Chandra et al. (2019) argue that the presence of more representatives could positively affect the overall education quality and research quality. However, the researcher also revealed that excessive representatives may lead to poor outcomes if there is miscommunication and lack of collaboration among the stakeholders. Participant Z further stated, *'Last, since we, logistically I would say that it was a great idea to pick up representatives from all school buildings, different school buildings, so that each area each building could be covered'*.

The participants held the view that it was ideal to have more representatives to strengthen the research and enable the school to perform at the optimum level. Kafaji (2020) supports the results, as the researcher argued that more representatives could assist in improving the research. In case of the National Institute for Occupational Safety and Health (NIOSH) process, representation can play a major role. The critical analysis revealed that increased representation may help in effectively completing the NIOSH process and the research. Cases in which schools have a low number of representatives have affected the school's reputation.

The increased representation from schools helped enhance the research process. Hence, the primary findings and literature focused on critically exploring increasing the number of representatives to improve research programmes. Cura and Ahmed Alani (2018) argue that research focuses on ensuring and conveying that schools tend to meet the agreed-upon target, standard, and benchmark. In such a case, representatives should be sufficient in number to represent the institution effectively without discrepancies. The increased representatives further make the research process rigorous and authentic. The institutions must focus on embracing cooperation and collaboration across the institutions and the spatial boundaries by depending on the technology for leading to a conducive environment in which the activities may be conducted.

Kumar et al. (2020) argues that an increase in school representatives can help in conducting the process quickly. The primary findings indicated the same, as the participants explained that it was important to recruit more representatives to ensure a rigorous and fast process. With an increased number of representatives, the research may be conducted without many hurdles or barriers. Representatives may reduce conflicts; however, there are chances of conflicts in some cases. The focus should be on avoiding the conflicts and improving the overall research process through increased representation from schools. It also requires active collaboration and support from school management.

4.3 Results of Self-Review

4.3.1 Learning Structure Consideration and Implementation

Today, disciplines under the current educational systems are expected to attain increased autonomy, as well as to show initiative towards the learning procedures, understand the contents, and inspect learning materials. Effective growth in knowledge is possible if disciplines are embedded with skills which guide, initiate, and control the search for information and its subsequent processing and storage (Deliu, 2020). Learning is regarded as a cooperative procedure which involves social interaction. Moreover, the implication of learning is embedded to reinforce the students in an effective manner. Nonetheless, it is important that the systems are aligned with the standards of the educational institution (Mukhalalati & Taylor, 2019). The performance in education entities is gauged on the foundation of the learning outcomes, and information is more critical in understanding if the school systems address high performance and acquire feedback for enhancement of discipline outcomes. In terms of effectiveness of the assessment and evaluation for the learning, these tend to rely on the formation and precedent of the activities which are being carried out. In consideration of these findings, a participant stated, *'The mission, vision, learning statement, learning principle, and school moto are all in sync'*. In addition, another participants noted that *'every year, the schoolwork with a theme in alignment with the school's philosophy'*.

Furthermore, the development of strategic approach is much needed to assess and evaluate a guiding framework for the educational opportunity to reflect on the articulations based on the different evaluation aspects (Maxwell et al., 2018). The educational framework which has been designed must consider the mission, vision, and motto of the school to have a sense of direction. Furthermore, the development of the policies and norms is crucial, as well, to ensure that the education system is working in an effective manner. However, policy development must ensure that elements (e.g., teacher appraisal, school assessment, and standardised national-level student tests) are embedded in the framework. One participant stated, *'Senior Leadership Team, Heads of Departments, Coordinators, Curriculum Grade Coordinators, General Manager, Admin, and HR [human resources] are all involved in designing of learning spaces and continually review to monitor and map effects.'*

Moreover, it is important that schools ensure that teachers place emphasis on making students learn from well-formulated structures and addressing them with a high level of

autonomy (Al Lily et al., 2020). In addition, teacher cooperation is important for the formulated structure to be productive for the school, and ongoing monitoring is needed to enhance the school's perspectives in the long term. In consideration of the above findings, a participant stated, *'School has its own electronic platform [Wizemen] which allows flipped learning, multimedia resources to be uploaded, students' work to be stored safely, and summative and formative feedback'*.

4.3.1.1 Budgeting

It is important that the education staff are familiar with the key budget and policies which must be emphasised within relevant policies, tactics, and planning documents. For individual Departments, this then manifests itself in the implication of an action plan which explains how the recommendations are transformed into actions (Mou et al., 2019). Given that, one participant noted, *'Every department is allocated and maintains an agreed budget. We follow strict S.O.P protocols and channels to get the right approvals.'*

It is vital that the education entity take responsibility for gathering the budgeting data as well as other necessary documentation, reinforcement of the data analysis, and formulation of the sections related to the instructions, (Kenno et al., 2021). Furthermore, the budget will have the forecasted funding expense details. Each department of the school is embedded with their own allocated budget. In consideration of the above findings, one of the participants noted, *'It is clearly specified in the annual budget that includes art workshops, demonstrations and artists in residence to add new values in art'*.

4.3.1.2 Physical Space

Teachers are not only required to have interaction in classrooms where they instruct the students in isolation from other classes, but also to conduct professional activities at the school level (e.g., building professional learning societies, co-operating in working teams, evaluating or changing working situations, and participating in school development; Gaebel et al., 2018).

A participant noted, *'We consider furniture layouts to impact learning as well as abiding strictly to safe Health & Safety practices'*. Such teachers' attitudes are likely to change the learning environment and the school culture, indirectly or directly impacting the students learning. However, instructions addressed by the teachers are not determined exclusively by the teacher's beliefs, background, and attitudes; there is an input of teachers to be responsive to the

needs of the participants (Kenno et al., 2021). Moreover, professional competence is regarded as a crucial domain in the classroom as well as in school practices. Furthermore, student-oriented practices are conducted in which students work in small groups to generate a joint solution for an issue or task. Enhanced activities can be conducted, where students work on ventures which need at least one week to complete. Regarding the above insights, one participant stated, *'We have electronic Exit cards, solar panels, and upkeep/maintenance of cafeteria in alignment with sustainability goals.'*

4.3.1.3 Implementation

The implementation of professional development is one way in which educational organisations can support teachers and ensure their productivity (Costes-Onishi & Caleon, 2020). Moreover, different teaching styles can be implemented to improve the classroom learning activities and increase the success ratio of student learning. Teacher evaluation can be implemented in schools to assess teachers' performance.

Rather than concentrating on overall class structures, many educators choose to provide students with a variety of options and fluidity within their coursework so that they may receive individual attention (Van Es, 2011). It is essential that teachers are comfortable acting in this capacity if they must successfully implement a student-centred learning environment. To be regarded as a student-centred learning environment, a location must be accessible, lively, trustworthy, and respectful, and it must promote both the children's subjective and objective learning methods (Struyven et al., 2010). Students may collaborate to find solutions to real-world problems and then draw their own conclusions as a result. When a child's complete being is engaged in the process of experiential learning (i.e., their thoughts, feelings, social skills, and gut instincts), the result is an independent and logical person.

Any organisation or educational establishment which intends to adopt learning must first reorganise the responsibilities of its teachers. Faculty members often must make an instant transition into the role of learning content developers. However, faculty personnel are frequently required to take on roles in addition to their traditional position as instructors (e.g., as subject specialists, instructional designers, visual artists, media producers, and programmers). In addition, they are expected to teach (Palloff & Pratt, 2013) and teachers have no reason to fight any learning implementation. In addition, teachers want to be paid for the work assigned. One participant stated, *'In my view, these bold assertions are not intended to indicate that teachers*

cannot be converted into creators of learning content, but rather that they must be well equipped with the necessary skills and given the time to do so’.

For these pedagogical problems, the implementation of learning will be impeded if the fundamental pedagogical principles are not considered (Song, 2015). It is common for faculty members to oppose the change, which may result in students avoiding online classes, poor student performance, and low-quality course content, among other negative outcomes. As a result, it is of the utmost importance to stress that any attempt to include learning that must consider the underlying pedagogical principles at this time. Everyone was required to go through these impacts once again while also having a conversation on how educational ideas may be included in a learning management system (LMS; Conde et al., 2014).

In addition, prior to beginning the learning process, a critical step that must be performed is the selection of a suitable learning Management System (LMS). Comparisons and evaluations of LMS are typically conducted based on how many features a system provides. An LMS is more likely to be selected if it has a greater number of features, and LMS providers’ decision to include every technologically feasible function in an LMS is reinforced by LMS customers’ uninformed decision making (Accreditation, 2020). Individuals, particularly those working in the LMS, must exert pressure on educational institutions to ensure that their learning systems are fully integrated with pedagogy. One participant stated, *‘Although this transition has started, its effects are still being seen in their infancy’*.

The above statement provides a concise summary of transitions of multiple forms of educational integration in LMS which are essential for attaining success. All an instructor has to do is to evaluate students using things like projects, case studies, assignments, and other learning artefacts is to post a message on the bulletin board and make it public (Verbert et al., 2014). After completing their assignments, students may email their work to the instructor or post it online as for the instructor to grade. Educators must possess at least basic computer skills to be able to do this. In addition, if this is the underlying cause that inspired the developers to include the quiz builder templates, then their good intentions should be appreciated, but the tools that they selected to execute them could be improved (Guzdial et al., 2019).

Teachers were required to implement a design framework which would independently support either the face-to-face (F2F) or online setting and promote their harmonic coexistence. As a result, the educator decided to provide a learning environment which was authentic and

learner-centred by using the First Principles of Instruction (Al-Zu'be, 2013). As a result of this core pedagogical focus, students must maintain a high level of engagement throughout the semester. One participant explained, *'The First Principles of Instruction, which I feel match the demands of the course material in this context, will be used as this is the foundation of my pedagogical style. To make my activities more inspiring for the kids and relevant for them, I can employ real-world challenges.'*

As a result, pedagogical ideas which inform the new or improved pedagogy may be considered while designing and developing the new learning environment.

4.3.2 Learning Spaces and Time Structures to Improve Student Achievement and Implementation

4.3.2.1 Learning Space Design

The degree of disorganization in a space can lead to wider issues and large maps are placed in front of some of the staff and student courses that are conducted in rooms that were once used as history classrooms (Grant, 2014). The presence of these maps provided the impression that the room was crowded, even though they occupied little space, and that the technology in the new rooms enabled for teachers to access maps directly from online sources. In addition, several students were upset over the many advertisements posted on the back walls of their respective classrooms. As students also raised the problems of temperature, acoustics, and lighting; the heat in numerous of the participants' sessions led them to feel physically ill, and they noted that this was one of the issues (Granito & Santana, 2016). This may be the consequence of uncomfortable learning settings created by ageing campus buildings with inadequate temperature management, and the problem is eliminated by the current temperature control in the university's new buildings. Participant W stated, *'The physical spaces have been strategically placed. For example, library, canteen, indoor sports area, security systems, et cetera for constructive use of space and time, and so that 'movement' is ensured to be free and flowing.'*

4.3.2.2 Learning Time Design

Different students have varying preferences for the amount of light as per the time that should be present in the classroom, and a number of students have reported that being in a dark setting naturally makes them sleepy, which influences their ability to study (Buxton, 2010).

Participant X shared his view on the importance of learning time design by proclaiming, *‘In the Middle Year Programme and the Diploma Programme, the school adopts 75-minute lesson plans, with well-designed mini-break intervals. This accommodates learning experiences where students can work collaboratively or independently, engage within station rotations, where teachers act as a facilitator and can differentiate and monitor accordingly.’*

Similarly, Participant V stated, *‘In PYP, each lesson is for 35 minutes. There are two flexi lessons per week which are used to reteach, relearn, and extend students understanding through personal projects. The flexible lessons in PYP are used for personal projects which supports the inquiry-based learning.’*

4.3.2.3 Enhancing Students’ Skills and Wellbeing

The participants, whether students or teachers, agreed that there is a benefit to using technology in the classroom; nevertheless, their individual experiences were slightly varied. In addition, the students felt that certain topics would benefit from the incorporation of technology into the classroom more than others and suggested that the faculty try to find ways to implement this idea into the curriculum (Eden et al., 2013). A student also stated, *‘Instructors should have complete training in utilising the technology’*. Another noted that *‘professors not using the technology in a meaningful way or not knowing how to utilise it does not create a favourable image for students.’* This was in response to a question about whether students find it unfavourable when teachers fail to effectively use technology. Participant V shared his view on the importance of enhancing student skills and well-being: *‘School has support programmes - Additional learning support, English support departments work closely with staff members and students to maximise learning and provide social/emotional support as required’*.

Correspondingly, participant W proclaimed, *‘In PYP, students are encouraged to inquire, ask lots of questions within a transdisciplinary framework, and scaffolded. Classrooms are brimming with students’ inquiries across a whole range of topics.’*

4.3.2.4 Implementation

The overall pedagogical objective of the new learning spaces is to improve the learning of the younger students in manifold ways. These contemporary lecture halls reawaken the students and interest in learning, broadening their horizons, and developing their creative potential (Honey & Kanter, 2013). By incorporating these new areas into virtual classrooms, they not only acquire numerous new skills, but are also able to create an active learning environment in which children feel safe and motivated to explore their surroundings while studying and interacting. By participating in these activities, children acquire knowledge while having fun, thus gaining a benefit on two fronts. When students feel comfortable, they display a greater willingness to learn about new topics, which also encourages them to conduct independent research.

Design and structure are critical components of efficient learning environments. Design is necessary because it should put the comfort of the learner first by creating a space where they may explore and experiment with confidence. The structure is essential to supporting the design (Drexler, 2010). In addition, the furniture utilised in these spaces must be as ergonomically sound as possible to assist in achieving the goal. Therefore, the design should be focused on diverse learning areas to produce results. Owing to the adaptations made to the rooms, children can investigate a wide variety of topic areas while simultaneously polishing their learning skills. One teacher stated, *'Dance, visual arts, music, and design. Robotics has purpose-built rooms in both PYP and MYP/DP. We also have maker space within PYP and in MYP/DP, a glass STEM learning zone... Visual arts use video installation, digital art, animation, and various software to create artwork.'*

Participant V expressed, *'We have drones and continuously embrace new technologies that mirror continual career choices and shifting times, to accommodate student choice and voice'*.

4.3.3 Impacts of Proposals by the PSG Learning Community and Implementation

4.3.3.1 Improving the Learning Process

Bloom's taxonomy of educational objectives categorises learning as a change in behaviour brought about by the learning process involved in the acquisition and comprehension of information and divides educational goals into three categories (Hoque, 2016): cognitive,

emotional, and psychomotor. These areas must be developed to provide students the opportunity to connect with one another and to obtain experiences that will help them to develop their talents. It is imperative that educators be aware that it is the responsibility of students to take an active role in their own education. Some instructors are of the opinion that if they transmit the material to the students, they may do it in an efficient and timely manner (Healy, 2011). Meanwhile, students should instead complete their assignments by independently finding connections and segmenting the data into areas which are comprehensible to them. Participant Z noted, *'Students can make choices, work individually, collaboratively, and work directly with the teacher, a whole class, in groups and on occasion 1:1 engagement'*.

4.3.3.2 Promoting Departmental Outcomes

The learning outcomes from the education department serve as a roadmap for programming course and field experience design, as well as for evaluations and student reflection on their development as professional educators (Dobrowolska et al., 2016). The knowledge, skills, and dispositions domains are all included in the learning outcomes. As there are five key outcomes for each domain, the instructor is familiar with and knowledgeable about both conventional and novel evaluation methods (e.g., portfolio, performance, and technology applications). However, the teacher must be well-versed in assessment and research techniques to support, monitor, and measure learning outcomes for all students (Bahous & Nabhani, 2015). This directly helps pupils 'know what they know' more easily and provides them with a vocabulary to share what they know with others. Such awareness is seen as essential to long-lasting learning. Participant Z claimed, *'Professional Development, for instance, visual arts, we are also working towards making one day in two weeks as a department collaborator for a department in the timetable'*.

4.3.3.3 Implementation

When professional learning receives ongoing implementation support, it results in improvements in educator practice and student teaching (Croft et al., 2010). Since it seldom offers chances for prolonged learning to assist implementation, episodic, periodic, or occasional professional learning has a minimal impact on educator practice and student learning. Formal professional learning is beneficial to enhance knowledge and abilities, exchange cutting-edge concepts, and connect learners with one another (Dede et al., 2016). Examples include online, in-

person, and hybrid workshops, as well as conferences and courses. However, educators require three to five years of continuous implementation assistance which includes chances to develop their learning and solve practice-related issues to close the knowing-doing gap and incorporate new concepts into practice (Pantić & Florian, 2015). Participant Z stated that *'In DP, teachers provide a calm, and pragmatic in choice what learning aids to display, that can advantage the student'*.

As teachers create and employ shared, unambiguous expectations which define practice to increase the validity and dependability of the feedback process, it becomes more focused, objective, relevant, legitimate, and useful. The finest evidence for demonstrating anticipated behaviours and their outcomes is chosen by educators after careful consideration (Yu et al., 2011). While infrequent input is occasionally seen as evaluative, frequent feedback encourages continual progress.

4.3.4 Influence of Desired Impacts, Learning Definitions, Purposes and Principles Decisions on Design and Use of Learning Spaces and Time

The creation of unique physical learning environments is meant to have systemic impacts on the operational culture of the school. These effects go beyond modifying the school's architectural design to include a wider range of aspects of their day-to-day operations. According to Gislason (2018), the learning environment of a school consists of four components: physical building design, organisation of teaching staff, educational culture, and student dynamics. Flexible learning spaces include not only alterations to the school's furniture and physical structure, but also more substantial curricular and cultural shifts, as well as shifts in the values that guide the school (Gislason, 2018). Participant V justified this by stating, *'Talking about them in detail has been great learning, especially looking at learning spaces from a different perspective'*.

Numerous countries are analysing their current learning and teaching practices and concluding that they are insufficient for preparing students to participate in the evolving technology-driven society with its related interactive mechanisms for resolving non-routine issues and producing new knowledge. This conclusion is being reached as a result of the countries' realisation that their prevailing learning and teaching practices are not appropriate. Learning specialists have conducted research and developed a variety of platforms to improve educational standards, as well as construct collaborative learning and instruction methods

(Florian, 2010). Problem solving, the consolidation of information that is either insufficient or fragmented and the dissemination of new ideas to the whole class may be facilitated when students communicate and collaborate (Hollan, 2008). Because the traditional, individualised, acquisition-centred, and externally supervised curriculum does not effectively foster the growth of student agency, there is a pressing need to change the overall school-based learning environment (Rajala et al., 2013). Educational institutions should be linked to increased student agency to enable students to exercise forms of agency in addition to the traditional sovereign form, thereby increasing the number of actions that students can take (Charteris & Smardon, 2018).

According to Peters and Biesta (2009), considering changes in curriculum, school spaces, and school culture, the purpose of education and the role of teaching and learning, which should be at the centre of educational discussions, must be re-examined. This should be done to ensure that these topics remain at the forefront of educational conversations. This subject is closely connected to the debate around the skills necessary for twenty-first century learning, which emphasises the need for cooperation and the development of collaborative education as key elements of both present and future capacities.

Participant Z also agreed with this idea: *'We are generally in design mode, in the sense of clear interdependent relationships between effective, future-oriented learning and the design of learning space and time'*.

Students' agency must be considered from a variety of angles (i.e., provided, or self-directed, socially produced or individual, centralised or pragmatic, affected by content environment or not) in an attempt to effectively solve educational problems. These angles may be given, self-directed, interpersonally created, individual, or centralised (Charteris & Smardon, 2018). To develop such instructional strategies, one must concentrate on educators and work to improve their ability to influence students (Toom et al., 2015).

Students and teachers' evolving activities lead to collaborative learning through the transformation of traditional roles and rules, which are partially determined by physical arrangements and the temporal and spatial organisation of activity (Charteris & Smardon, 2018), in addition to educational culture, organisation, and student dynamics. Collaborative learning is achieved through the transformation of traditional roles and rules (Gislason, 2018). The study participants agreed with this idea since they believed in the importance of traditional roles,

teaching styles, learning definitions, and teaching culture for the enhanced performance of students. Participant Y stated, *'So we did, you know, go over a lot of the pointers, in terms of, you know, not just environment and infrastructure, but also teaching styles and cultivating a good culture for learning'*.

Many students struggle when attempting to incorporate their expertise and extracurricular activities outside of the classroom with their academic work (Ito et al., 2013). Students frequently have the opinion that this bears no tradition to their formal academics. (Grannas & Frelin, 2017). Larger reference groups have been shown to lessen the impact of social comparisons made among students within the same class (Prain et al., 2014). Educational institutions should work to improve students' abilities to self-regulate and self-direct their learning (Charteris & Smardon, 2018).

Time and teaching methods must be rethought considering new educational contexts (Senge et al., 2012). Gislason (2018) emphasises the importance of regularly updating school curricula to affect schools' pedagogical culture. He claimed that real educational revolutions take years, not months, since instructors must change both the procedures of the school and their own pedagogical philosophy. The school's pedagogy should be consistent with its environment to avoid missing potential new affordances (Gislason, 2018). For instance, for considerable progress to be made, instructors must internalise the student-centred approach which educational institutions encourage (Alterator, 2018).

Pedagogical strategies used in learning settings and over time enable and motivate teachers to alter their practices towards more interactive teaching and collaborative learning. These changes occur in classrooms (Cole et al., 2018). There are varying degrees of agentic flexibility available to both teachers and students regarding guiding the interpretative work they conduct. It is not possible to force teachers in Finnish schools to alter their practices, nor is it reasonable to ask them to modify extracurricular pursuits over which they have no control (Hargreaves & Shirley, 2009). Additionally, their social practises are institutional routines which cannot be changed without them being introduced to new practises. Continuous professional development is hence required (Hopwood, 2016). When social behaviours change over time or are deliberately altered via persistent effort, spaces provide the possibility of affordances which become apparent in those spaces (Mehan & Soflaei, 2017). The significant societal change appears to need prolonged learning, which takes time; it entails confusing existing ways of

learning and teaching, as well as developing, exploring, and integrating changes in a cooperative manner.

Due to the systemic influence of changes in the physical, social, and virtual learning environments, it may be difficult to identify the elements which cause activities to shift, and which influence learning outcomes (Sigurðardóttir & Hjartarson, 2016). Consequently, alterations in the physical surroundings in which instruction takes place are likely to have unanticipated effects on the instructional methods used by teachers. It may be difficult to tell whether changes are the consequence of separate physical design or a simultaneous shift in the pedagogical approaches used by instructors. Regarding implementing new pedagogical ideas and strategies within student learning, Participant W stated, *'We have got a new perspective during this process, which we applied in the classroom as well. And it is very, very fruitful in the learning process'*.

This is because of the interaction that exists between spaces and pedagogies. According to Gislason (2018), the term 'learning environment' refers to more than just the physical location of the classroom; it also encompasses the culture, values, and organisational procedures of the school, in addition to the social climate among the pupils. Successful school development is of a systemic character, with an emphasis on the creation of curricula, the redesign of school environments, and the autonomy of teachers. This is due to the linked nature of the components.

4.3.5 Alignment of Desired Learning Impacts with Calendars and Schedules

Aligning the desired course refers to all critical components of the course working together to ensure students achieve the predetermined learning outcomes and that it is aligned with critical course components, such as learning activities, teaching materials, and other learning tools. Yu et al. (2011) state that teaching materials, learning activities, and learning instruments assist the learning objectives. By contrast, the learning objectives should put a greater focus on what the students would be able to do after finishing the course than on what the instructor will teach. Essential factors in view of the interview results to ensure the desired learning impacts along with the paradigms of calendars and schedules are discussed below.

4.3.5.1 Holistic Learning

The development of a child's physical, emotional, moral, psychological, and spiritual selves is the primary focus of a holistic education, which strives to teach the whole child; that is,

to enable every child to participate in activities tailored to their unique skill set and feelings. In a safe and encouraging educational setting, students are provided the opportunity to hone their skills at their own pace. To assure the students' success, teachers must be able to aid students with a wide range of educational backgrounds and skill levels. Although holistic education is predicated on a single guiding principle, its implementation may include the use of a wide range of pedagogical strategies and techniques by teachers to provide a holistic classroom setting. In such a condition, the school calendar is often used to promote the concept of holistic learning, as the calendar tends to provide a proper guideline along with scheduling to help children comprehend which coursework must be studied first. Participant X stated, *'The school calendar is planned to provide a holistic learning experience to the learners. The school events are spaced out and marked on the calendar. The inset plan is thoughtfully designed to suit the differentiated needs of the programmes across the school. For example, in Diploma Programme, dates are planned to accommodate SAT exams, the application process, camps, university fairs, annual events of the school like Founders/PHS, Athletics meet, DP exams, et cetera.'*

Similarly, another respondent who took part in this entire interview session revealed, *'In MYP and DP, block periods of 75 min on timetable allow scope for inquiry. It facilitates the culture of the school from teaching-oriented to learning-oriented curriculum transaction'*. Based on these views, it is established that holistic education via the use of a calendar and schedule acts as a comprehensive system for teaching, as it offers the professors in the classroom setting to address the academic, emotional, ethical, and social requirements of students in the integrated learning structure. Moreover, it has also been found that students, via a holistic learning approach, are provided with help for their whole selves, which might take the form of both academic and non-academic assistance programmes. The term 'wraparound supports' describes these services. Positive educational environments are given the utmost importance. In this learning approach, students learn more effectively from the community which surrounds them, as well as how to reflect on their acts and how those actions influence the global and local community. Nonetheless, students are required to apply their analytical reasoning abilities to the bulk of the work they do in the classroom, which is designed to simulate real-world scenarios.

4.3.5.2 Collaboration

Collaboration is one of the subthemes derived for the implication related to the alignment of desired learning impacts and the calendars and schedules. According to Axmedov et al.

(2021), the aspect of collaboration is most vital to educational settings and to availing efficiency as well as effectiveness. In addition, the same author noted that collaborative learning involves the joint intellectual effort via students or teachers. Moreover, the collaboration enables students to engage in extensive participation and collaborate efficiently. However, collaboration in education can be difficult (Kassymova et al., 2019). According to Hwang et al. (2020), students are inclined to feel a sense of engagement in school settings, and collaboration may be inclined to represent lecture- or teacher-centred precedent in the classrooms. Nonetheless, collaborative learning activities immerse disciplines in challenging the tasks and questions in the classrooms. Collaboration time both vertically and horizontally amongst teachers is strategically put on a timetable.

As per the study of Axmedov et al. (2021), collaborative learning is inclined to cover a wide area of the territory of the approaches with variability in the amount of class time built around group work. In addition, the collaborative activities range between the classroom discussions which are interspersed with short lectures through the complete class periods to examine the research teams, which may last a year. However, the aims, as well as the procedures related to collaborative learning, are likely to vary and be changed. Furthermore, collaborative learning and the development of interpersonal skills are regarded as vital aspects, and they involve students to being inclined towards self-learning. However, most cooperative learning tasks are placed on students with the inclination for social and academic skills (Kyllönen, 2019). Moreover, the implementation of the collaboration is inclined to involve the roles assigned within every small cluster, which include summariser, recorder, and participation encourager. Furthermore, there has recently been an increasing focus on collaboration along with the competency to solve the issues by efficiently addressing an engagement between two or more people. Participant X noted, *'In MYP and DP spaces, the subject room is in physical proximity to promote collaboration. In PYP, the timetables are strategically designed to support both vertical and horizontal collaboration'*.

4.3.5.3 Breaks

The practice of providing students with a break after two to three hours of non-stop instruction is a popular type of break in educational settings. The interviews findings indicate that allowing students to take breaks for specific reasons is a method of assisting them in unwinding from their studies, thereby reinvigorating them, which ultimately leads to an increase

in their overall capacity and energy to concentrate, and in the level of productivity in the classroom. Participant X revealed, *'Break after every class is to cater to no time wastage in the name of transition, and to have a more pragmatic expectation from students and staff beginning and ending of class'*.

Taking a break is healthy for children, as it allows them to polish their essential social skills through rehearsal and role-playing during playtime and recess. They refine their communication skills through activities such as negotiating, cooperating, and sharing. For instance, a participant who participated in the interview session indicated that *'P.E early morning and after school programmes [approximately 1.5 hrs.] have been specifically designed to enhance the positive skills, such as physical, psychological, tactics, et cetera'*.

Based on the above analysis, it is evident that it is necessary to take breaks at regular intervals to avoid studying tiredness and retain students' attention. These breaks allow children in the classroom setting to effectively refresh their minds and boost their creative powers, in addition to supporting them in keeping a high level of attention in both academic and sports-related activities.

4.3.5.4 Indicators of Benefits of Design for Space and Time for Learners' Achievements with parent feedback

Parent feedback is a major indicator of the benefits of design for the space and time for the learners' achievements. One of the statements was *'Parent feedback on Parent Teacher School Council and school events (inquiry fair and PYP exhibition), appreciation emails, reflections along with reflections of teachers and students is a testimony of achieving the desired impacts.'*

The evaluation from the self-review revealed that parents often give positive feedback about the school. The parents have sent appreciation emails and positive feedback about school events, which indicates a positive sign for the school's success. The critical analysis revealed that parent feedback has a major role in indicating whether the school is performing at the optimum level or not (Lam & Chan, 2017).

The review further revealed that parent feedback is important in terms of assessing the overall education quality. The research also considers how parents assess the school management, level of education, use of technology, and classroom environment. Twenty-first-century learners rely mostly on teachers to learn about the basics. However, the changing

environment indicates that students focus on personal research and rely on technological elements to improve their understanding (Meier & Lemmer, 2015). The school should further encourage students to access books and resources to improve their understanding of the topic and subject.

The analysis further revealed that feedback should be conducted monthly. Additionally, teachers should participate in the feedback process and encourage the school leadership to bring relevant changes in the learning environment to improve the overall education quality of the school. Moreover, the parents should be encouraged to attend school events so that they understand what students are learning from the extra-curricular activities conducted by the school (Meier & Lemmer, 2015).

4.3.5.5 Student Feedback

Students who receive effective instruction achieve more and are better equipped for the future. However, to give excellent instruction, schools must get input from both students and parents on their teachers and learning environments (Darling-Hammond, 2010). Districts, schools, and educators may gain useful feedback and insights from using a student feedback application, which they can then apply to raise the calibre of their instruction. Schools had to form partnerships with parents and establish shared accountability for student achievement in the educational system to adhere to the system of integrated support (Mapp & Kuttner, 2013). This increases parental involvement, encourages parents to support schools, and has a direct beneficial influence on the performance of the educational system.

Parents and teachers both have a significant impact on pupils' academic progress, and for students to thrive in school, the learning environment must be provided, supportive, motivating, and filled with encouragement. (Bal-Taştan et al., 2018). Due to the growing pressures on families, parental involvement in children's education goes beyond the walls of the classroom. To balance work, family time, sports, school, and other commitments, many families handle demanding and unexpected schedules and circumstances, leaving them with little time to help their children in any particular area. There are still concerns about parental engagement and what constitutes successful parental involvement in students' education, even though it appears to be a focus of several domestic and international studies (Emerson et al., 2012). In addition, a participant stated, '*Parent feedback on PTSC & school events (inquiry fair and PYP exhibition)*,

appreciation emails, reflections along with reflections of teachers and students is a testimony of achieving the desired impacts’.

Additionally, aids students in becoming more ready for success in a world which is changing quickly and increasingly connected across all subject areas and learning stages. As a result, various learning environments are developing in educational institutions as teachers work to modify their methods and improve student learning (Jennings et al., 2013). These learning environments stand in contrast to typical classrooms, which are distinguished by rows of desks and chairs arranged before an instructor. Hence, the flexibility in nature of the new learning rooms includes a choice of furniture alternatives able to be set up in different ways to allow a variety of teaching and learning experiences (Kariippanon et al., 2018).

Early schools building designs, provided either fewer or no windows natural light at all, as an intention to make the classroom less distracting as it was thought to be helpful for teacher presentations and thermal insulation. By contrast, several studies have contended that a lack of access to the outdoors is harmful to learning and well-being (McCurdy et al., 2010). The research found that arithmetic test progress was 20% faster for pupils in classes with sunshine than in those with less light. Furthermore, benefits happen solely from having a skylight, and accordingly, the ‘distraction’ of staring out the window or the presence of natural light in a classroom is a restorative experience and helpful for learning (Li & Sullivan, 2016). Participant V noted, *‘Achievements of students in sports, MUN [Model United Nations], WSC, Ek Pehchaan, et cetera, are all evidence of learner agency and impactful learning and better learning spaces.’*

4.3.5.6 Implementation

Building a learning environment with student assistance encourages collaboration and project-based learning because children require space, comfort, and safety to study to their full potential; instructors should use this opportunity to engage students in an examination of the various ways a classroom can be re-organised to create an excellent learning environment. It is essential for enhancing a student’s learning capacity, a healthy learning environment. Thus, it must be secure, warm, comfortable, and attractive in design (Kangas, 2010). A participant stated, *‘Students demonstrate various attributes of a learner profile by organising events like Teachers’ Day. In MYP, the newsletters are student-driven’.*

Open-school architecture, which is used in contemporary architectural designs as opposed to traditional school architecture, is likely to help teachers collaborate more

professionally, particularly in primary schools where co-teaching is more prevalent (Resvani et al., 2019). Modifiable venues tend to allow teachers to use cutting-edge instructional techniques since they are reliant on the school grounds for their activities connected to coordinating learning processes. Activities such as co-planning, which creates an opportunity for co-teaching, might further their professional growth (Alkhateeb & Romanowski, 2021). Hence, physical barriers between courses, such as walls and doors, restrict future learning possibilities. Additionally, renovated physical spaces can affect how people engage with one another in the school as a whole and promote natural interactions between students and instructors. Such learning spaces have the potential to develop into information ecosystems that incorporate people, practices, technology, and values when they are appropriated via neighbourhood community engagement (Alvial-Palavicino et al., 2011). This encourages possibilities for learning and teaching. Despite these advancements, however, only a small number of research have looked at how changing school architecture may affect users' attitudes and behaviour. As a participant explained, '*The effects of the new 75 min Learning Timetable: - Evidence on the impact of TT change should be available as we progress into the year, through reflections of teachers and students and their performance on various measurable parameters.*'

However, there are various levels of flexibility for instructors and students to interpretively steer their activities. Given their high level of professional autonomy, teachers in Finnish schools cannot be required to modify their methods or be asked to participate in activities that they have no control over. Additionally, according to Ustuk and Çomoglu (2019), social practices are institutional norms that cannot be altered without introducing fresh practices to support the attainment of professional goals, which calls for ongoing professional development.

4.3.6 Strategies for Sustainable Future Designs

Regarding this theme, the three subthemes are effective planning, innovativeness, and display within DP. These themes were developed to deliver strategies for sustainable future design for the phenomena of the research.

4.3.6.1 Effective Planning

The subtheme of effective planning is a factor which impacts the strategies for sustainable future designs. Planning, regarding the educational institution, pertains to a vital part

of the organisation's success. Through rational planning, schools can produce appropriate tactics to accomplish aims or goals (Ogunode et al., 2021). In addition, the essence of planning as being a strategic management procedure includes decision making by selecting and sorting alternative activities to be addressed so they are efficient and effective. The schools or educational institutes must formulate and develop new strategies considering the curriculum and other aspects related to teaching practices. Strategic planning is most vital to the educational entities to involve certain aspects, such as educational entities establishing aims and objectives for the short and long term (Chew & Sullivan, 2000). Additionally, strategic planning enables schools to have a sense of direction as well as how the work will be carried out by each of the departments. However, the teacher's attitudes and practices are vital to understanding and enhancing the education procedures, as they are closely linked to the tutor's strategies for coping with any kind of challenges in their daily lives as well as towards their general well-being.

Furthermore, a lesson planned is regarded as being the instructor's road map for what the students need to learn and how it will be conducted in an effective manner in class. The lesson plan must be based on the learning objectives, which are important for the students and situated within the curriculum. Moreover, a successful lesson plan integrates elements such as checking the students' understanding. Furthermore, it is vital that educational institutes to undertake macro-analysis by considering undertaking the external analysis in which the impact of government policies, economic policies, competitors' actions, and social aspects are undertaken (Howes, 2018). Moreover, schools should identify the external opportunities and threats which will have an impact on the school's strategic planning. Teachers' strategic planning allows them to have a sense of direction to follow along with how to perform particular tasks.

Based on the insights, Participant V noted, stated, *'MYP and DP need to ensure that no clashes via forwarding planning, agreement and planning, for example, 14.1.19 E-Portfolio teachers given Grade 10, at the same time as Extended Essay'*.

Schools or education entities may not know what they are doing or what they intend to do unless they periodically develop and monitor their goals. Moreover, it is vital to educational institutes to formulate the sector analysis before the strategic planning since it allows the school leadership to critically assess the aspects which relate to the education sector around them. The initiation of strategic planning requires a purpose which will be adequate for the schools in the long term. Participant W stated, *'This has also occurred within some PD sessions on Thursday*

stay backs, again teachers teaching across, and Pavlov dog syndrome, overwhelmed when clashes occur...the way to prevent this is appropriate strict calendar planning and sticking to.'

In addition, participant V noted, *'In order to strive to Live It, on a more consistent basis, we need to bring everybody on board, and because each year we get new teachers, new to teaching, new to IB, we see we need to build up sufficiently and appropriately.'*

4.3.6.2 Innovativeness

The education system as a social institution is vital to the well-being and survival of the needs of communities worldwide. In addition, education must not only be affordable, extensive, and excellent but also developed in a continuous manner to address the demands of a volatile globalized environment. The aspects of knowledge building, problem-solving, expert engagement, collaboration, self-regulation, and application of technologies are learning outcomes in the present era of education (Olimov, 2021). Educational innovations are considered important to bring enhancements to education. However, the aspect of innovation implementation is expensive for firms, and it is important that employees are addressed with training. The innovation is most likely to bring enhancement to the nation's effectiveness and enhance the quality of education. Despite the rhetoric, the various interpretations regarding the implementation of innovation within education, which has been much prevalent subject of public debates, are considered to be vague in reality. It is most likely based on knowledge, improvisation, or experimentation (Axmedov et al., 2021). However, the implementation of innovation cannot be made alone since innovation must consider the challenges of them (Olimov, 2021). Innovation is also influencing and reshaping change on the very practices and processes which had been implemented traditionally by education organisations. The core objective associated with innovation is to enhance the process quality, product, teaching outcomes, and the overall productivity of the schools. However, the major challenges linked to innovation in education are the lack of data or information. Similarly, a participant stated, *'To those seasoned teachers within a school, many of us are indeed innovating and would like to see this attitude percolated and interspersed more evenly, to spread across school, to shift and transform the paradigm.'*

The phenomena of the innovation tend not to be linear procedures, yet it is a complex product which consists of several stakeholders, such as teachers, researchers, government, and educational institutes. The innovation enables the procedure for sustaining and organising the

combination of the actors, concepts, and practices to address particular issues which arise in the education setting. Innovation enables educational settings to change and become more effective through the implementation of technological development (Kassymova et al., 2019). For instance, virtual learning has offered students significant opportunities to learn in new digitalised ways. Participant V stated, *'To those seasoned teachers within a school, many of us are indeed innovating and would like to see this attitude percolated and interspersed more evenly, to spread across school, to shift and transform the paradigm.'*

Furthermore, Egorychev et al. (2018) note that innovation planning in educational settings is a management process which includes attributes related to innovations or surroundings under which the implementation of the innovation is most likely to be addressed and in which the implementation of the innovation pertains. In addition, the aspect of innovation is viewed as a successful implementation of new approaches in schools or educational institutes.

Given that, participant V stated, *'The Glass Learning STEM zone and the new school auditorium are new future Design initiatives.'* The response exhibits that the glass learning STEM zone is one of the digitalised aspects pertained in education settings.

4.3.6.3 Display within DP

The third subtheme addressed the aspect of the strategies for sustainable future designs, including the display within DP. According to Howes (2018), most classroom teachers ensure that they display learning materials for the students. In addition, the DP within the displays enables the students to increase their research skills and increase their effectiveness in terms of learning. However, the inclusion of the DP requires extensive use of resources and funding used by the education setting.

Given that, participant Y stated, *'Display in DP is seen as learning walls. An example in DT is students' design portfolios (IA's) is displayed, which shows explicitly the number of pages, depth, example per point of how a previous Topper has succeeded.'*

In addition, another participant W stated, *'Visual art has stunning work, showing techniques and exhibit their work regularly, being an IB requirement. English they very often show deconstruction of students' works, with teacher feedback.'*

4.3.7 *The Current Reality of Learning in School*

It is essential to evaluate the current reality of learning in schools. It is one of the core elements that help the research experts decide on the performance of the school.

4.3.7.1 *Learning Spaces*

The learning spaces are evaluated regarding assessing the reality of learning in school.

One interviewee stated, *'A visitor to the school will see and experience Learning Spaces, that offers a unique dynamic sense of pace, pertinent throughout the school, whether fixed or open classrooms.'*

The evaluation from self-review revealed that for critically evaluating the learning spaces, the focus is to experience and observe the dynamic and unique sense of pace in the space. The visitor must evaluate the open or fixed classrooms and determine whether the learning spaces provide a healthy environment for the students and teachers (Wahyoedi et al., 2021). Another statement was *'We are generally in design mode, in the sense of clear interdependent relationships between effective, future-oriented learning and the design of learning space and time'*.

The self-review further revealed that the school tends to be in the design mode. The focus of the stakeholders was to promote interdependent associations between future-oriented effective learning and the design of learning space and time. The evaluation revealed that the school has a strong emphasis on future-oriented learning that can have a profound impact on the student's achievement and success (Sasson et al., 2021). Participant Z stated, *'At sports events, we stream live, theatre productions, we use L.E.D screens and professional lighting. Learners will be challenged and stimulated with teachers adopting different approaches to learning.'*

The evaluation from the self-review revealed that the school's management focuses on encouraging sports events and providing live stream services for the students. For the theatre, the focus is on utilising professional lighting and LED screens. It indicates that the school has a strong emphasis on encouraging extra-curricular activities and motivating students to learn in a flexible and healthy environment. The analysis revealed the positive side of the school, and the current reality indicates a positive school environment. Sports events are also important since they tend to improve the relationships among students (Sutherland & Fischer, 2016). Additionally, the teachers are focused on taking unique approaches to learning that can become a challenge for students. The self-review further revealed that teachers or students are able to use

furniture systems as per their intention. They can conduct group interaction activities and comfortably use furniture systems. The teachers are also able to comfortably use YouTube or Technology Entertainment Design (T.E.D) talks with students for educational purposes. Sahrakhiz et al. (2018) note that tools like YouTube are suitable for students, as such tools create an interactive and learning environment.

4.3.7.2 Outdoor Studies

A major subtheme was related to outdoor studies. Participant Z stated, '*Further outside, they may see, hear additional learnings going on, e.g., before and after school PE programmes, educational visits, learning expeditions. We use Skype, Virtual Reality also at times*'. The self-review revealed that educators often use VR and Skype to teach students. Additional learning is a norm in the school, and after PE programmes, there are educational visits. In outdoor learning, Skype and VR have proved beneficial for the school since the teachers can teach comfortably through those platforms. However, the analysis revealed that there might be some difficulties in using Skype or VR, such as distractions, internet issues, and concentration problems (Sahrakhiz et al., 2018).

Participant Z noted, '*Field studies or outdoor studies are encouraged in specific subjects to have a holistic idea about what is happening around us*'.

The self-review further revealed that outdoor studies or field studies are encouraged in the school for specific subjects so that students can have a holistic idea regarding what is happening around them. It further prepares the students to find inclusive and sustainable solutions. Hence, the current reality for the school is positive overall, as the focus of the management is to provide a holistic approach to students by teaching them outside school hours. The holistic approach prepares students to evaluate things from different perspectives (Fägerstam, 2014).

Outdoor studies are another positive aspect of the school. It is necessary for twenty-first century learners to think outside the box and learn through tools which are rapidly becoming popular in the world (Dillon et al., 2016). The evaluation hence revealed that outdoor studies are a positive aspect which can help the students improve their cognitive thinking.

4.3.7.3 Community Service

Another major subtheme relates to community service. The reality of learning within the school is that community service also prevails. A participant V argued, '*Community service has become an integral component of learning at ground zero where students display an extreme sense of sensitisation and are motivated to do their bit for them in their capacity.*'

Community service is an integral component of learning for students, and they feel a sense of confidence when they get involved in such activities. It creates a sense of responsibility among the students and motivates them to rigorously perform their duties (Reid & Howard, 2016). Community service was another positive aspect of the school, which indicates that it can be used as a learning tool. Scholars may argue whether community service has a positive impact on student learning. The analysis revealed that community service is a positive element, which increases the points of schools in terms of gaining research (Fiore, 2016).

The subtheme further revealed that '*the wider community also being engaged, kept updated, like participation in sports events, TED Talks, and three-way conferences.*' Admission hosts regular sessions, whereby they showcase the school, take trips, and give presentations. The evaluation from the self-review revealed that the school is engaged in positive activities. The regular sessions are focused on taking trips and making presentations, which further nurture students' skills and encourage teachers to enhance overall teaching strategies (Dryfoos & Maguire, 2019). Overall, community service is a beneficial component that improves the school's reputation to a considerable degree.

4.3.7.4 Lessons

Lessons were also an important factor when assessing the present reality of learning in the school. The responses revealed that in the domain of art, the learner would be engaged in exploring more than one medium in detail to fulfil comparative study, process portfolio, and exhibition work and engaged in the ongoing art workshop. This is specifically associated with the art lectures in schools. Participant V statement was '*In music, students will be improving their techniques, skills, and compositional devices through collaboration with their peers across various genres.*'

Music lessons were also a focus in terms of evaluating the learning in schools. In a music lesson, the students can enhance their skills and techniques through proper coordination with their peers across musical genres. The music lessons are transmitted to students effectively,

which offers them a chance to improve their capabilities and skills (Hod, 2017). The focus was to critically evaluate how music lessons are given in the school. The evaluation from the self-review revealed that the school is striving to provide high-quality lessons in various subjects, including music and art. Participant W stated, *'In Dance, the school offers the whole arena of student choices, e.g., jazz, hip hop, breakdance, kuchipudi, Kathak, and contemporary dance'*. This quotation indicates that the school provides a diverse range of dance types. This field is gaining popularity, as many students are interested in learning dance (Benade, 2019). The school thus focuses on providing high-quality dance classes and lessons to students. It is also a positive aspect from the perspective of research.

The overall analysis from the self-review revealed that schools tend to provide quality lessons to twenty-first-century students. However, it is essential to utilise technological elements in classrooms so that the classroom becomes engaging, and students take a keen interest in the topic. This aspect indicates that the school must enhance the learning quality by providing diverse lessons through innovative strategies and techniques. The use of YouTube and other tools is important to create a healthy and interactive environment in classrooms (Talbert & Mor-Avi, 2019).

4.3.7.5 Interactive Learning

Another major element was to evaluate the interactive learning being conducted in the school. Participant V response was as follows: *'Learning tends to happen beyond the walls. For example, CAS happens with the local NGO ties, also integrated within the curriculum, e.g. DT internal. Assessments' for some DP students'*. Participant V argued that the school promotes interactive learning, and it is being conducted outside the classroom, as well. Service trips include a visit to a village to understand building roads and repairing walls. Service trips help students to view things from different perspectives (Vitalyevna, 2021), develop opinions, focus on problem solving, and embed critical thinking in their education. Participant X stated, *'Opportunities are provided for teachers to bond and develop a shared understanding of the school's vision through various events organised by the HR. Faculty participates in webinars'*. The self-review revealed that teachers are provided with exceptional opportunities to nurture their skills. They are also encouraged to take part in events which are organised by HR, which further highlights the school's strong emphasis on enhancing the overall quality of education.

The self-review revealed that the school needs to focus more on interactive learning, by making efficient use of technological tools and digital platforms to boost the learning of twenty-first century students (Jumayeva, 2021). Since students use technology regularly, they must be taught with the use of exceptional technologies that make learning easy and interactive. This creates a healthy environment for both students and teachers. Furthermore, interactive learning is boosted if the stakeholders conduct discussion sessions on a weekly basis. The top-level leadership of the school must be involved in assessing the teachers' performance and education quality. It can create an environment of a healthy culture which improves the school's reputation.

4.3.8 Evidence of Space and Time Resource Impacts on Learning

This theme was designed to analyse the evidence of time and space resources' impacts on student learning of based on the self-review data gathered. The analysis has been presented below based on executing a critique of the existing literature on the self-review responses.

4.3.8.1 Access to Facilities

The first subtheme was based on explaining how access to new facilities and enhanced infrastructure is significant for creating a positive impact on learning. However, as Murtonen et al. (2017) explain, consequently, innovative strategies for designing assessment methods and learning settings must be created that both improve the surroundings for kids and boost the taxonomy of educational objectives in education system planning for effective learning environments (e.g., joint research). Similar views were represented in the current self-review responses; more might be done by policymakers to involve these groups in the conceptualisation, organisation, and budgeting of facilities and infrastructure investments, as Participant Z aptly puts, 'The campus provides generous spaces and provide facilitates easy access between a host of subjects, arts, music, technology, sports'.

Another comment informing what equipment school has within the Department: '*We have 3D printers, electronics, laser printers, within TechWorkshops, Labs, Maker spaces as well as drones, which is all-important for students to be cutting edge. VR we also have*'.

All the statements clearly depict how significant it is for improved learning to enhance the spaces of the educational institution and motivate learners with innovative buildings. This contributes to effective joint learning, as participants claimed that their educational space contains several facilities for all subjects (e.g., technology, science, and arts). Similarly, McCoog

(2008) explains that modern classrooms are different from traditional lecture-based classrooms of earlier generations, which were designed to fulfil the needs of the engineering periods. They represent a fast-paced, high-technology environment via Skype, Google Classroom, and Moodle. The majority of academic context focuses on preparing students for several ‘uncertainties’, which are defined by the growth of online pedagogy and include environmental instability and potential societal unrest (Crawford et al., 2020). A sports teacher shares: *‘We have superb outdoor and indoor playing fields, swimming pools accordingly, catering to a whole array of different sports’.*

‘We have two canteens that also suffice for the school population, including faculty. We’re building a new auditorium to complement the existing outside, to meet schools’ expansion’.

In the statements above, the indoor and outdoor facilities such as sports grounds, auditorium, and swimming pools are aspects which enhance the infrastructure for improved student learning. Consequently, the literature findings by Panke (2019) denote that formal learning which occurs in an environment without a teacher is increasingly acknowledged as a crucial component of the educational setting. This study explains how canteens and other physical locations to support groups and academic activity as well as computer-assisted education are examples of implicit environments. Technology has altered people’s perceptions of time and location, redefining what a learning environment is.

4.3.8.2 Performance Achievement

It was noted that new building specifications for educational facilities have been produced by new technology and developing pedagogical approaches. This field includes several disciplines and necessitates the participation of all stakeholders of these environments (e.g., teachers, parents, and students) in the processes of infrastructure and technological development (McCoog, 2008). Similar responses were identified in this study, as participants highlighted how since the launch of IB schools, students’ digital needs are met with the integration of improved infrastructure. Participant X explains, *‘Great results in E Assessments the last three years in a row, since IB launched, proves that our physical infrastructure and bandwidth readily supports sufficient students with digital needs.’* Another, *‘Robongiers has morphed from original MYP Robotics annual event, to embrace and involve more of the schools STEM, which coincides with Robotics becoming more of a acceptable reality and integrated into everyday life.’*

The current study responses, as noted above, explain how the robotics and physical learning places have increased students' involvement in education and met their digital needs. This enables everyday education to be case-based and problem-solving. In contrast, Crawford et al. (2020) highlight how design thinking in virtual education is a problem-solving approach which includes a variety of creative ways to manage projects with various stakeholders by addressing ambiguities, forming the proper questions, and generating alternatives and potentials.

4.3.8.3 *Balanced Learning*

By rigorously evaluating and enhancing their own education, learners may gain complete control of their academic endeavours in a balanced learning environment. These are key points in assisting children in acquiring the mindset and skills necessary for lifelong learning (Buse, 2020). Policies help ensure and permit joint research that underprivileged schools encourage the use of a balanced mix of student-centered instruction with matched curriculum and educational procedures to increase learning in classes. Participant X explains, *'School calendar, timetabling 75-minute lesson slots, are all specifically designed around impacting learners. Over the calendar year, learning is staggered to ensure balances.* Participant U states: *'Sometimes, these spaces become exhibitions, e.g., PYP exhibition, personal project.'* A further viewpoint, Participant W, *'Annually, we host school plays across all schools, making use of our sunken exterior auditorium. It's always very atmospheric, and this was followed by dinner outside, again plays an important part of parents' liaison in celebrating achievements, which our community enjoys.'*

The above responses note that balanced learning relates to adequate school education with proper timetabling, such that education relates to the spaces such as learning exhibitions and recreational areas for physical activities. Similarly, Valori et al. (2013) state that schools and instructors should utilise diagnostic equipment, formative assessments, and comprehensive evaluations to track student performance and ensure they are learning well. It is crucial that schools follow a curriculum that encourages a success-oriented culture. The study findings therefore elaborated how vital it is to ensure that the external environment in the education system is enhanced, such as celebrating achievements and creating an impact on learning by keeping students motivated to learn.

4.3.9 The Learning Plan's Challenges and Solutions

4.3.9.1 Existing Gaps

Issues are prone to occur in a badly constructed lesson: poor or minimal learning occurs and dissatisfaction on the part of the teacher and the pupils due to the poor delivery style and the scant learning that is occurring. A lack of interaction between the teacher and the students in earlier or later classes (Gibbons & White, 2019). Nevertheless, evidence is frequently gathered to investigate and corroborate the relationship between the design of the learning environment and the timing of expected effects, as depicted in the responses below:

'New timetable with 75 minutes block allowing sufficient time for inquiry'. (Participant X)

'Intended learning impacts and the learning environment are recognised as complementary elements in a comprehensive vision for learning'. . (Participant V)

'Evidence is regularly captured to explore and confirm the correlation between progress in achieving intended impacts and the configuration of learning space and time'. . (Participant Z)

From the above statements, it can be analysed that there are existing gaps in learning plans related to ineffective time and space management, which influence learning. A holistic perspective for learning recognises the learning environment and opportunities and the ability effects as complementary components. On the contrary, the literature findings elucidated that the schools are pressured by their demands as a consequence of the diverse students that international schools enrol. Notwithstanding, according to Drumm et al. (2019), inclusive tactics that attempt to remove obstacles to learning for the students are crucial in boosting learning and closing gaps.

4.3.9.2 Actions for Closing the Gaps

For instance, Donovan (2010) states that research is an expensive procedure in terms of both cash outlay and the amount of time a recognised external institution needs to determine the requirements for educational excellence. Nevertheless, despite the design thinking proposal, there was still a problem because the certification procedures did not consider the demands of

twenty-first century students. The study participants also made the following recommendations to address the identified challenges:

'Across schools, every classroom has "flexible" seating to allow different forms of student movements which directly impacts Approaches To Learning /Approaches To Teaching'.

'We within departments all meet collaboratively, without interruptions. Often, we meet as "clusters" if/when MYP/DP have different agendas. PYP is very infrequently or never included in some vertical subject planning'.

Teachers are encouraged to adapt classes to give students more voice and control and to assist and expand their learning by placing carpets and circular tables in the MYP environment. Keiler (2018) explains that collaborative planning is more curriculum-focused and subject-specific than broad professional learning. As a result, there will be more creative, effective procedures; better outcomes; and better communication. Teachers may collaborate to achieve their goals by paying attention to one another and learning from one another. Participant X shares: *'Flex lessons to provide more voice & choice to learners and support/extend their learning. Provision of carpets, round tables in MYP space'.*

The statements above present actions for identified gaps in learning plans. Every classroom should have flexible seating to allow for a variety of student movements that have an influence on research education. For successful learning strategies, departments must work together and without interruptions. Buse (2020) explains that a broad name for a range of educational initiatives aimed at educating people who are most disadvantaged, flexible learning strategies is used. The demands and rights-driven curricula are equal to current academic or technical education, deviating from a multifaceted approach. Its main goal is to provide learners with more possibilities, choices, and influence throughout their education through a range of learning environments and activities. It is a general driving factor that gives students more options, not an alternate kind of education.

4.3.9.3 Recommendations for Visitors

The last subtheme related to learning plan challenges and strategies is pertinent to recommendations for visitors. Participant V view regarding the improved furniture systems and effective time management is noted below: *'Flexible furniture systems within all classrooms,*

that facilitates and accommodates teachers and learners to access and adapt learning in multitude ways; that suits twenty-first century learning modes.'

This statement conveys that it is important for effective learning plan implementation that within all classrooms, learners and teachers adapt and access learning via flexible furniture. Additionally, having access to flexible seating, students are better able to identify the sorts of seats and environments that work best for them. Moreover, Zhao and Ferran (2016) explain that students could learn to accept that errors can arise and that when they do, learning is happening with a foundation for effective knowledge development. Both students and teachers benefit from a change in perspective. However, participant Y noted, *'How we are coming to terms with trialling 75-minute lesson plans that allow student learning stations, teachers as facilitators to differentiate and impact students learning'*.

Participant Z explained how 75-minute learning plans are significant to assure learning outcomes are met, significantly affecting student learning. Considering these findings, Donovan (2010) elucidates that the time frame in a teaching plan is important since it outlines the periods, courses, or days when the material will be delivered, practised, and assessed. The actions that the learner should be able to show at the end of the learning process are called outputs or intended learning outcomes. Additionally, students can move inside and between learning, training, and work thanks to flexible educational systems. Flexibility consequently allows students to modify their educational route to accommodate their knowledge and talents. As a result of the multiple advantages associated with receiving research status, many educational institutions are eager to participate in the demanding certification processes (Elliott & Goh, 2013).

4.4 Conclusion to Chapter 4

In this chapter, thematic analysis from interviews as part of the case study of the accreditation process was explored. Specifically, this reflected collaborative self-review viewpoints from various stakeholders as part of NEASC ACE programme, L9: time and space. Analysis considered four subthemes: interaction, safety and security, use of art forms, and lesson scheduling. Several participants informed, that students learn best when the teacher adopts constructivist approaches in the classroom, empower them to gaining access to their beliefs and experiences. Within safety and security, participants suggested that open and safe learning spaces allowed students to observe across their environment, which helped them create their own meaning for the learning material. Within art forms, participants agreed with the existing

literature, that the use of music and visual arts within learning processes improved students' learning achievements. Within lesson scheduling, participants found, timetabling provided routine and rigor with sufficient breaks, dividing coursework into achievable steps (Bieker, 2014).

A common theme emerged from participants responses, the difficulty in execution if there are conflicts in the team. Gaining the approval during COVID -19 pandemic and the cooperation and upskill adjustments required was crucial. Team member collaboration was critical to encounter technical advancements and subsequently, the rise in expenditures for training (Drumm et al., 2020). As to the effectiveness, reaction is mixed with many students finding the virtual experience to be dull and difficult to concentrate in class, whereas previously it was anticipated that the most dynamic mode of teaching for the next generation would be online education (Kapasia et al., 2017). Some also showed the effects of anxiety, despair, and lack of internet access for those in rural and poor areas, impacting on their academic performance (Gonzales et al. 2020). However, other students, teachers, parents thrived, easily adapting to online and hybrid modes.

Participants were asked how improvement can be ensured in joint research programmes, in which responses can be categorized as responses: open-mindedness, active participation, and increased representation from schools. Participant findings agreed with readings, that open-mindedness, can eventually help to meet twenty-first century learners' needs and prepare teachers to utilize unique strategies and techniques (Kotzee, 2018 and Dewey, 1916). Active participation proved crucial for adjustments during COVID -19 as school adjusted, trialled, came to terms with resolving digital solutions to keep students lesson open. Other themes related to schools need to increase school representation to help conduct the process quickly. Furthermore, the importance that the systems such as high performance and acquire feedback for enhancement of discipline outcomes are aligned with the standards of the educational institution (Mukhalalati & Taylor, 2019). Additionally, the importance of the allocation and distribution of the education budget, the way it is accompanied by the implication of an action plan which explains how the recommendations is transformed into actions (Mou et al., 2019).

Participants also noted on design, structure, furniture layouts, how open – plan especially impact learning, as well as abiding strictly to safe Health & Safety practices e.g., S.T.E.M Learning Zone, where students are given self-autonomy and encouraged to use across several

subject disciplines. The importance of display, accommodating different learning styles and acknowledging the process of learning. The implementation of professional development is another way in which educational organizations can support teachers and ensure their productivity. The importance of the Timetable also having a direct bearing upon students' performances and teachers' effectiveness, length of lessons and breaks.

With online, the approaches to learning philosophy the culture the teacher creates has significance, for instance: mindedness, creativity, humour and warmth they adopt, impact every facet of online learning course design during COVID-19 (Heng and Sol,2021). Learning as not limited to the classroom, the value also recognized by various stakeholders such as field trips etc. An opposite conjecture, with the importance of physical, hands -on, Community Action and Service work, where participants recognize as important in their holistic development. The impact of the lesson themselves was reviewed, finding that overall schools tend to provide quality lessons for twenty-first century students. Continual utilizing of technological tools in the classrooms will help foster the learning remain engaging and relevant to students. Another finding is the value of interactive lessons, with students actively engaged, rather than passive participants. Again, the teacher's constructivist style is key here.

Space and time were also features looked at, with good findings from sport and design sections in terms of physical facilities, tools, and equipment. It was felt learning, the timetable, provided a balanced approach, where students performances are suitably coordinated and 75-minute lesson slots, that are all specifically designed around impacting learners. In terms of impact of the learner on the lesson, one participant summarizes aptly: *'Evidence is regularly captured to explore and confirm the correlation between progress in achieving intended impacts and the configuration of learning space and time'*. Within all classrooms, learners and teachers adapt and access learning via flexible furniture.

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter discusses the findings in depth and critically evaluates them. The thematic analysis was found to be beneficial to gain a proper understanding of the problem which has been focused on this study. The major benefit of conducting the thematic analysis was that it helped in understanding the opinions of the professionals regarding the school research journey and how the school has been able to cater to the requirements of twenty-first century learners. This chapter analyses the results in the light of literature review and explores whether the literature supports or contradicts the primary and secondary findings.

5.2 What is the role of Joint Research from the perspectives of Internal Stakeholders ‘during COVID-19 pandemics?’

The study’s findings exhibited that the term ‘school research’ is regarded as synonymous with certification and inspection, and these terms are used interchangeably since they explain the attestation of the offerings by any third person. As demonstrated by Crawford et al. (2020), in present times, the education sector and other sectors have been challenged by the COVID-19 crisis which has disrupted the learning processes and pressurised educational organisations to undertake rational actions.

The stakeholder in the research provides useful insights (Kassymova et al., 2019). A ‘stakeholder’ refers to a group of people who are affected by the action of an entity. In education, the stakeholders include categories of people such as students, employers, private universities, firms, and academic communities (Mukhalalati & Taylor, 2019). The stakeholders are embedded in various roles under the domain of joint education research considering COVID-19. Internal stakeholders include teachers, employers, and students. Furthermore, education research institutes incorporate the establishment an adequate and logical curriculum which includes all learning outcomes.

Moreover, education research employers must develop guidelines for schools to follow. However, for education research institutes, employers must understand the complexity of the situation in which COVID-19 has arisen. Education research is inclined to ensure that consultation with parents and children is addressed in the time of COVID-19 and that conditions are formulated which favour the environment of COVID-19 (Kassymova et al., 2019).

The research includes a set of procedures which are formulated to gather evidence to allow stakeholders to make useful and rational decisions in consideration of the educational organisation. According to Mukhalalati and Taylor (2019), the domain of education is a space for translations and decisions, including a plurality of interests.

Presently, economies worldwide have been affected by the pandemic, and much has changed in the economic sectors. The pandemic outbreak has impacted nearly 1.6 billion pupils across more than 190 countries and all continents and has caused significant disruption in educational institutions (Mukhalalati & Taylor, 2019). The pandemic crisis has made it more difficult for education organisations to handle matters in an effective manner, as they are faced with many new issues not faced before, such as none contact time. Moreover, prior learning deficiencies present a risk of reversing decades' worth of progress, not the least of which is work done in support of girls and young women's continued participation in the educational system beyond this generation. Students were extensively impacted by the pandemic in both developed and developing economies.

Most students engaged in remote or distance learning, while people were restricted and had to remain under Covid at home. Students made use of various kinds of technology, as well as traditional educational mediums such as television, radio, and newspaper (Axmedov et al., 2021). Parents also played a vital role in terms of taking a more active role in their children's education, and the use of outside evaluators for pupils has either been phased out or replaced. In addition, during times of pandemic, the closing of schools, even though it was regarded as vital to stopping the pandemic and protecting children and staff, interfered with their ability to study. However, most schools have been unable to have resources to implement remote and distance learning. Furthermore, the insights of the study stated that education systems face attendance issues and higher absenteeism ratios as a direct result of COVID-19 (Hwang et al., 2020). This is because even if some schools re-open after incorporating the proper SOP, parents may not be comfortable sending their children to schools. Moreover, it is difficult to adopt a policy response in times of crisis when the climate is uncertain.

Furthermore, educational settings must work in an effective manner in times of COVID-19. The schools must thus incorporate cash transfers, in-kind food voucher programmes, and information and communication technology infrastructure to offer feasibility to the employees. In addition, due to the presence of a pandemic, an employer in the education setting may address

the role of leadership by enabling an environment for remote learning with educational technology (EdTech) with new values related to the educational setting (Crawford et al., 2020). In addition, education institutions are simultaneously creating the foundation for long-term recovery, resilience, and system reform while coping with acute crisis responses.

Classes will eventually resume, and students will return to their respective institutions. The investments and decisions being made now to enable remote learning will create a new standard in which the question of where and when students study will blend in-classroom learning with learning which occurs at home (Axmedov et al., 2021). Furthermore, it is important for educational institutes to undertake macro-level assessment through an external analysis of the impact of government policies, economic policies, competitors' actions, and social aspects (Hwang et al., 2020). This will allow educational employers to understand the situation. Moreover, it is vital that schools identify the external opportunities and threats which impact their strategic planning.

Strategic planning by teachers allows them to have a sense of direction to be followed along with how to perform tasks. It is also important for schools to ensure that they are following adequate policy procedures and placing the right channels to obtain the proper approvals. Effective planning is a factor which impacts the strategies for sustainable future designs and a vital part of education research institutes' success. Through rational planning, schools can produce appropriate tactics in an effort to accomplish their goals (Hwang et al., 2020). In addition, the essence of planning as a strategic management procedure includes decision making by selecting and sorting alternative activities to address so they are efficient and effective. Education research institutes are required to develop new strategies considering the curriculum as well as other aspects related to teaching practices. Moreover, education research is inclined to avail student feedback in times of COVID-19 and understand their needs and feelings about the situation around them (Kassymova et al., 2019).

Strategic planning involves aspects such as establishing aims and objectives, short- and long-term quality standards, and overcoming COVID-19-related challenges. Furthermore, collaboration among stakeholders enables education research institutes to ensure that students are engaged, and teachers are trained in extensive participation. Furthermore, the collaboration addressed by education research institutes will allow for the development of interpersonal skills, which is regarded as a vital facet, and it involves students' self-learning. However, most

cooperative learning tasks for students focus on social and academic skills. Moreover, joint research may incorporate actions towards inducing positive culture. The culture impacts every aspect of online learning course design. In addition, the technology-mediated communication in the online atmosphere is impacted by the culture since it produces new negotiated knowledge and meaning to culture.

The use of virtual techniques has grown and developed adequate applications of communication technologies for learners' benefit. Nonetheless, culture is a complex construct encapsulating the shared values, meta models, and communication approaches (Axmedov et al., 2021). Since joint research programmes require active consideration from the stakeholders and teams, it is essential that they are willing to have an open mind. Open-mindedness and creativity improve the joint research and encourage stakeholders and new teams to work in a friendly environment and keep an open mind while working on the program. It encourages the stakeholders to gain maximum knowledge and have a strong emphasis on improving the education quality. In addition, open-mindedness incorporated by joint research can further help to remove barriers that when adopting the research approach and rating the institutions (Kassymova et al., 2019). It can eventually help in developing innovative and unique approaches which can enhance the learning capabilities of the present times.

5.3 Benefits of Joint Research by Learning about Pedagogies to Meet the Challenges of an Evolving Digital World and the COVID-19 Pandemic

The second major study objective was to highlight the benefits of joint research by learning about new pedagogies to meet the challenges of an evolving digital world and the COVID-19 pandemic. With a unified, integrated application procedure; cost structure; and collection of research requirements from world experts, joint research gives educators a chance to be recognised for providing professional development activities with improved learning space and time. Notwithstanding, one claim made in this study is that many schools are eager to participate in the demanding research procedures due to the various advantages which accompany receiving certification (Elliott & Goh, 2013). The method of conducting research allowed business schools to enhance performance management as well as organisational learning initiatives. Garfolo and L'Huillier (2015) argue that certification, as a formal and open assessment procedure, produced similar performance improvement advantages as those shown with informal performance review approaches.

According to Keiler (2018), joint research encourages interprofessional educational workshops particularly created to enhance interprofessional collaborative practice in health care delivery by providing research in a single evaluation procedure. The most effective form of interprofessional cooperation is joint research, which promotes overall improvement through team-led continuous education. Similarly, the results of the current study investigated how, given the rise in online learning during the COVID-19 era, teachers who have engaged in joint research tend to have an impact on student learning through efficient cooperation. It is now crucial for instructors to collaborate to ensure that pupils receive effective instruction by discussing their work in meetings. According to Gislason (2018), the physical layout of the building, how the teaching staff is organised, the educational culture, and the students' characteristics contribute to the classroom setting. However, this research indicated that flexible learning spaces entail not only simple changes to the school's furnishings and architectural layout, but also more significant educational and cultural changes, as well as changes to the school's guiding principles. Therefore, student collaboration and interaction may enhance problem solving, the integration of incomplete or fragmented knowledge, and the transmission of novel ideas to the class.

According to Agarkar (2019), research offers the school or acquiring knowledge structure the chance to improve the quality of instruction through a rigorous process of self-evaluation review against criteria and constructive feedback into an objective external appraisal by a team of experts. Nevertheless, a main advantage of research for the school, according to this study, was that it was a continuous, systematic procedure after it was incorporated into a programme of self-evaluation and development. In addition, global trends (e.g., digital transformation, globalisation, information interchange, digitalisation, and social media) have challenged the idea of creating a competitive advantage in recent years, particularly in the education sector (Agarkar, 2019). Consequently, these features caused the process of creating a competitive advantage to change quickly and be short-term and experiential. By offering knowledge about the significant changes and their relationship, the current study's findings support the development of strategic management techniques in schools during the pandemic. It also crucial to use the established model as a decision-support system to create, control, and maintain the perceptions and requirements of students.

The IB place a strong emphasis on the shift from memorisation to skills and research or certification, which define the baseline of broadly accepted educational norms. Nevertheless, it is also significant that the growth of teaching pedagogies, (e.g., inverted and hybrid classrooms) is connected to IB standards of learning (Florian, 2010). Additionally, the thematic analysis revealed that the several abilities crucial to twenty-first century learning (e.g., inquiry, reasoning skills, teamwork, and resilience) are also essential in future-focused design thinking. The study's findings demonstrated how crucial it is to incorporate changes to the educational system brought about by the research process to improve the results of experiential learning. According to this study, learning standards a key issue in public education at present because they influence every aspect of schooling institutions, including high-stakes standardised testing, subjects and skills taught in school, and career development for effective teachers (Maxwell et al., 2018). Nonetheless, as noted in the interviews, adopting a learner-centred approach is necessary for inclusive digital education via joint certification. This strategy must address the students' requirements and support those without sufficient digital skills. It should not be uniform. The learner's mindset should be one of ongoing education.

Moreover, the results demonstrated how important it is to adopt fresh viewpoints while seeking effective learning strategies in a virtual researched classroom. Similar to this viewpoint, research findings revealed that virtual research suggests using a digital storage file for submissions, notably Google Drive (Kaya et al., 2020). Students prioritise originality above efficiency; this factor increases students' interest in studying. This perspective contends that design thinking helps pupils acquire a wide range of social skills. The use of virtual learning technologies, particularly at international schools, has increased dramatically during the past several years. The delivery of instruction has been notably influenced by this phenomenon. However, as Agarkar (2019) explains, recent years have seen considerable evolutionary learning development in how colleges offer their services. Academic institutions now have the chance to concentrate on BL, which combines independent computer-based study, digital communication, and in-person instruction. Similarly, these research findings demonstrated that the COVID-19 pandemic halted schools' regular learning processes. They were forced to create a digital collaborative learning research method to link multiple geographic sites, courses, and time zones. Independent online learning systems and mechanisms have significantly improved schooling in

this environment. The purpose of autonomous learning is to motivate students to become experts in a variety of fields which are necessary for entering the workforce.

According to Engle (2020), online, mixed, and remote learning is mainly accompanied by apprehension or doubt. As learning from lessons is based on the most effective approach for students, virtual learning enables students to improve their time management. Another advantage is that teachers are more likely to provide rapid feedback on the education that has been directed at the pupils. Additionally, Drumm et al. (2020) explained that the involvement of an outside organisation completes the process of reviewing the course quality offered by online virtual classroom education. Effective time management is linked to better academic achievement and decreased stress levels in students, yet many students struggle to strike a balance between their academics and other activities. In addition, research is seen as being of utmost importance since it enables educational institutions to improve the efficacy and efficiency of the training and learning components provided to students (Pullen, 2022). The researchers argue that as a result of the globalisation of education, more institutions became conscious of the need to rank well and considered research as a means of achieving this goal. The advanced arguments thus focused on the connection between certification and the improvement of training quality.

Moreover, Hughes (2020) finds that online learning environments have significantly expanded in both growth and use in educational contexts. The use of virtual approaches has increased significantly, and suitable applications of these communication technologies have been created for the benefit of the students. Nevertheless, culture is defined as a complicated framework which includes common values, mental models, and communication strategies (Kay & Kibble, 2016). However, study findings revealed that as a key issue in the public school system, learning standards have an impact on every aspect of the educational system, including elevated standardised testing, subjects and key competencies learned in the classroom, and professional development. In addition, delivering education of the highest possible quality is a major obstacle to the decentralisation of education. For schools to regularly satisfy the high expectations established by the decentralisation of learning, which must be reflected in the educational experience of students, they must continually improve quality and assure the availability of timely funding. Subsequent research has found that research status also guaranteed students that they would obtain superior education and increased career opportunities (Chang et al., 2016; Mattar, 2021). According to Mattar (2021), research status guarantees that academic

institutions provide learning with integrity and refrain from plagiarism and other types of dishonesty.

5.4 Challenges of Joint Research Process Faced by International Schools in the Twenty-first Century

According to the study results, joint research allowed schools to explore various new perspectives; however, the challenge was that it was not possible to apply or implement them in practical physical learning spaces. The previous literature has also indicated that the global education system is becoming increasingly international and that the challenges it faces are also increasing. Worldwide, there are approximately 1,000 international schools with a total of more than 500,000 students, according to a recent research study (Smith & Okech, 2016). The increasing number of international schools has led to more requirements for quality assurance and compliance and to an increase in the need for research within educational institutions (Keiler, 2018). The growing number of searches of this topic on search engines such as Google is an indication of its prevalence. A recent Google search on ‘research,’ returned 4.22 million results were, whilst ‘school research’ returned 446,000 results. Google Scholar yielded 15,400 hits when searching for scholarly research on the term ‘research,’ including 106 for the term ‘research of schools. In accordance, the study findings convey a clear and ongoing interest in studying the issues faced by educational institution certification and the pursuit of a marker of excellence in education.

Several educational research models have evolved in recent years which follow a similar pattern. This relates to the study findings where a considerable shift from physical to virtual platforms occurred in educational institutions due to the emergence of COVID-19. Virtual platforms of education bring new challenges for international institutions. Elliott and Goh (2013) highlight challenges in collaboration, communication, integration, and costs related to research in the twenty-first century. Mahaffey (2012) emphasise a ‘long heritage of managing schools through external evaluation ‘which has been complemented in recent decades by an internal review process because of schools’ rising autonomy (Blouin & Tekian, 2018). Therefore, the increasing focus on educational quality and ‘quality assurance’ has fuelled a desire to improve the transparency and accountability of public institutions. National education systems require schools to demonstrate to parents and the broader community that they are spending government funding wisely and taking care of students, according to Collins (2015). Collins (2015) also finds

that the major challenge within an organisation is the collaboration and approval of all stakeholders. This relates to the study's findings since participants also believed that a main challenge for everyone was to agree and make sure that they were functioning as a team in an efficient manner.

According to the study findings, the research process requires a great deal of interaction so that individuals can learn from one another throughout the procedure. Evans (2021), in agreement with this idea, suggested that the number of international schools that have grown at an astronomical rate in recent decades requires growth in its evaluation and quality assurance processes, as well. Schools around the world are becoming more prominent in the global education arena. A combination of school self-evaluation and professional peer assessment informs the research procedure used by these private international institutions, which is similar to that of public schools (Ascione et al., 2021). As noted in the literature and the participant responses, international schools are not associated with a national educational system and are therefore free to choose any competent certification agency for research. For instance, Dudin and Shishalova (2019) found that participants in the research cycle from outside the U.S. should be aware of the possibility of divergences in the procedure's stated goals. If organisational leaders or their teaching staff are attempting to improve their institution while adhering to publicly stated criteria, then research is an ideal option. However, a main challenge, as pointed out by participant V, was that 'everyone was supposed to be on the same page, and, you know, just making sure that we're functioning as a team in a very, you know, efficient manner'. Despite these challenges, the number of international schools seeking research is increasing. Previous studies have also highlighted that the rise in the number of researched schools indicates that the inward-looking approach exemplified by self-study cannot be easily maintained in market conditions which demand international schools to demonstrate a high level of transparency to attract increasingly discerning clients (Ulker & Bakioglu, 2019).

All stakeholders (e.g., students, employers, and the public sector) demand more accountability from higher education, which is being compelled to allocate resources for scholarships, credits, and financial incentives based on predetermined criteria. Kumar et al. (2020) find that various national and international organisations regularly authorise educational institutions, research, programmes, and majors. Consequently, the results of this study highlight a series of internal concerns common to many institutions before, during and after their quality

review by an agency (Kumar et al., 2020). The university 's senior administration often has no control over the many faculties, centres, or academic groups (Annabi & Wilkins, 2016). Therefore, a large administrative and academic body of an institution must be aligned under the same framework and management model, which can include eliminating individual departments to increase interdisciplinary collaboration, even if they have prepared a mission, a vision, and a set of common practices. Not only do full-time employees participate, but so do part-time teachers, collaborators, and a student population still adjusting to the idea of attending college. Human resources, finance, education, and research are examples of departments which are normally separate (Fleacă et al., 2018). It may take time for a collaborative environment to emerge when a research method aims for integration.

Ng et al. (2013) note a rise in staff effort, an inability to understand the continuous quality improvement process, a lack of organised opposition to change, and a dearth of performance outcome measures. The findings of the present study are in direct opposition to their assertion that 'transformation in organisational culture, multidisciplinary team building, greater interaction and communication, and development of acceptable research standards for local 'are strengths and opportunities for research, which Dudin and Shishalova (2019) stated, as well. These characteristics were found to be a problem for research in the current study and previous literature.

Brubakk et al. (2015) found that certification has unanticipated consequences, including fewer opportunities for clinical learning, a rise in trivial load, and ethical transgressions. These examples, which are both comparable to and different from the findings of the current study, show how educational institutions must enhance their research. As a result, a wide range of international experiences and organisations can be studied. For example, the experiences of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists share understandings with issues in standards and criteria. Certification by this college is designed to ensure that training standards are met for venues and healthcare learning institutions (Brubakk et al., 2015). Standard functions and locations can be changed without affecting the standard 's ability to instruct and assist students. There are universal criteria for all educational institutions and locations worldwide.

The second finding of this study shows that responding to these questions may be a realistic technique to increase the certification of educational institutions. These strategies

include assessing and revising standards and criteria, preparing for education, providing human and financial resources, and changing the executive structure of certification. Most commonly, published studies on the subject showed that staff education, the adoption of relevant standards and criteria, and the provision of resources would suffice (Brubakk et al., 2015). According to the previous literature, research by the Joint Commission faces at least three challenges: (1) managing uncertainty about the process 'effectiveness and cost-effectiveness; (2) addressing concerns about the erosion of professional autonomy; and (3) elucidating and promoting appropriate conditions for research of professional practice in the field (Santos, 2017). On the contrary, the study findings established that no matter how challenging the research might be, it was transformative in terms of gaining perspective on the learning process. Furthermore, participants believed that the research allowed them to delve deeper into outcome-oriented thinking.

To measure a program 's effectiveness, quality assurance teams within schools and colleges observe how well they can accomplish their goals. The program 's efficiency and cost-effectiveness are harmed by five types of difficulties. In this context, it is vital to show all stakeholder groups that research is successful and cost-effective, with an emphasis on quality assurance as a mechanism for both quality control and regulation and on the Continuous Quality Improvement (CQI) Raccio, 2020. There has been little evidence of the effectiveness of CQI in international educational institutions, particularly in general practice. Neither excellence nor mutual trust can be guaranteed. However, they can be protected and improved, at least in the long term, but they cannot be guaranteed or assured. According to Raccio (2020), inadequate 'expertise in recognising groups prone to major issues and preventing their growth 'may be one cause for this. An additional worry is the lack of assurance regarding the impact of external tests (e.g., certification) on practice performance and clinical results (Steiner-Khamsi & Dugonjić-Rodwin, 2018). However, no researchers have been able to establish whether research processes are a valid way to monitor or improve quality. A lack of understanding of the connections between organisational structures, methods, and outcomes is common in general practice. This is due in part to the fact that it is difficult to evaluate practice performance, interpret findings, and choose what measures to take considering these outcomes. This is considered a challenge for international learning institutions regarding joint research processes.

Basic quality assurance requirements are unlikely to challenge many practices and encourage performance improvement. Practices may be risked or compromised by the threat of postponed research or more severe penalties. Performance and the creation of high-quality initiatives such as ‘unified multi-professional teaching programmes ‘are likely to be hindered in this context (Bunnell et al., 2016). To defend themselves, research processes are being pushed to adopt minimum research requirements, which may be based on quantifiable services rather than quality or what is best for students.

The goal of quality assurance is to provide the confidence that comes from meeting the most basic requirements. The public cannot hold these organisations responsible for their services due to their research. Therefore, a lack of public trust in research programmes and standards is a result of this practice. Denial of certification, by contrast, implies guilt for practices that continue to operate below basic requirements. No punitive CQI, which believes that the quality of practice services is evolving and promotes long-term collaboration based on respect, is incompatible with this. Continuous Quality Improvement (CQI) focuses on opportunities to improve processes rather than identifying problems because it recognises that measurement and reporting cannot govern or enhance quality on their own. As a result, the question that this discussion raises is how research could both safeguard the public from ineffective management and promote quality improvement without pointing the finger at individuals. However, the research in this area has yet to reach any conclusions about whether quality improvement and assurance is a beneficial practice for school research. The compliance between the study results and the previous literature has thus far indicated that research is an effective process for both the educational institution and its stakeholders.

5.5 Learning Spaces, Structure, and Design of Joint Research During COVID-19

The COVID-19 outbreak, which has impacted nearly 1.6 billion pupils across more than 190 countries, has caused the most significant disruption of educational institutions in the annals of human history (Paudel, 2021). The number of pupils impacted by the closure of schools and other learning spaces ranges from 94–99% in countries with low to lower-middle incomes. This figure is highest in the developing nations of Africa and South Asia. The crisis complicates life for many of the world’s most vulnerable populations (e.g., those living in impoverished or rural areas, females, and refugees, individuals with disabilities, and people who have been forcibly displaced) to complete their educations. This further aggravates the educational disparities which

exist in the world. In addition, learning deficiencies present a risk of reversing decades of progress, not the least of which is work done to support girls and young women's continued participation in the educational system beyond this generation (UNESCO, 2021).

5.5.1 Alignment of Systems

Even though it seemed essential, closing schools interfered with students' capacity to study. This is true even if closing schools seemed necessary to save children and others around them (Ferguson et al., 2022). Many students engaged in 'hybrid mode teaching', being online or in school, distance, or remote learning. Many students also made use of outside evaluators for their teachers had been phased out entirely or replaced (Jung et al., 2021). Many educational institutions concluded that the topics being taught needed to be streamlined. When planning ways to re-open schools after a closure, educational leaders had to consider multiple factors.

There is a lack of clarity on the implications of shutting schools on learning in general. For example, there is little evidence to suggest that face-to-face training and online learning approaches result in equivalent levels of knowledge acquisition (Gherheş et al., 2021). In addition, education systems are currently dealing with attendance problems and higher absenteeism rates as a direct result of 'summer learning loss', a phenomenon which has been the subject of extensive research, and which suggests that children lose skills and competence when they are not in school. A lower socioeconomic background may make this learning loss worse since learning at home is determined by the amount of time available for teaching by the parents, the cognitive and non-cognitive abilities of the parents, and the resources they can spend on the teaching process (Vittadini et al., 2021). A prolonged period of school closures might make inequality worse, particularly in nations where factors which are not related to schools play an important role in determining how well students learn. If governments do not take the appropriate measures to ensure that every child has the resources to study in excellent settings. The process of developing instructional strategies for student learning in the latter stages of COVID-19 is essential.

It is difficult to adopt a policy response in times of crisis such as COVID-19 when the climate is so uncertain, and it has been difficult to do so in the past. According to the findings of a survey by the Organisation for Economic Co-operation and Development (OECD) and the Harvard Graduate School of Education, people in many countries believe that certain tasks (e.g., ensuring that educational continuity is maintained or providing support for the educational

development of children who lack autonomy) may be challenging (Goudard et al., 2020). The teacher needs to carefully balance within a short time frames, based upon the measures to adopt, the complexity of interactions between stakeholders and institutions involved at various governance levels within and outside of education, and the multiplicity of policies that needed to be aligned from a student's perspective (Gonzalo et al., 2021).

5.5.2 Budgeting

In addition to the widespread usage of fiscal stimulus options, a few countries make use of extra fiscal instruments such as bond issuance (e.g., Japan) or a grace period for credit instalment payments (e.g., Colombia). Cash transfers, in-kind food voucher programmes, and the building of information and communication technology infrastructure were likely given a higher priority in less developed countries, whereas many funds in more developed countries went towards digital innovation, research, and environmentally friendly campuses (Rohwerder, 2020). Greater economic stimulus was delivered to areas that were in the early stages of recovery and regions which needed sanitary efforts. The programme combined ongoing aid for persons who were most negatively affected by the crisis with a larger economic stimulus (Barua, 2020). Plans for economic recovery included funding for initiatives which support education and training, as well. These initiatives include innovation (e.g., Australia and France), skills training (e.g., Australia, Brazil, Guatemala, France, Malaysia, and the U.K.), green growth (e.g., France, Germany, Italy, Japan, South Korea, and the U.K.), expanded digital infrastructure, and internet connectivity (e.g., Chile, Germany, Malaysia, South Korea, and Japan).

Several industrialised countries have implemented economic stimulus measures in response to increasing educational needs and the changing sanitary condition (Khurana et al., 2021). South Korea is one of these countries, and its government has implemented a variety of initiatives in four rounds of stimulus packages, including the creation of Korean Massive Open Online Courses, the deployment of digital infrastructure for K-12, and assistance for remote learning in higher education. Evaluation of the influence on public education expenditure may make use of projections of future gross domestic product growth, estimates of future public spending, and UN projections of future population (Al-Samarrai et al., 2020). The assumption behind the baseline projection is that the proportion of the overall budget devoted to educational spending will not change drastically in the future.

As a part of their reaction to the pandemic, governments are expected to temporarily concentrate their expenditure on health and social protection, which is one reason why this estimate is negative. The projections for 2021 are based on the premise that there will be no more shifts in the overall composition of the budget, and it is assumed that the proportion of the total budget that is allocated to education will decline by 10%. These estimates should be handled with care since there is a considerable amount of uncertainty surrounding them, even though they are useful in gaining a better understanding of the probable outcomes of the COVID-19 pandemic (Kreps & Kriner, 2020).

5.5.3 *Physical Space*

The issue is that COVID-19 and the obligation of utilising EdTech for remote learning mix, blend, and redefine the new norm for educational institutions as they reimagine space and time. EdTech has long promised anytime, anywhere learning; now, we are experiencing both the potential and the challenges of this approach (Mpungose, 2020). Education institutions are simultaneously creating the basis for long-term recovery, resilience, and system reform while coping with acute crisis responses. Classes will eventually resume, and students will return to their respective institutions. The investments and decisions that are being made now to enable remote learning will, however, create a new standard in which the question of where and when students study will blend classroom learning with learning which occurs at home (Williamson et al., 2020).

After a period conducting pre-teaching activities at home and after the peak of the COVID-19 pandemic has passed, schools often begin to gradually reopen. During the initial stage of schools reopening, a type of blended education was likely provided. This is a form of education in which students attend school for a portion of the day and engage in distance learning from the comfort of their own homes during other hours of the day. School teams typically have the flexibility to adapt their organisational structure in line with the relevant safety requirements and institutional norms, such as reducing the number of students in each class or altering class schedules (Lasser et al., 2022).

5.5.4 *Implementation*

A few governments during Covid, have taken hasty steps to implement and adapt to online education. China, which was the first country in the world to handle this problem, funded

a programme called ‘School’s out, but classes on ‘for 270 million children (Zhou et al., 2020). It is not feasible to immediately transition from conventional or hybrid learning to learning that is delivered online in a virtual setting. No well-established and all-encompassing plans exist for providing significant online education during times of emergency. While transitioning from face-to-face to non-face-to-face education, connectivity, gadgets, digital tools, and the teaching of digital competence stand out as particularly important components (Stakland, 2021.). The most recent breakthroughs in technology have changed the ways students learn, as well as the methods teachers use.

Each institution must choose which techniques will most effectively satisfy their needs. To maximise the efficacy of the technology, it is vital to choose a tool which supports teaching and learning processes as well as teachers’ skills. Technology must be used to empower educators, going beyond the simple use of digital tools (Toktamysov et al., 2021). According to the findings of a previous study, despite the high investments in bringing technology in classrooms, two significant voids must be addressed. The first problem is a lack of utilisation, and the second one is a lack of results. The outcomes may be affected by teachers’ general digital proficiency, digital teaching competency, and professional digital competency.

5.5.5 Cost Challenges

According to Collins (2015), research programmes pose a significant challenge to medical practises in determining whether the potential advantages outweigh the potential financial, time, effort, and human resource costs. There are costs associated with preparing for and participating in the evaluation and managing the resulting transformation (Brubakk et al., 2015). Another challenge Brubakk et al. (2015) note is determining whether founding and operating an organisation to recognise educational practises’ learning approaches is cost-effective. It is common for non-profit organisations to administer research programmes, in which volunteers help set standards and assessors who volunteer to evaluate practices at little or no cost.

5.6 Key Lessons to Improve Research in International Schools

5.6.1 *Creativity and Open-mindedness*

The findings helped in learning the importance of creativity and open-mindedness in enhancing research in international schools. The primary results revealed that open-mindedness is a core element which enables professionals to greatly improve the research process. Mohamed Hashim et al. (2022) supports the findings by stating that stimulating learners' creativity improves the joint research programmes and encourages the stakeholders and new teams to work in a friendly environment and keep an open mind. However, it can also result in conflicts if all the stakeholders are allowed to give input and show their creativity.

Sparks (2018) supports the idea that creativity and open-mindedness assist in eliminating constraints which arise when rating institutions consider the overall process. The literature further supported the primary findings, as Adedoyin and Soykan (2020) argue that during the COVID-19, students prefer to learn with the latest tools and advanced technology. Documentation, authentic ratings, and the overall review process should be ensured (Engle, 2020). Open-mindedness further encourages the members to generate innovative changes in the overall process. However, open-mindedness should also prevail within a set limit, and specific leaders should guide their subordinates. This further involves the stakeholders in the decision-making process and eliminates discrepancies.

The findings revealed that institutions should utilise the latest technological tools to ensure high-quality learning for students. Kazanin and Drebenstedt (2017) argue that digital technology had transformed the education sector. Both primary findings and literature revealed that the research programmes could be enhanced overall if the stakeholders increase their reliance on digital technology, transparent documentation, and authentic records of the school. The literature and primary results helped in understanding that open-mindedness should be encouraged to enhance the research process. The critical analysis revealed that digital technology has not proved completely beneficial, specifically in COVID-19, as it affected the quality of education. Hence, the stakeholders need to make firm decisions regarding how creative ideas can be implemented in the process, specifically in the case of digital platforms (Sparks, 2018).

5.6.2 Documentation

A key lesson from the primary findings regarding improvement in research is that efficient documentation should be ensured. The findings stressed the need to have documentation in order. Engle (2020) further explain that documentation is a key element of joint research programmes, which helps in keeping track of events and progress. The primary results revealed that efficient documentation helps to prepare members to present the data accurately and in a timely manner. Lagrosen (2017) argue that well-documented curricula should be digital and that there should be less reliance on paperwork. This further indicates that effective documentation is a core element which helps to define the success of research programmes. The critical analysis revealed that a core focus of research involves assuring that institutions meet the acceptable quality level (Mahanani, 2018). The archiving team hence have a crucial role, along with documentation.

The findings revealed that if the individual performing the required work changes job, then there would not be sufficient evidence to explain the overall progress and performance of the institution. Overall, the documentation helps to prepare the team to present the required information even in a time of crisis such as COVID-19. It can also work in extreme cases when there is a need to conduct the research process virtually. Overall, the primary findings and the literature supported the idea that efficient documentation enhances the research process. The critical analysis revealed that it could be beneficial for both the research agencies and the school since it helps to maintain transparency and eliminate discrepancies in the process (Mahanani, 2018).

5.6.3 Participation in the Process

The primary findings and the literature indicated the need for active participation in the research process. Grymonpre et al. (2021) state that the teams must predict challenges and continue based on the changing scenario. The primary findings also revealed that the process should be well defined. Garira et al. (2019) further support the argument that the research process should be defined according to the needs and challenges of the environment. The COVID-19 crisis forced institutions to change their approach (i.e., change strategies based on the changing environment). Hence, active participation and flexibility should be the key aspect that can eventually assist in improving the overall research process (Regnier et al., 2019). The active

participation of the team members can further make changes in the research process through strong decisions, active meeting sessions, and discussion sessions.

The analysis further revealed that without active participation, it is not possible to improve in the research process and conduct the process successfully. The primary findings revealed that if the team are under immense pressure, then it can hamper the process. Additionally, frustration may negatively affect the research teams. According to the primary findings, active participation is a learning process, and it enables teachers to grow and enhance their overall learning. The teams must have a strong focus on providing a complete and proper analysis and eliminating barriers which damage their credibility (Talbert & Mor-Avi, 2019).

During the COVID-19 crisis, virtual teams were developed. The participation of every stakeholder was necessary, specifically in the case of the research process. An important lesson from the primary and secondary findings is that the teams should focus on adopting digital technology to remain current regarding the research and to meet all requirements (Honey & Kanter, 2013). Hence, active participation can help the teams achieve success even in times of crises (Sparks, 2018). The primary findings and the literature explained that participation, collaboration, and coordination is necessary in the research process.

The primary results revealed that schools may not be able to learn from their mistakes if there is not proper participation from all stakeholders. Active participation assists in understanding the process and improving the overall school function (Talbert & Mor-Avi, 2019). Students can be provided with a high-quality education if the representatives take an active part in the overall process. Moreover, the school must be able to adapt swiftly and adapt to online means if a crisis like COVID-19 arises. Focus on quality and participation can further enable the teams to adopt digital technology and deliver high-quality education to the students. Active participation on the part of management can also help to ensure transparency in education and critically evaluate the quality of teachers' lectures. The findings revealed that the participation of all members is necessary to have efficient documentation, perform critical analysis, and resolve problems in the system. This is vital to ensure a fair distribution of resources, incentive mechanism, and trainings (Goshu & Woldeamanuel, 2019). These elements help to improve the overall quality of education and eliminate negative elements from the research.

5.6.4 Increase in Representatives

A major lesson regarding improvement arises from research in international schools. It can play a major role in enhancing the overall research, ensuring transparency, and eliminating potential weaknesses. The presence of more representatives has a profound impact on the overall education quality and research process. Lack of awareness about increased representatives, documentation, and other major elements of research are the elements that restrict having more representatives (Honey & Kanter, 2013). Schools enable representatives, but some institutions are not aware that increased representatives help to improve the overall research process.

The primary findings revealed that increased representatives could help to improve documentation; maintain strong checks and balances; and ensure collaboration, coordination, and effective communication among stakeholders. James and Sheppard (2014) state that effective collaboration and coordination are core benefits associated with increased representation. Hence, the primary findings and literature indicated that collaboration is necessary among the increased representatives to ensure a rigorous research process. Travlos et al. (2017) explain that the challenges could be resolved if the stakeholders work collaboratively and have sufficient knowledge of the execution and awareness of all areas in the educational institution.

However, excessive representatives might lead to poor outcomes if there is miscommunication and a lack of collaboration among the stakeholders. It may occur in some cases if there are conflicts among the members. It can be resolved through proper leadership and effective management (Jumayeva, 2021; Kafaji, 2020). Hence, increased representatives may enhance the overall research process. Additionally, representatives facilitate the process and enable the stakeholders to conduct the procedure without discrepancies and bias. The primary findings and literature helped provide a clearer picture of the need to increase the number of representatives.

5.6.5 Closing the Gaps

The primary findings revealed the need to fill the gap in the research process. It is an important lesson that previous mistakes must not be repeated. Additionally, the needs of twenty-first century students should be considered when executing the research process in schools. Donovan (2010) supports the notion that research is an expensive procedure in terms of both the cash outlay and the amount of time needed by a recognised external institution to determine the requirements for educational excellence. However, irrespective of the design thinking proposal, a

problem persisted since the certification procedures did not consider the students' demands (Kafaji, 2020).

The primary findings revealed that a gap is observed in that research programmes often overlook the need for collaborative learning in schools. A broad name for a range of educational initiatives which aim to educate the most disadvantaged people (i.e., flexible learning strategies) is used (Rondinel-Oviedo, 2021). Collaborative learning should be encouraged, and flexible learning strategies must be implemented in international schools (Keiler, 2018). Since there have students from different ethnicities who speak different languages, communication issues may arise. Students may not feel comfortable speaking to teachers due to language constraints (Kafaji, 2020). Hence, the research should also critically evaluate whether the school implements flexible learning strategies since it is essential to provide a flexible environment for every student.

The research should also focus on evaluating whether the schools adapt classes to give students more voice and control and to assist and expand their learning by placing carpets and circular tables in the MYP environment. Keiler (2018) supports the idea that collaborative planning is more curriculum-focused and subject-specific than broad professional learning. The learning point is that research programmes must consider collaborative planning and curriculum-focused learning when evaluating international schools. The results revealed that schools must ensure collaboration in the classroom to improve the quality of education (Talbert & Mor-Avi, 2019).

The primary findings focused on addressing the gaps in learning within international schools. The research process should aim to encourage learning techniques and strategies in the schools to enhance education quality and encourage stakeholders to collaborate (Kafaji, 2020). The gaps should be addressed in terms of research and the overall education quality of the international schools. Kariippanon et al. (2018) argue that a rigorous research process could assist in improving students' learning environments. The research should also consider the learning spaces, outdoor student learning, community service, and quality of lessons to rate the institution (Rondinel-Oviedo, 2021). The critical evaluation of lecture material and lesson quality are core elements to investigate critically in research (Lagrosen, 2017). These elements can enhance the research and overall education quality of the school. The primary findings and the literature revealed that budgeting is a major element which impacts the education quality of the

school and research. A proper budget should be allocated to ensure a rigorous process, which requires the involvement of all important stakeholders (Mahanani, 2018).

5.7 How Can Future Design-Orientated Thinking Meet Twenty-first Century Learners' Needs?

The primary and secondary findings revealed that twenty-first century students have evolved, as Bernhardt (2015) succinctly defines: twenty-first century learning proponents believe that educational institutions are responsible for delivering students with intellectually stimulating experiences and specific opportunities to think creatively, collaboratively, and innovatively. The literature has also critiqued twenty-first century learning strategies (Garba et al., 2015). Most of the critique is not that they are not sufficient; instead, the groups promoting such skills do less to promote how they tend to look in the classroom and how educators are assessed on such skills throughout the year.

Rusdin and Ali (2018) argue that the results demonstrate that educators have positive views about twenty-first century learning; however, they still must make sufficient improvements to their teaching practice. The teachers faced several challenges regarding time constraints, poor knowledge, insufficient resources, and Information Computer Technology facilities. The teachers have further contributed recommendations to enhance every challenge, including professional development, provision of resources, delivering teaching modules, and upgrading the quality and quantity of ICT tools and facilities. From the literature and the primary findings, it is evident that digital technology has emerged as the major need of twenty-first century learners. It is also a requirement in the case of research, as the agencies tend to prefer conducting the research process digitally (Rusdin & Ali, 2018). In a crisis such as COVID-19, ICT can help sustain operations, conduct a digital research process, and enhance learners' skills. Educators are interested in and willing to utilise ICT tools in their teaching; however, they tend to complain about the quality and quantity they possess in their educational institutions. Garba et al. (2015) claim that teachers show interest in implementing the ICT tools for teaching; however, the difficulties in gaining access to the restricted tools have frustrated the teachers who attempt to implement the conventional teaching mode in practice.

The literature supported the primary findings, as Wrahatnolo (2018) claims that the twenty-first century education idea implementation might be applied in the required subject's curriculum, by enhancing with information media and technology skills competences. However,

problems also exist related to meeting the needs of the learners. Problems related to sufficient ICT facilities in the classrooms, specifically within rural schools, are an international problem; however, the extent of the problem differs across nations. The need for an overhead LCD projector and teacher computers impacts ICT's integration into classroom teaching (Garba et al., 2015). Such problems tend to prevail in the twenty-first century, indicating the need to invest in the education sector.

Wrahatnolo (2018) reveals that the twenty-first century requires adaptability and flexibility, life planning, self-management and technological initiatives, cultural and social interaction, entrepreneurship, leadership, problem solving, critical thinking, teamwork and collaboration, digital literacy, and lifelong learning (Wrahatnolo, 2018). In the twenty-first century, education is becoming increasingly significant to ensure that students have sufficient skills in innovation and learning, media, and IT and that they may live and work by using life skills.

Several skills required for excelling in the twenty-first century (e.g., questioning, critical thinking, teamwork, and resilience) are also essential for future-oriented design thinking (Buse, 2020). As per the primary and secondary findings, design thinking aids students in developing a wide variety of social abilities. Researchers emphasise the value of design thinking adoption for instructors in twenty-first century learning spaces in various contexts. Kotzee (2018) argues that open-mindedness could help to meet the needs of the twenty-first century by preparing teachers to utilise unique strategies and techniques whilst teaching the students. Egan et al. (2017) claimed that creativity could be considered a major skill for the twenty-first century which should be promoted in all schools. Nonetheless, it has not been possible to reach a proper agreement on core elements of creativity development in the domain of higher education.

Twenty-first century students have technology integrated into their daily routines, and it is an effective strategy to use technology in education (Kotzee, 2018). It improves the research process and enhances the overall education quality of the school. Twenty-first century learners use social media, technological tools, and mobile phones daily, which indicates the need for digital technology. During the research process, digital technology is crucial in critically examining the education quality provided by the school. However, Syahputri et al. (2020) point out the drawbacks associated with online learning. From the various mental impacts raised by increased screen time, learners feel fatigued (100%) and tend to experience physical pain,

including shoulder tension, headaches, and eye soreness (100%). They possess poor time management (98.2%), feel isolated from peers, and experience uncertainty regarding the lecturer's explanations during the online classes. Hence, it is recommended that there be a specific unit to care for students' mental health during online learning due the COVID-19 crisis (Syahputri et al., 2020).

For twenty-first century students, the research process improvement can positively affect students' learning capabilities. The NEASC research process should also consider open-mindedness when rating the institutions and meeting the needs of twenty-first century students. Nonetheless, open-mindedness may also result in conflicts which should be addressed by the management in critical situations. The COVID-19 crisis forced education institutions to transform their approaches, and hence change techniques based on the environment. Flexibility and active participation must be the core elements which help to enhance the overall research process (Rice et al., 2020).

The findings also explored future design-oriented thinking. In the Middle and Diploma Programmes, students are encouraged to consider subjects from a inter - disciplinary perspective. The implementation allows the disciplines to inaugurate critical thinking and enhance communication and social skills. The primary and secondary findings revealed that effective planning is a major element influencing the techniques for sustainable future designs. Forward Planning relates to the core aspect of the organisation's success. Via rational planning, educational institutions can develop proper tactics to accomplish their goals and objectives (Ogunode et al., 2021). Another major element associated with future design thinking is innovativeness. Education must not only be affordable, excellent, and extensive, but also developed in a proper way to address the demands and needs of a volatile globalised environment. The core elements of problem solving, knowledge building, collaboration, expert engagement, and self-regulation and the technologies' applications tend to be considered as learning outcomes in the present education era (Olimov, 2021).

However, Hsu (2020) suggests more concerted efforts needs to be done to encourage woman. In a empirical study to determine the impacts of teaching and learning at Tamkang University's future-oriented educational courses, adopted a quantitative survey of 578 valid samples which focused on five dimensions: change agent, transdisciplinary system, long-term thinking, concern for others and openness to alternatives. The survey was collected in the years

2018 -2019, the students represented 18-23 years, with a balanced gender ratio (male/female: 46.3/53.7)

The researcher found that the students who consider future thinking have demonstrated statistically significant high performance in two dimensions of future thinking, namely openness to alternatives and transdisciplinary system. Furthermore, they tend to be optimistic about 2030. The male students exhibit high levels of change-agent futures thinking compared to the female learners (Hsu, 2020), clearly suggesting that Taiwan is still emerging, and still has some way to go, in terms of gender equity and recognition of young women in transforming social futures.

Hsu (2020) study also shows students at the business college and freshmen and those less active in the club activities show low performance in future thinking. Mosely et al. (2018) argued that the facilitation of the informal design thinking (immersive) learning experiences for the non-designers tend to be influenced by the facilitator's expertise level and the complex nature of the issue being addressed. The types of design thinking revealed by the researchers include convention-based, simulation-based, result-focused, experience-based, strategy-based, and redefining the field (Mosely et al., 2018). Effective design thinking tends to positively impact the students to a considerable degree and helps to improve educational outcomes.

Innovation is a major element associated with future design-oriented thinking. The implication of innovation is required to improve the present situation compared to the prevailing situation, (Axmedov et al., 2021). Nonetheless, the implementation of innovation cannot be made alone since challenges should also be considered to accompany innovation (Olimov, 2021). Innovation further allows educational settings to focus on digital technology and provide a learning environment to the students (Kassymova et al., 2019). Considering future design-oriented thinking and the evaluation of twenty-first century learners' needs, it is essential for educational institutes to undertake macro-analysis by considering an external analysis which assesses the impact of government policies, economic policies, competitors' actions, and social aspects (Howes, 2018). Moreover, educational institutions must identify the external opportunities and threats which impact their strategic planning.

The primary results revealed that the teacher's attitudes and practices are essential for determining and also improving the education processes, as they are closely linked with the teacher's strategies for managing any type of challenge in their lives. This notion indicates that a system of checks and balances is required when providing education to students through digital

technology. Despite the benefits, there are weaknesses associated with technology which were discussed previously.

5.8 Critical Assessment of Virtual Reality, Metaverse, and the Importance of STEM

The twenty-first century has seen rapid development of emerging technologies such as edge or cloud computing, big data, high-speed mobile internet, artificial intelligence, internet of things, and robotics (Majchrzak et al., 2020). When several types of exponential technologies were unified, they vitally impacted, expanded, and cross-pollinated their respective abilities and further accelerated their speed of evolution. Thus, the dominant paradigm under manufacturing and production is forecasted to be altered and trigger socio-economic impacts. Nonetheless, the radical transformation is called the fourth industrial revolution, which is leading towards Industry 4.0. However, the inclusion of STEM education, along with the precedent of virtual reality, can be complex or complicated initially. Furthermore, as Majchrzak et al. (2020) state, digital devices are being adapted for educational reasons which were observed from 1997–2006 when networked computers for collaborative learning commenced, and from 2007–2016, online learning became widespread. The same authors state that the implementation of virtual reality in the learning context had been successful. Education is a vital field of the communities and economies where core implementation approaches tend to remain unchanged, as well as orbiting classrooms, transmission, and textbooks despite several technological innovations (Mystakidis, 2022).

Mystakidis and Christopoulos (2022) assert that Industry 4.0 requires proportional educational responses to accommodate the unfolding needs and subsequent societal changes. Such profound alteration impacts and induces a radical shift in employment, and economies are expected to lead towards novel societal changes. Thus, new generations of teachers and learners in higher education and schools must attain adequate skill sets and competencies in the science, technology, engineering, and mathematics domains. However, as Elme et al. (2022) state, there had been an educational challenge with the discipline having the low motivation to engaged in STEM learning, yet the regimes altered the manners in which the STEM subjects were taught. According to Elme et al. (2022), the STEM teaching approaches are needed to change extensively due to the rapid and extensive development of technology and accumulation of the knowledge within the applied STEM domains. In addition, STEM domains are challenged with the task of ensuring that students who are graduating have the corresponding skills, knowledge,

and techniques to meet the demands of the modern job markets (Jelks & Crain, 2020). Nonetheless, access to specialised equipment, labs, and experts to guarantee high-quality knowledge transferring can be demanding and not necessarily possible to acquire. Furthermore, Elme et al. (2022) note that STEM lessons promote deep learning and the discipline's awareness regarding the practicality and relevance of STEM. Moreover, the STEM field places a high value upon practical assignments. Practical assignments enable learners to avail embodied learning. Positive learning outcomes have been denoted in the teachings of STEM subjects, for example in physics and chemistry.

In addition, the implementation of virtual reality IVR is forecasted to be utilised in an extensive manner in the classrooms, as it tends to be a cost-friendly aid for tutors of STEM subjects in an efficient manner in contrast to previous approaches. Moreover, IVR is likely to have many unique affordances involving the improvising of spatial knowledge, sense of presence, the capability to address experiential learning, and creating situated learning (Elme et al., 2022). Furthermore, several portions of STEM education relate to early levels and pre-secondary education, where elements such as entertainment are significant for successful outcomes (Kanematsu et al., 2014). In addition, the same author states that the use of the metaverse was controversial regarding educational purposes. However, Gülen et al. (2022) find that the issues experienced under the domain of STEM education involve time constraints or limits and that more disciplines and issues for collaboration or integration would be reduced with the inclusion of a metaverse atmosphere. The same authors noted that STEM's technological element is integrated into the metaverse environment, and that STEM education is implied under the metaverse via coordinating the aspects of engineering, science, and mathematics with the transdisciplinary theme.

According to the findings, STEM is a major priority in the domain of education as competencies in such areas are vital and in rising worldwide demand in communities and economies (Mystakidis & Christopoulos, 2022). Furthermore, effective Science Technology Engineering Mathematics educations tend to rely upon active learning pursuits along with constructive backgrounds. STEM education is forecasted to play a crucial role in creative education, which will be the core of engineering education (Kanematsu et al., 2014). The facet of STEM can be implied with the metaverse to increase the effectiveness of student learning. However, Almarzouqi et al. (2022) state that the metaverse will be inaugurated under a different

educational atmosphere involving engineering, mathematics, and STEM education. In addition, Elme et al. (2022) the same authors note that IVR enables the development of a realistic learning atmosphere which engages users and creates a sense of authenticity and presence. According to Radianti et al. (2020), STEM education, along with its challenges, is speculated to benefit from the rapid advancement of immersive virtual reality (IVR) technology, which has seen significant development of several kinds of education applications. The same authors state that the aspect of VR in the learning context and examination of the characteristics that determine the successful implementation of such technology, leads to positive influences on the learning outcomes.

Furthermore, the idea of the metaverse is not new, as in education, the aspect of the metaverse is the usage of virtual reality or world, which is called second life, along with learning management systems to improvise the learning procedures (Tili et al., 2022). However, the applications which operate in the 2D, web-based atmosphere tend to have well-documented inefficiencies and limitations (Mystakidis, 2022). In addition, authors have noted that the metaverse could be a future trend. Here people can meet and communicate, requiring higher education to be proactive in employing it for learning and teaching. The advent of immersive technologies involving mixed reality (MR), virtual reality (VR), extended reality (XR), and augmented reality (AR) have further enhanced the metaverse in many educational applications. However, as Gülen et al. (2022) state, there is not truly holistic metaverse, but rather fragmentary examples. The education-based activities in the virtual world, internet-integrated games, and digital-based interactions (e.g., meetings and online shopping) are perceived as the metaverse. However, online distance education tends to rely on synchronous and asynchronous e-learning, and both kinds of e-learning tend to depend upon web applications and software in a two-dimensional digital environment (Mystakidis, 2022), which spans under plane digital windows with height and width regardless of any kind of depth.

The advantage associated with the metaverse is allowing subjects to attend their classes virtually as well as providing factors which are included in the real classroom. The disciplines under metaverse can be communicated with the teachers and classmates by means of their avatars. This creates a learning opportunity which improvises the discipline's learning motivation. For example, Siyaev and Jo (2021) investigated the usage of mixed reality under maintenance to provide an engaging learning experience for aircraft maintenance. Furthermore, according to Radianti et al. (2020), due to the increasing scholarly attention paid to virtual

reality, there are comprehensive overviews mapping virtual reality applications for education. Moreover, as Elme et al. (2022) state, the STEM practice regarding hands-on learning can be efficiently replicated in the domain of immersive virtual reality (IVR) when there is utilisation of the affordances which unite the embodied and physical learning pursuits with the virtual sensory experience. However, it is not possible to address disciplines with motivating practical STEM learning actions which encourage students to be inquisitive and curious about learning approaches. The integration of the STEM subjects tends to provide the students with the opportunity to learn from the relevant as well as stimulating learning experience, enhance their critical thinking and problem-solving issues, and boost knowledge retention (Elme et al., 2022). Moreover, the STEM practices reinforce the student's self-efficacy and have teachers or tutors as their facilitators as well as integrate the assessment into instructions. Furthermore, according to Mystakidis (2022), the metaverse includes the fields of extended reality or cross reality which include the implication of digitalisation in different kind of projects. Virtual reality allows for the creation of an artificial digital environment. By contrast, augmented reality embeds digital inputs into a physical atmosphere solve issues. However, the inclusion of these technologies requires extensive investment from the entities and special tools such as special glasses.

According to Hirsh-Pasek et al. (2022), the elements of virtual reality, 3D, and augmented reality holds the promise of transporting children to new environments. The same authors note that regarding critical thinking, disciplines can solve real issues, enter fair markets, and exhibit their waves not only in their schools but also in much wider communities. Immersive virtual reality enables a realistic learning atmosphere which engages with the user and develops a sense of authenticity and presence. In the case of IVR, a higher sense of presence is reinforced via a head-mounted display (HMD) with its head position tracking, depth perception, and capability to prevent learners from viewing the outside world. A sense of presence can be particularly beneficial under the exploration phases in inquiry-based science learning interventions in STEM (Elme et al., 2022). Furthermore, several STEM domains have situated a higher value on the practical assignments due to hands-on activities being likely to aid in accomplishing knowledge transfer rather than theoretical learning.

The advantages of the practical assignments came from the phenomenon of embodied learning, which is one of the major features of the learning procedures. The virtual manifestations of the student's own body within the IVR formulate a sense of embodiment.

However, Jelks and Crain (2020) noted that gender and race play a major role in STEM degrees as well as career persistence. Furthermore, Mystakidis (2022) states that the metaverse is founded upon the technologies which allow multisensory communications with the virtual environment, people, and digital objects. Furthermore, Elme et al. (2022) find that self-explanation has been theorised as a procedure through which learners develop inferences regarding casual connections, as well as conceptual relationships within the learned material.

5.9 Significance of Hybrid Learning, Flipped Learning, and Blended Approaches

Priess-Buchheit (2020) argues that some institutions apply synchronous hybrid learning (SHL) as a strategy between extremes, which balances distinct requirements in the time of social distancing. The researcher revealed that SHL tends to strengthen communication and supports the learning element. Contrarily, SHL tends to be an inclusive and innovative format which supports social competencies, dynamic interactions, multiple perspectives, and immediate student-student and student-trainer feedback (Raes et al., 2020). On the contrary, SHL tends to depend on the equipment of students and relies on the students and on the trainer's adaption and technology. It is also significant that the growth of teaching pedagogies (e.g., inverted and hybrid classrooms) is connected to IB learning standards (Florian, 2010).

Hwang et al. (2020) claim that hybrid and online learning research within language education has grown during the twenty-first century. Team members' diversity and cultural values, which may impact teamwork attitudes and team cohesion in the team-based learning environment, have a high potential for examination (Hwang et al., 2020). In hybrid learning, the students tend to be motivated to learn from one another in the instruction sessions; however, the media shared online improves and reinforces class discussions. This type of learning enables the learners to have sufficient time with family and friends and work in a routine which is suitable for them. Hybrid learning is generated in the form of learning webs, which may be adjusted in online and offline learning practices. The resulting technique has proven worthy of being utilised in hybrid learning with a strong emphasis on terms of learning management of teachers to generate innovative learning (Ja'ashan, 2020). It is flexible and effective in welcoming technology-based learning.

However, hybrid learning also entails certain challenges. Raes et al. (2020) argue that a major challenge relates to a poor internet connection. To complete the hybrid course's online portion, the students must have strong internet access to view video lectures and download the

integrated materials. There may also be insufficient social interaction, restricted collaborative learning, the need for more time for preparation, and high costs. When learning online, students may procrastinate, which would hamper their educational goals and objectives. Karabulut-Ilgu and Jähren (2015) claim that hybrid instruction's advantages include learner pacing, flexibility, and more time for difficult problem solving. The issues the faculty encountered, on the contrary, include time investment needed for the initial course development and decreased interaction with the students. The faculty members should be consulted to provide recommendations regarding hybrid learning which can serve as a guide for schools which implement hybrid course development activities.

For effective learning through discussions to occur in BL, it tends to be necessary to sustain coherence between online and in-class discussions (Han & Ellis, 2019). Innovative teaching forms have been developing in the hybrid spaces for some time now; however, yet no in-depth reflection on the sustaining conditions which may guarantee their mass diffusion has been forthcoming. The researchers argue that currently, the most used and updated technologies are not those which are available by the educational structure but instead those which the students and several educators utilise daily at home (Trentin, 2016). Hybrid spaces tend to be dynamic spaces generated by the continuous movement of the users carrying portable devices which are continuously connected to the internet.

Flipped learning refers to a specific method or technique which assists the teachers in prioritising active learning during the class by assigning the students specific lectures and presentations to view outside of class or at home (Eppard & Rochdi, 2017). An exciting twenty-first century advancement in the modern classroom is flipped learning. This approach is characterised by various benefits. Enhanced interaction occurs between teachers and students, with the shift in the teaching technique towards student-centred learning in which the responsibility for learning tends to lie in students' hands (El Miedany, 2019). The students possess the capability of preparing at the suitable place and time which suits them and as many times as needed to meet their needs. This approach further facilitates collaborative working between the students, with an increase in engagement and a specific shift to active learning from passive learning (Eppard & Rochdi, 2017). Sakulprasertsri (2017) explained that learners in the twenty-first century must be well-equipped with the knowledge of content and all the required skills for their future careers and lifestyles.

Several pedagogical techniques were introduced in classrooms in terms of replying to the educational policies, specifically within the 12-year-old middle school settings. Considering the requirement for new pedagogical methods in the classrooms for enhancing the essential skills of students in the twenty-first century, flipped learning, an instructional approach in which the direct instruction in homework and class time is reversed has garnered much attention from various educators and teachers (Sakulprasertsri, 2017). A potential recommendation for implementing the flipped-learning approach involves preparing the students for this unfamiliar approach. Since the students are more familiar with the conventional approaches, it is necessary that the students must be trained to become familiar with every teaching process and how to utilise the videos and different materials before learning in the actual flipped classroom (Rahman et al., 2020).

However, challenges are associated with flipped learning. Kovach (2014) explained that flipping a class requires upfront planning and time to create the content compared to a conventional classroom, specifically when moving the course content or class activities online. Another challenge is that every student may not view the digital content or complete the out-of-class readings and would thus be unprepared to fully participate in the class (Akçayır & Akçayır, 2018). Brief quizzes at the beginning of class may give students the required incentive to complete assignments. Jensen et al. (2015) argue that the major issues in the flipped classroom are educators' workload to generate flipped learning material and student disengagement in out-of-class learning.

Mann et al. (2021) explain that BL refers to a kind of education in which students learn through both online media and conventional face-to-face teaching. Blended learning delivers sufficient opportunities to utilise both asynchronous (e.g., email, social networking sites, and blogs) and synchronous tools (e.g., group chats and Skype conferences). According to Alowedi (2020), BL is important for enhancing students' learning process. Blended learning tends to be an effective approach to teaching which integrates the ideal practices of online and face-to-face learning in a cost-effective way (Linder, 2017).

Dahmash (2020) explains that BL provides maximum benefit to language learning students by supporting their reading and writing skills, motivating them to search online, matching their conditions, and being economical. Language learners tend to face various challenges, including technological issues, weaknesses of instructors, complex online

assessments, attitudes towards e-learning, insufficient resources, and university council decisions. Alowedi (2020) provide a classic and effective approach to Blended Learning and virtual classes. The researcher held the view that BL integrates a range of techniques, including face-to-face instructions in the classroom, synchronous lessons through virtual spaces in which the teacher can meet the students, and having learning materials uploaded to a proper learning management system (LMS), including blackboard. Hamad (2017) find that BL helps the learners in readily comprehending lessons, avoiding mistakes made by peers during online sessions, and finding the content delivery appropriate to their specific learning styles. Blended learning (BL) enables learners to feel dependent and secure.

However, it is also important to discuss the challenges associated with BL. Poor infrastructure and access to technology may result in barriers to BL's successful integration. Tshabalala et al. (2014) list challenges and issues which add to the barriers to BL implementation: insufficient faculty support, poor policies, lack of computer and technological skills, large class sizes, and insufficient technological resources. Furthermore, Smith and Hill (2019) identify weaknesses, including the necessity for clear BL objectives and goals. Moreover, Mirriahi et al. (2015) highlight that insufficient institutional description of BL leads to challenges. Insufficient staff capacity for engaging with BL increases the likelihood of misinterpreting BL practices and principles. Ja'ashan (2020) finds that the time needed for the assignment and exams is insufficient with the BL approach. The digital platform may lead to issues accessing the course content, and the students are pleased with their online test corrections and feedback (Hamad, 2017). The students are typically satisfied with the course content, as they have continuous access to the required material. Nonetheless, the researcher also found that the students tend to struggle with the internet connection in their homes and are generally dissatisfied with the applications at home. The speaking skill cannot be improved significantly with the BL implementation.

Overall, hybrid learning, BL, and flipped classrooms are effective ways to transform the education sector and enhance education quality. However, certain challenges have been discussed that should also be considered when applying these approaches. Dey and Bandyopadhyay (2019) further supported the notion that BL can provide a safe learning environment where students can nurture their skills and actively participate in class. Educators have the responsibility to implement BL and hybrid learning, and the primary and secondary

findings found that hybrid learning can fulfil twenty-first century learners' needs. Students in the digital age require the latest technological elements to pursue education, which increases their interest in the subject (Dakhi et al., 2020). Schools must overcome the challenges regarding the approaches. For example, poor internet connectivity issues can be resolved if the educational institution provides a portable internet device which students can use at home. It ensures connection and a healthy learning environment for all students. Hockly (2018) argued that economic drivers (e.g., low cost and affordable and accessible software and hardware) have undoubtedly impacted the spread of BL in education. However, it is questionable to what degree BL has a low cost (Horn & Staker, 2012). Nonetheless, the cost savings of a BL approach is found to be beneficial for schools. Large class sizes, insufficient classroom space, and teachers' dissatisfaction with the influence of teaching due to restricted exposure to the target language, which the learners experience in timetabled classes, are major elements in deciding whether to apply the BL approach.

The use of hybrid learning, flipped classrooms, and BL enable schools to improve in the research process. These learning approaches meet twenty-first century students' needs and hence prove beneficial for educational institutions (Graham, 2018). The research process focuses on evaluating the digital strategies institutions utilise. Despite the drawbacks, BL has the capability of bringing major improvements to the education sector. The active involvement of stakeholders is necessary to improve the research and enable the school to provide an innovative learning environment (Dakhi et al., 2020). Flipped learning promotes problem solving in class, as students focus on applying the theoretical concepts learned at home in the classroom. These strategies can enhance the reputation of the school and result in effective school research. Moreover, innovative learning approaches allow teachers to experiment with novel techniques in the classroom while encouraging student collaboration and coordination.

5.10 How Does Research Drive Transformation in International Schools?

Research studies focuses upon addressing an international mark related to best practices, enabling wide-ranging comparability amidst high-performing institutes, and providing an assurance that graduates possess sufficient skills and knowledge (Frank et al., 2020). Research is based on continuous improvement ideologies, peer-review quality, and accountability against professional standards. It is a public declaration that a specific quality level has been attained (Romanowski, 2022). A rigorous research process ensures high-quality educational procedures,

improvement efforts, emphasis on ethics, assurance of student learning, mission-driven management procedures, and code of conduct are ingrained in academia (Akhter & Ibrahim, 2016). Research agencies tend to bring positive changes into educational institutions by developing a common framework and process. It is also a beneficial element which helps the research agencies to supervise the overall activities of the schools and then make a proper decision about the quality of education.

Pullen (2022) argue that recent developments related to soft-skills training space include the increasing number of stakeholders in e-learning. Some parents also prefer that the student gain education virtually or take at least some courses through virtual media. These further prompts institutions to have a strong emphasis on focusing on e-education and e-learning. This aspect sparked the provision of courses through online media, which are also probed by the research agencies (Keiler, 2018). Hence, virtual research is becoming prevalent. Kumar et al. (2020) claim that research outcomes tend to have a major and positive impact on educational institutions. They assist in improving the quality of education by enhancing its policies, procedures, and core areas, including teaching-learning, academics, and research, thereby revolutionising the institutions.

Research allows learners to receive a high-quality education. A major advantage of research is that educators are inclined to gain feedback on student learning. Research is significant as it enables educational institutions to improve the efficiency in the learning aspects for the students and their training (Pullen, 2022). Research is beneficial for both schools and learners. Keiler (2018) emphasises the certification procedure and its impact on personnel; it is essential for comprehending how international school research can impact academic performance and student enrolment. Kumar et al. (2020) argue that a research procedure provides the opportunity to observe every procedure in-depth and to resolve issues which were long unnoticed. Research further involves a procedure in which the educational institution must undergo a proper assessment procedure to assess compliance with standards and be reviewed, defined, and critically assessed by a group of experts to ensure the quality of education.

The research procedure influences the quality of curriculum, faculty, and evaluation of learning outcomes. These have been integrated as the mandatory criteria in all research processes (NBA, 2019). The learning outcomes are often utilised as a significant sign of academic programmes' quality. Hence, there has been a strong emphasis on enhancement in learning

outcomes and curriculum. The faculty members tend to engage in the curriculum's development and learning outcome assessment. Hence, the implementation and development of curriculum and attainment of the learning outcomes rely on the quality of faculty (Kumar et al., 2020). Gassman and Thompson (2017) discussed the benefits of research and how it is transforming the education sector. The major advantages of the research for the schools relate to the implementation and development of general standards, quality improvements, sharing of enhancement procedures among schools, improved employment opportunities for the students, and better recognition and awareness of educational programmes, resulting in increased donor support and enrolment (Kumar et al., 2020). Effective research efforts include obtaining and determining the support of institutions and leaders and the development of standards, which assure the programme quality and accountability while showing flexibility to include differences in research orientation and teaching, which allows innovation at schools.

The virtual research process also offers certain benefits and advantages. Elliott and Goh (2013) argue that several academic institutions eagerly participate in research procedures due to the various benefits of receiving certification. Joint research programmes are also conducted for schools which are found to be effective and successful in improving their education quality. Mohamed Hashim et al. (2022) argue that the focus should be on using digital technology related to joint research so that it is relatively easy to make a firm decision about the institutions and enhance the overall education quality. For twenty-first century learners, the research process improvement can positively affect students' learning capabilities.

Romanowski (2022) claims that research enhances and sustains educational quality, maintains academic values, acts as an effective buffer against higher education's politicisation, and serves public needs and interests. Research allows educational institutions to evaluate if they are on the path to attaining their vision and mission, being a limited opportunity to measure the whole system and enhance the institution (Shah et al., 2011). The researchers further recommended that the external evaluation by research may enhance the speed of transformation due to the worry about public disclosure. Since achieving research delivers the recognition of programmes and universities' legitimacy and quality (Madani, 2019), conducting research may improve brand recognition (Eldridge & Dada, 2016) and enhance the educational institution's reputation (Pham, 2018). Some hold the view that research can also attract students and professors.

There is another side of the picture related to research processes. Maintaining and attaining research is financially costly. Thousands of hours tend to be devoted to several research exercises, report formulation, data collection, and related activities by educational institutions (Conn, 2014). The academic staff hold the view that research tends to remove financial autonomy. During budget reductions, research budgets tend to remain untouched while other budgets are cut, placing barriers on the institutions and their staff in applying the academic activities. The researchers utilised Australia as an example, in which budget cuts outside of the research process result in increased staff-student ratios, large class sizes, staff shortages, and over-enrolment. Though some view research activities as a distraction from what they consider to be major initiatives, research, and teaching, educators should sacrifice for research (Romanowski, 2022). The research procedure results in a loss of programme control (Bullough, 2014). The researcher also reported how research often forces teachers to neglect students to work on the research process.

There is a need to overcome the challenges evident in the research processes. Research by the joint commission identifies three challenges: (1) managing uncertainty about the process' effectiveness and cost-effectiveness; (2) dealing with concerns about the erosion of professional autonomy; and (3) elucidating and promoting appropriate conditions for research of professional practice in the field (Santos, 2017). Regardless of how challenging research is, it is *potentially* transformative in terms of gaining a perspective of the learning process.

Furthermore, research allows professionals to delve deeper into outcome-oriented thinking. It is cost-effective and focuses on quality assurance as a mechanism for both quality control and regulation. (Raccio, 2020). However, this argument contradicts the previous statement that research can be costly. Research can be made cost-effective by ensuring proper budgeting and wise spending without discrepancies.

The primary and secondary findings revealed that research should not be postponed by institutions, as it eventually results in poor outcomes. Basic quality assurance (QA) needs are not likely to challenge practices or motivate performance improvement. Practices may be compromised or risked by a postponed research's threat or by penalties. The generation and performance of high-quality initiatives such as professional teaching programmes may be hampered in this context (Bunnell et al., 2016). To defend themselves, research processes are being pushed to adopt minimum research requirements, which may be based on quantifiable

services rather than quality or what is ideal for students. Mahaffey (2012) argue that denial of certification, contrarily, implies guilt for practices which operate below basic requirements. Fair research processes fuel innovation in educational institutions since research agencies provide recommendations to schools to bring relevant changes to the institution (Romanowski, 2022). This profoundly impacts the institution since the management started implementing innovative approaches such as BL, hybrid learning, the use of digital tools and applications, collaborative learning, pedagogical theories, and engaging class activities. Hence, research is transforming the education sector as it encourages stakeholders to improve in the quality of education.

The education research employers need to develop guidelines for schools. However, for education research institutes, employers must understand the complexity of scenarios such as the COVID-19 crisis. Education research must ensure that consultation with parents and children is addressed in such critical situations and that appropriate conditions are formulated for the COVID-19 environment. Kafaji (2020) explains that research has a positive impact on student performance. The learners' knowledge of the study's value has a 62% influence on their overall performance compared to their awareness of the school or programme's strategic aims. The findings indicated the study's value and assisted institutions in developing awareness initiatives focused on improving the overall education quality (Lagrosen, 2017). These types of awareness programmes can improve the schools' efforts in attempting to attain research by delivering to the school community with their students' direct support.

The primary and secondary findings covered various prospects of the impact of research on schools, such as influence on the quality of learning, teaching, and research (Lagrosen, 2017). Zhao and Ferran (2016) find the positive influence of research on the competitive strategy of the organisation and the management of education programmes. The literature also helped in understanding the strategic drivers to approach school research. The findings of Avolio and Benzaquen (2020) reveal that the commitment and leadership, staff and faculty preparation, budget commitment, research team, quality management systems, retaining and hiring qualified teachers, motivation to research, enhancement of physical facilities, local engagement, internationalisation, assurance of learning, maintenance of records, and innovation are the most significant drivers for approaching school research (Chang et al., 2016). Overall, research programmes have the potential to bring positive changes to educational institutions and enable them to focus on innovation, eliminate poor practices, focus on digital technology, gain the latest

opportunities, and think for the betterment of society (Avolio & Benzaquen, 2020). Challenges should be overcome to revolutionise the education sector as a whole.

The pandemic highlighted the significance of high-quality education, considering that innovative platforms were accepted for learning and teaching with improved teamwork and collaboration. The research of the education phase is a core strategy that is started for evaluating study programmes and educational institutions' performance. As per Mukhalalati and Taylor (2019), the education sector is the space for decisions and particular translations. During COVID-19, the research process continued through online strategies, and the research agencies were likely to assign a particular status to the online school which endorsed or verified the level of quality of the school's courses. Pustaka (2020) explains that the teachers find e-learning important for them; however, they still have weaknesses to overcome. The perspective of the internal stakeholders (i.e., teachers) involved in the study was worthwhile since the learning and teaching process is in their hands. The teachers must be aware of what they would face by following technology's rapid development. Both the drawbacks and advantages of e-learning which they experienced may be a reflection for them to enhance and support their e-learning process later. The literature indicated that the internal stakeholders actively participated in the research processes, specifically during COVID-19, although it was difficult as the process was shifted online.

5.11 What is the Importance of Efficient Documentation Within the Research Cycle?

It is an undisputed fact that the global economies have witnessed a major expansion in the last century in the domain of higher education, whereby higher education has been transformed from being an elite organisation into a mass participation function. Given that, individuals are increasingly seeking higher education which is mostly linked with better job opportunities, careers, and a higher level of employment. At present, given the volatile global world and fast-changing atmosphere, high-quality education has become a universal goal. Effective research is a vital ingredient for societies. However, there is no universal agreement on its definition (Frank et al., 2020). Traditional research processes tend to rely upon research entities, which may read the submissions from the university or college teacher education departments which document the ways in which staffing, courses, and resources meet the input standards.

The findings of the research exhibited that research is inclined to serve several kinds of constituents and for multiple reasons. This aspect of research attempts to attest to the quality of educational institutes or specific programmes, which in most cases makes individuals attain any kind of degree or enter a particular job (Wilson-Hail et al., 2019). Likewise, according to CAEP (2015), research has become a culture of ongoing enhancement via standards-based and data-driven decisions which requires rigorous focus on the part of faculty. Such precedent tends to translate into aligning the curriculum as well as instructions on shared data collection, standards, and analysis of the programmatic and unit-wide data. It is vital to understand that for some programmes, such alignment for their professional entities' research and standards demand, and those of local or state research bodies may not match, given that it adds an intense amount of work to faculty loads and several bodies must write research reports (Wilson-Hail et al., 2019). According to Karle (2006), the establishment or formulation of the efficient and transparent research system tends to occur in Eastern Europe, central Asia, Latin America, and Western Pacific regions. The decision to carry on with national research involves faculty and other major stakeholders. National research tends to be an optional procedure; consequently, those involved will either resist or commit.

The increasing globalisation of education has raised the issue of safeguarding the education quality of education. For instance, Karle (2006) notes that with the advent of internationalisation of the medical profession, it has become vital to safeguard the practice of the medical workforce. Given that, quality assurance, as well as the research functions of higher education, are based upon external review, which is utilised by more than 70 countries globally. However, these systems tend to vary from nation to nation, and they can be different depending upon the need. There are two foundational kinds of educational research: institutional and specialised. Institutional research verifies and indicates whether the entity met the particular research standards of educational quality. This research tends to gauge the institutional efficiency and learnings of the students' outcomes as well as to recommend that every part of the institution may contribute towards the general educational aims or objectives. Similarly, according to the Engineering Council (2020), the research procedure is mainly one of peer reviews, and it is applied to the programmes of learning and not to the departments. Furthermore, the main task with regard to research is to ensure that there are reliable and valid measures of the outcomes.

These involve entry tasks, pedagogical content knowledge, measures of content, school principal reports, school reports, and evaluation of the disciplines.

The insights of the research conducted by the Engineering Council (2020) have stated research of higher education programmes (AHEP), and its major purpose is to ensure that higher education is exhibited for the disciplines in any domain, such as engineering. The findings of the study asserted that the aspect of research tends to aim to ensure all training and development programmes meet agreed-upon standards of quality (Roy et al., 2020). It has also been noted that the implementation of the research programmes tends to occur to ensure that all programmes operate at an efficient level to certify or graduate students at a sufficient stage. From the findings of the Engineering Council (2020), there are characteristics or features which are to be followed by the research; the students must ensure that they have accomplished all learning outcomes and that the weighting of the learning outcome is delivered and gauged regarding the accomplishment of the research.

Moreover, although the impact of research is important, the activities regarding the validation, verification, and research is an ongoing procedure throughout the life cycle of the stimulations and model. The research standards focused on the nature of the inputs, such as the content, reading material, course aims or objectives, and assessment tasks. Increasingly, the guidelines in accordance with the professional preparation of courses are founded upon the abilities and the performance standards expected of entrants to the professions. Attaining the research tends to depend upon the evidence that the course graduates are ready and able to teach.

Furthermore, there are three major elements in accordance with a valid or viable research system. The first standard pertains to the aspect of research standards, the standards which are formulated for the research and assessing the teachers or tutors' preparation programmes. The second element includes the guidelines and procedures for addressing the evidence in relation to that the research standards. The third element includes the processes for setting the standards as well as judging the evidence. However, regarding the research standards, they are limited to the knowledge which is based on the efficient approaches of the teachers. The core reason for formulating the research and registration standards is to develop a common body of knowledge as well as structured training and development experiences which are comprehensive, understandable, and current. Given that, the same authors note that the foundation of the research function is the consensus regarding the professional skills, knowledge, and dispositions which

are valued and expected of the students and by the communities. Furthermore, specialised, and institutional research pertains to general characteristics which focus on addressing assurance that the details of the programmes shall meet the external research standards. Additionally, research is a function or procedure for addressing public trust, public confidence, and accountability, and it assists the market in the success of the institutions within the national, local, and global context.

The insights regarding the research standards involve that under the learning outcomes, a graduate shall accomplish all the stated learning outcomes for the programme and that every kind of researched programme shall either require underpinning understanding and knowledge for registration or a defined subset of the needed underpinning knowledge as well as understanding with the programme researched (Engineering Council, 2020). However, the formulation of the research bodies shall require extensive resources as well as finance. The research programmes shall feature the discipline's engagement with significant research, scholarship, and professional practice. The research panel is expected to look at the delivery and design. Moreover, the departments which are delivering the researched degrees are forecasted to promote diversity, equality, and inclusion in line with the applicable national regulatory guidelines amidst the curriculum which is relevant (Engineering Council, 2020). Furthermore, the primary aspect regarding research is to ensure that the public graduates from particular professional programmes. The present research standards for teacher education programmes held in Australia are more inclined to place focus upon the inputs rather than the outcomes. However, in contrast, in Britain, there is increasing use of the research standards, which identify the expected outcomes for beginning teachers. However, the main challenge which arises regarding research agencies is to go deeper in comparison to the present guidelines for the graduates to explicate what the tutors are inclined to know and that they can do each domain of the teachings.

The study findings noted that research tends to serve the professions by addressing a means regarding the participation of the practitioners for setting the needs for the preparation to enter the professions. Research is a technique which is implied for the enhancement of educational entities, and the certification of the research exhibits an acceptable or adequate level of institutional quality. The institutions are bound to compel towards the self-regulate and self-critical in their efforts to enhance their programmes and then attain insights under a summative report regarding their academic quality (Wilson-Hail et al., 2019). The aim is to take a closer

look at the discipline results and the best practices utilised to reach such outcomes. However, there are common threads of influence woven via the programmes under the universities in the research reports. Furthermore, the research requires explicit and agreed-upon guidelines of research standards as well as measures of the outcome involving the design under the co-operation with major stakeholders, promotion of the visibility, transparency, and consistent quality enhancement of the teacher's education. The framework involves the compatibility as well as comparable registration guidelines and the qualifications and ensuring consistent opportunities to learn standards in the form of school experience. According to Bourke et al. (2016), the teacher quality is assessed on the standards which are formed on the implication of the research, and implementation of on-going enhancements on the process of research may assess the quality of the teaching for the teachers. In addition, the same authors state that research tends to be a systematic kind of thought which endeavours to formulate the conduct regarding the graduating teachers. Moreover, research tends to require the access of the federal funds such as student aids and help the students to get enrolled in the researched programmes. Research is vital to disciplines to transfer the courses when evaluating their courses credentials. Research in the U.S. is based upon a set of contemporary beliefs and values which involves educational institution is central to the judgements related to the academic quality. Moreover, the educational entities have autonomy to sustain and enhance the quality of education.

5.12 Significance and Effectiveness of Joint Research

According to Blom et al. (2012), it has been noted that for students majoring in their respective study areas, educators continuously argue and discuss the multifaceted problems which impact their aims or goals. Students seek the ultimate curriculum to serve the undergraduates, and they struggle to attain the correct combination of skills or learning needed to complete any kind of study course. The term 'education' refers to systematic inquiry leading towards judgments regarding study programmes or organisations' merit, worth, and significance or support for decision making (Elliott & Goh, 2013). Research represents several opportunities for learning the disciplines via substantial results of the evaluation. Being an intervention (research), the aspect of evaluation allows a change to go beyond the monitoring and collection of the performance information towards the development of the knowledge for tactical decision making and ongoing performance enhancement of the students. Furthermore, as stated by Valori et al. (2013), research is not considered to be a peer review since the aspect of research involves

various procedures and processes. However, research authorities are inclined to seek internal college constraints upon the budget or requirements which are needed to enhance the quality of education for the disciplines (Blom et al., 2012).

The implication of the joint research tends to provide educational institutes with the facet for engaging the educators to incorporate the actions which increase educational institutes' efficiency and productivity. Similarly, the institution has met research standards of education quality, as it tends to assess educational efficiency as well as the student's learning outcomes and recommend that each research part contributes towards the achievement of the general educational aims or objectives. However, Bailey (2018) states that benchmarking fosters opportunities to reflect on what is working well and which regions benefit from the enhancements or the changes regarding strategic implementation. The formulation of the research is based on the development of the standards, which is different depending on the nation. England has a research system called the training and development agency (TDA) for schools; in Scotland, the research system is called the General Teaching Council (GSTC), and in the U.S., the research system is called as the Teacher Education Research Council (TEAC). Each research system has formulated a set of standards which explain the professional attributes of the researched tutors' educational schemes in terms of what they are expected to believe, value, and perform. Furthermore, entities which seek to be jointly researched providers must submit materials including a self-study document, supporting activity files, and the research review procedure (Elliott & Goh, 2013). Joint research provides information regarding the transfer of the credits between the institutions, or in the admission of the disciplines to pertain advance degrees via the acceptance of the credits in between researched institutions.

Research in the sphere of education is a technique which commenced to assess the performance of educational organisations and study programmes. It is a domain of public interest and an indicator of the soundness of a nation's social policy. The research implies the demonstrated progress towards quality enhancement beyond the minimum standards which are specified by the research body. However, as per the work of Bailey (2018), learning centres and their programmes have extensively engaged in data collection and assessment efforts and have not completely valued the benchmarking of the research aspects. Educational research in is the procedure through which an agency or association assess the educational body of a study and formally recognises it as having met pre-determined standards. In addition, the findings of the

study addressed that the implication of research is a rigorous process. Research enables education entities to avail an opportunity to enhance the quality of education by ensuring that they may self-evaluate. Moreover, the process of research allows educational institutes to integrate self-examination as well as imply the aspects of enhancement which were needed.

Research in education is the procedure through which an agency or association assesses or evaluates an educational entity or a programme of any course. The same author notes that the research bodies developed standards to reflect the qualities of a sound educational program. However, the implication of the research limits the choices in the curriculum. Furthermore, as Elliott and Goh (2013) stated, the reason for research is to promote ongoing enhancement; nonetheless, it is challenging to substantiate such a claim. The most effective form of interprofessional cooperation is joint research, which promotes overall improvement through team-led continuous education. The research procedure is prone to address the advantages (i.e., schools are inclined to address exhaustive documentation for their previous accomplishments and future plans). In preparation for the research visits, educators may produce volumes of significant information for several years, which is reflective of the results and trends in a self-study. Nonetheless, Blom et al. (2012) state that Accrediting Council on Education in Journalism and Mass Communications (ACEJMC) research are likely to limit the number of courses undergraduates take for their degree programmes.

Furthermore, the development of the culture is a vital practice and mindset for post-secondary education institutions and departments or units embedded in campuses. As a unified, integrated application procedure, cost structure, and collection of research requirements from world experts, joint research allows educators to be recognised for providing professional development activities on improved learning space and time. Nevertheless, a claim made in this research is that several schools are eager to participate in the demanding research procedures due to the various advantages of receiving certification (Elliott & Goh, 2013). The method of getting research allowed business schools to enhance performance management as well as organisational learning initiatives.

The finding of the study stated that efficient and effective training approaches and courses are vital to research. The process related to the development of the guidelines and standards is vital to educators when they are embedding the research aspect. Furthermore, the most vital aspect is to enhance the quality of education for the students. In this context, Mansour

et al. (2020) state that quality assurance has become a worldwide trend in education. Additionally, rapidly increasing higher education functions and enhanced development of higher education have become diversified, and the implementation of the internet has given students access to information. Moreover, globalisation has led to an increasing level of academic fraud, which makes it essential for the quality of education to be assessed. The research of the programmes and institutes takes places which may range from a few years to many years. The implication of the research review is held out by administrative and faculty peers under the profession (Eaton, 2015). Research entities thus have the authority to make decisions regarding the makeup of the administrators as well as public members.

The findings stated that joint research is bound to reflect the accreditors and the shared values and apply them regardless of any condition related to a single profession. In addition, a similar study noted that the implication of the joint research is bound to ensure that educators shall impose activities which are dependent upon the identified professional practice, exhibiting adult learning values and include the assessment. However, the structure and governance of the tutor's education presently involve a higher priority in European nations, except for countries such as Germany. The OECD document identifies that research requirements moved from inputs, curriculum, and teaching procedures to outcomes, which are what the programme graduates know and can perform. The research aspect is more focused on the results of the teacher's education schemes on the inputs, processes, and curriculum.

As per Elliott and Goh (2013), the implication of joint research reinforces the evolution of the IPCE via sustaining a society of practice for the joint research providers as well as for the stakeholders. Furthermore, there is an increasing body of evidence reinforcing the relationship between the IPCE and the enhancement of the students' knowledge, competence, attitudes, and performance. Moreover, an organisation builds bridges with the shareholder via collaboration, cooperation, and a framework which is built to improve the quality of educators.

5.13 Barriers which Hinder International Schools from Seeking Research and Authorisation

Certain barriers restrict schools from gaining research and authorisation from relevant authorities. Physical constraints also exist for educational institutions. These physical barriers between courses, including walls and doors, restrict future learning possibilities. However, renovated physical spaces affect how learners and teachers engage with one another in the school

as a whole and promote natural interactions between students and instructors. Such learning spaces have the potential to develop into information ecosystems which incorporate people, practices, technology, and values when they are appropriated via neighbourhood community engagement (Alvial-Palavicino et al., 2011). Though the research standards' successful implementation can resolve several problems regarding the quality of educational institutions, the research standards' implementation is not easy. An insufficient top-management barrier tends to be a significant constraint which impacts the successful implementation of quality management and the research process (Talib et al., 2011). Without a proper commitment from the top management, the application of any research process within the educational institution becomes difficult. It can stem from insufficient training and experience, resistance to change, and unwillingness to start improvement programmes.

Financial barriers are a significant constraint to research programme implementation. A sufficient budget is required to make the needed changes in schools (Debnath & Shankar, 2012). Technology, classroom infrastructure, and recruitment of quality staff and faculty require initial investment. Training and education are important for the staff and faculty of the school to make them aware of the advantages and needs of research, and it also needs financial support (Kundu, 2019). Insufficient awareness of research benefits and requirements is another major constraint which impacts the implementation of effective research processes. If the staff and faculty in the school do not have awareness of the basic benefits and requirements, they will not demonstrate full commitment. This specific constraint can be an element of employee resistance in the implementation of research practices and standards. Poor strategic planning is a constraint in the implementation of process and quality improvement programmes. Strategic planning includes setting and determination of objectives, specification of long-term plans, and developing control for effective management. The element of strategic planning is significant for institutionalising research practices and procedures.

Resistance to change is also a constraint to research practices and standards in schools. To decrease resistance to change, the staff and faculty of the schools should have sufficient training regarding the requirement, ideas, and advantages of the research program. The attitude of the staff and faculty towards quality is a major inhibitor in the effective application of all quality programmes (Abdullah et al., 2012). Difficulty in transforming the employees' mindset concerning quality improvement typically obstructs the research programmes' implementation.

The research program's success relies on the effective cooperation and teamwork of the staff and faculty. It tends to be complex to apply the research programme if teachers are unable to work collaboratively as a team (AACSB, 2013). The association among the teachers impacts the process performance and results in a proper research process. It is evident that poor teamwork and lack of collaboration among the teachers continue to be major barrier which restricts schools from conducting successful research. Insufficient education and training are also major constraints to gainful research. These elements result in employee resistance, which further leads to poor learning outcomes for the students. The school staff must be provided sufficient training and education in a proper way (Abdullah et al., 2012). Employee resistance should be reduced during its initial phases as it becomes a major hurdle which prevents the school from gaining research.

The management of a school must focus on developing proper policies for the research program's effective implementation. The policy and implementation framework must be communicated properly to every staff and faculty member. The policy must possess the provision of training and education for the staff and faculty. Insufficient clarity of the school's policy can damage the efforts related to research implementation (AACSB, 2013). Twenty-first century learners have distinct needs, and policies should be made that fulfil the needs and the requirements of research. Poor communication is also a constraint which impacts the research's implementation. Insufficient communication may result in poor cooperation, coordination, and teamwork, which may damage the research efforts (Talib et al., 2011). The advantages and ideas of the research programme must be communicated to every teacher along with the plan. Poor communication may further result in negative perceptions regarding the research programmes among the teachers.

Lack of leadership also affects school research. It is a major constraint in research standard implementation. The leadership's role in the implementation of research programmes is important. The top-level management must possess strong leadership skills (Akhter & Ibrahim, 2016). The top management cannot direct the staff and faculty to perform a specific task. Poor leadership can lead to the introduction of other constraints such as resistance to change, employee resistance, insufficient communication, and incapability of changing the school culture. It is another important barrier which affects the implementation of research. Infrastructure, including equipment, labs, classrooms, and software products, is a key learning

element in schools. If there is poor infrastructure in the educational institution, then it can result in poor research (Debnath & Shankar, 2012). The continuous improvement culture is significant for the organisation's survival and performance.

Insufficient commitment from management and insufficient financial resources are also constraints. Insufficient continuous enhancement culture is the constraint on which the research implementation's effectiveness relies (Debnath & Shankar, 2012). This potential constraint has appeared at the top of the hierarchy. Poor commitment from top management and unavailability of financial resources leads to poor mission and vision which eventually result in poor leadership. Kundu (2019) reveals that poor capability of changing the school's culture results in three other constraints, including resistance to change, insufficient employee commitment, and lack of teamwork and collegiality. Akhter and Ibrahim (2016) argue that teachers might not believe in the research procedure as a quality assurance mechanism, and they are doubtful of its results on the educational systems. There is a risk that the research processes will be haphazardly implemented to comply with the laws, without a proper understanding of their pedagogical purposes. For some teachers, implementation of the laws has become an objective rather than a way to improve the overall quality of the school.

Regarding the barriers to completing the research, professionals agree that insufficient time and absence of expertise are major challenges. Several research procedures and mechanisms may not be understood through the simple guidance which is attached to the reports. If there is unclear guidance, there would be different unanswered questions. Akhter and Ibrahim (2016) argue that conflicting feedback and inconsistent reports from distinct research commissions, reviewers, and stakeholders could also become a source of confusion and result in a delay in report submission and completion. Several distinct answers can be gained for all the answers regarding the procedure from every distinct stakeholder. Hence, the research agencies should conduct the process transparently to avoid confusion and consider the most accurate answers regarding various aspects of the school. Al-Yafi (2008) explains that redundancy regarding every element of the research procedure (e.g., data, efforts, and communication) is a major cause of time waste and submission delay. For example, efforts tend to be duplicated by every academic programme in the same school to obtain and report common data. Another type of redundancy involves information needing to be repeated in multiple places on the forms.

Onsman (2010) identifies issues with the management systems of schools, such as a lack of support for quality assessment programmes like research, as they are not perceived as effective at implementing improvements, specifically if the system is based on quantifiable indices which are utilised as the metrics of reporting for the accountability's objectives. Another problem involves the utilisation of QA's industrial models generally and Total Quality Management (TQM) specifically, which several commentators have highlighted as being of little use in the education sector (Onsman, 2005). The inability of teachers and management to observe research as a credible element for improving quality negatively affects the school's quality of education. Onsman (2010) claims that some teachers typically do not hold the view that they have been consulted or involved at any time during the research process. There tend to be different reasons for this perception: one reason is that the teacher is from a minority group. If teachers at the school have different nationalities, then it can create resistance to the research since such teachers may not believe that the management would consult them during the research process. Morcol (2007) argues that, in practice, any educational institution or other organisation tends to be precipitated by the decision to do things differently. It is observed that if any institutions utilise the comprehensive decision-making framework, then it can lead to resistance from the staff. The hierarchical model is preferred in most cases if the management team collect the data and utilise it to predict the likely realisation of the educational aims and objectives.

Raines (2007) recommends that consensual decisions which tend to be based on mutual trust and respect are likely to possess traction through the educational institution. However, if there is an absence of trust or contradictions, it can hamper the whole research process. Onsman (2010a) argue that the constraints to applying a proper set of systems for supporting academic capacity, monitoring academic performance, and assessing the results whilst sustaining a learning environment for the students and a teaching environment for the educators are concerned with three core elements of academia: communication skills, teaching skills, and cultural diversity. Darandari and Cardew (2013) and Darandari and Wars (2011) recommended that the evaluation and implementation of the research procedure be measured by offering sufficient training to the active committees. It would be challenging for the faculty to follow the research procedure while not being equipped with the needed specialised experience.

The noted barriers can hamper the whole research process and restrict the school from improving the quality of education. If the management is not united and there is resistance from

the teachers regarding the research process, then it may restrict the school from conducting the research. It compromises the quality of education and does not allow the students to gain high-quality education. A school which does not view research as an effective process to improve the quality of education hampers their overall education quality. Strong measures are required to eliminate the barriers and encourage the students to meet twenty-first century learners' needs and adopt digital elements in the education sector. It may have a profound impact on the quality of education and encourage stakeholders to put maximum effort into gaining research from relevant agencies and competing at the global level. The research process must be prioritised in educational institutions which can boost education quality. The focus should be on improving leadership, infrastructure, training sessions, communication, school culture, and collaboration, as well as eliminating resistance from the staff. Akhter and Ibrahim (2016) claim that an effective system could lead to precise data, recommendations, feedback, guidelines, and suggestions for facilitating a transparent and fair process. The centralised comments' presence and proper feedback can assist in managing common staff errors. A digital whiteboard can be generated which can be utilised by every concerned staff member through digital mediums for observing the latest updates and evaluating the progress related to the research process.

5.14 Conclusion to Chapter 5

In conclusion, the thematic analysis was found to be beneficial as it helped in understanding the opinions of the professionals regarding the school research journey and how the school has been able to cater to the requirements of twenty-first century learners. In terms of *the role of Joint Research from the perspectives of Internal Stakeholders 'during COVID-19 pandemics*, the stakeholder in the research provided useful insights (Kassymova et al., 2019). Open-mindedness and creativity were seen especially as important traits, determining stakeholders to gain maximum knowledge and have a strong emphasis on improving the education quality. Many witnessed the benefits of joint research by learning about new pedagogies, for example by interprofessional educational workshops, to meet the challenges of an evolving digital world and the COVID-19 pandemic. Additionally, thematic analysis revealed that the several abilities crucial to twenty-first century learning e.g., inquiry, reasoning skills, teamwork, and resilience are also essential in future-focused design thinking. Joint research allowed schools to explore various new perspectives; arising challenges, as it was not always possible to apply or implement them in practical physical learning spaces. This might be due to

budgeting or even size of the institution, the senior administration often has no control over the many faculties, centres, or academic groups (Annabi & Wilkins, 2016). The study results and the previous literature indicates that compliance between that research is an effective process for both the educational institution and its stakeholders. In terms of schools' ability to adapt during COVID-19 it was found that certain tasks (e.g., ensuring that educational continuity is maintained or providing support for the educational development of children who lack autonomy) was indeed challenging (Goudard et al., 2020). In terms of governments reaction to the pandemic, many prioritized and concentrated their expenditure on health and social protection. South Korea implemented a variety of initiatives in four rounds of stimulus packages, including the creation of Korean Massive Open Online Courses and assistance for remote learning in higher education. Ed Tech has gained new significance, especially during the initial stages of schools reopening, where a new type of blended education was provided, with students attending school for a portion of the day and the remaining time, at home engaging in distance learning. China funded a programme called 'School's out, with classes on 'for 270 million children (Zhou et al., 2020). In transitioning from face-to-face to non-face-to-face education, connectivity, gadgets, digital tools, and the teaching of digital competence stand out as particularly important. components (Stakland, 2021). A challenge Brubakk et al. (2015) note is how cost effective it is, determining whether to recognize and invest in educational practices' learning approaches, preparing for and participating in the evaluation and managing the resulting transformation. The research also concluded, the importance of creativity and open-mindedness encouraging the stakeholders and new teams to work in a friendly environment and encouraging the members to generate innovative changes in the overall process. The findings emphasized the need to have documentation in order being a key element of joint research programmes, which helps in keeping track of events and progress. Active participation from all participants teams within the learning process, it was found, enables teachers to grow and enhance their overall learning. They must have a strong focus on providing a complete and proper analysis. During the COVID-19 crisis, virtual teams were developed, and the participation of every stakeholder was necessary, specifically in the case of the research process. It was also felt important on focusing on adopting digital technology to remain current regarding the research and to meet all requirements. The presence of balanced representatives has a profound impact on the overall education quality and research process, helping to improve documentation; maintain strong

checks and balances; and ensure collaboration, coordination, and effective communication among stakeholders. However, this is determined by proper leadership and effective management (Jumayeva, 2021; Kafaji, 2020). A gap is observed in that research programmes often overlook the need for collaborative learning in schools, for instance, inclusiveness of the most disadvantaged people. Students from different ethnicities who speak different languages, commonly are overlooked. The research should also consider the learning spaces, outdoor student learning, community service, and quality of lessons to rate the institution (Rondinel-Oviedo, 2021) From the literature and the primary findings, it is evident that digital technology has emerged as the major need of twenty-first century learners. Twenty-first century learning proponents believe that educational institutions are responsible for delivering students with intellectually stimulating experiences and specific opportunities to think creatively, collaboratively, and innovatively. In a crisis such as COVID-19, ICT proved it can help sustain operations, conduct a digital research process, and enhance learners' skills. However, for many there are also drawbacks, from the various mental impacts raised by increased screen time, learners' fatigue, shoulder tension, headaches, and eye soreness. Many possess poor time management, feel isolated from peers, and anxiety related. It is recommended that there be a specific unit to care for students' mental health during online learning due the COVID-19 crisis (Syahputri et al., 2020). The findings also explored future design-oriented thinking. In the IB, students are encouraged to consider subjects from a inter - disciplinary perspective. The implementation allows the disciplines to inaugurate critical thinking and enhance communication and social skills. Innovativeness is also a critical factor, as education must not only be affordable, excellent, and extensive, but also developed in a proper way to address the demands and needs of a volatile globalized environment. It is essential for educational institutes to undertake macro-analysis by considering an external analysis which assesses the impact of government policies, economic policies, competitors' actions, and social aspects (Howes, 2018). The radical transformation of what is known as the fourth industrial revolution, is leading towards Industry 4.0. This includes the rapid development of emerging technologies such as edge or cloud computing, big data, high-speed mobile internet, artificial intelligence, internet of things, and robotics (Majchrzak et al., 2020). Further development is required for proportional educational responses to accommodate the unfolding needs and subsequent societal changes. Consequently, new generations of teachers and learners in higher education and schools must attain adequate

skill sets and competencies in the science, technology, engineering, and mathematics domains to remain current to need of twenty first century learners. IVR is forecasted to be utilized in an extensive manner in the classrooms, as it tends to be a cost-friendly aid for tutors of STEM subjects in an efficient manner in contrast to previous approaches. Gülen et al. (2022) see further collaboration and integration will be enhanced with the inclusion of a metaverse atmosphere. Here people can meet and communicate by means of their avatars, requiring higher education to be proactive in employing it for learning and teaching. Immersive realities enable a realistic learning atmosphere, which engages with the user and develops a sense of authenticity and presence.

Considering the requirement for new pedagogical methods in the classrooms for enhancing the essential skills of students in the twenty-first century, flipped and blended learning, are instructional approaches in which has gained attention from various educators and teachers (Sakulprasertsri, 2017). Flipped learning, assigns students specific lectures and presentations to view outside of class or at home (Eppard & Rochdi, 2017). It requires upfront planning and time to create the content compared to a conventional classroom. Blended learning sustains coherence between online and in-class discussions (Han & Ellis). Students learn through both online media and conventional face-to-face teaching. They utilize both asynchronous (e.g., email, social networking sites, and blogs) and synchronous tools (e.g., group chats and Skype conferences). However poor infrastructure and access to technology may result in barriers to BL's successful integration. Overall, the primary and secondary findings found that hybrid learning, including BL, flipped classrooms, and hybrid learning, can fulfil twenty-first century learners' needs. Many of the participants aligned to Romanowski (2022) viewpoint that research enhances and sustains educational quality, maintains academic values, acts as an effective buffer against higher education's politicization, and serves public needs and interests. Researchers further recommended that the external evaluation by research enhances the speed of transformation due to the worry about public disclosure. They have the potential to bring positive changes to educational institutions and enable them to focus on innovation, eliminate poor practices, focus on digital technology, gain the latest opportunities, and think for the betterment of society (Avolio & Benzaquen, 2020). Specialized and institutional research are acknowledged as providing general characteristics which focus on addressing assurance that the details of the programmes shall meet the external research standards. This then addresses public trust, public

confidence, and accountability. The findings of the study found that the implication of research is a rigorous process. It enables education entities to avail an opportunity to enhance the quality of education by ensuring that they may self-evaluate. It allows educational institutes to integrate self-examination as well as imply the aspects of enhancement which were needed. For example, accreditation encourages rethinking how classes are connected to, or separated from one another. Well designed and planned learning spaces have the potential to develop into information ecosystems which incorporate people, practices, technology, and values when they are appropriated via neighborhood community engagement (Alvial-Palavicino et al., 20). Financial barriers are a significant constraint to research programme implementation. A sufficient budget is required to make the needed changes in schools (Debnath & Shankar, 2012). The attitude of the staff and faculty, such as poor teamwork and lack of coordination can have an adverse effect towards quality. It is a major inhibitor in the effective application of all quality programmes (Abdullah et al., 2012). It is imperative that the policy and implementation framework must be communicated properly to every staff and faculty member. Insufficient clarity of the school's policy from unclear Leadership can damage the efforts related to research implementation (AACSB, 2013). Twenty-first century learners have distinct needs, and policies should be made that fulfil the needs and the requirements of research. This then is very dependent upon the ability of teachers and management to observe research as a credible element for improving the school's quality. If the management is not united and there is resistance from the teachers regarding the research process, then it may restrict the school from conducting the research.

CHAPTER 6: IMPLICATIONS AND CONCLUSIONS

6.1 Introduction

This chapter discusses the main conclusion of the research study and the implications on the research process' experience, contributions of the present study, blended learning, hybrid learning, narrative perspective, student-centred education and collaboration, the importance of the research process and trends regarding globalisation, digital transformation, and social media. This chapter therefore discusses the major points gained from the findings and presents a solid argument related to the research journey of schools and how the community cater to twenty-first century learners' needs, and begins with a reflection on the process of researching in an environment where the researcher is situated.

6.2 Reflections on Being Part of the Research Process of an International School

The experience of being part of the research process is a learning process since it helps to critically examine the school system's shortcomings and how they can be improved. The knowledge regarding digital technology adoption by the experts and professionals working at the school was improved. The research process helps to determine whether digital technology has been utilised effectively by the teachers. It helped to examine potential challenges which the research agencies tend to face when evaluating the school. The research processes are complex and require maximum efforts from the stakeholders to conduct a fair research process. Based on the experience, schools are seldom prepared to participate in the research process and focus on postponing such processes. During COVID-19, virtual research started with certain challenges and weaknesses. Open-mindedness is a core element which can enhance joint research programmes. Active participation also positively affects the research process and procedure. When participating, teams must predict the upcoming challenges and should continue as per the need of the environment and time.

6.3 Contributions

The study contributes to the literature in various ways. It is essential for international schools seeking research and aiming to eliminate potential challenges which negatively affect the quality of education. The present research study is beneficial for the stakeholders involved in the research process, including the school leadership. They can gain maximum benefit from this

study by learning how to prepare for the research process. The current research also indicated potential challenges which arise during the research process. The school management and teachers can make changes to the infrastructure, learning strategies, adoption of digital technology, teamwork, collaboration, communication, and leadership (Kundu, 2019). These barriers generally arise during the research process. The school management can generate specific strategies or techniques based on this study to eliminate barriers and ensure a fair and transparent research process. This study also benefits the research teams responsible for executing the process. This stakeholder group can focus on open-mindedness, innovation, teamwork, active participation, increased representation, and elimination of barriers based on this research study. It prepares the teams to understand how virtual research can be conducted and how it is different from physical research processes.

The current study is also beneficial for teachers who aim to meet twenty-first century learners' needs. The research acts as a guideline for teachers to prepare their lectures and lessons. The concepts of blended learning, hybrid learning, and flipped classrooms prepare teachers to utilise innovative teaching approaches. The study provides both benefits and drawbacks associated with these learning approaches., the teachers therefore consider this work as a guideline and focus on using specific learning approaches suitable for twenty-first century learners (Sakulprasertsri, 2017). The teachers can also gain a proper understanding of the importance of digital technology in the teaching profession. The study provides the need to adopt technology in the classroom and uses credible references to support the claims. Educators can employ this research and implement specific digital strategies to bring innovation into classrooms. Teachers could play a crucial role in transforming the education curriculum and teaching strategies by using this research study as a guide. The present study discusses the importance of digital communication. Teachers can communicate with the management effectively through digital channels to attain the desired organisational goals and objectives.

6.4 Hybrid Learning and Research Visits using Blended Approaches

Online learning has become much ubiquitous and comprehensive. In addition, with the rise of education technology, the school has adapted teaching approaches which diverge from the contemporary classroom environment. In addition, distance learning is being applied on a global scale, and most educational entities are initiating to implementation of hybrid learning models. Some recommendations arise from the phenomena of this research. Educational institutes adopt

hybrid learning approaches by ensuring that students can adopt the online learning aspect, which includes the use of technological equipment for learning at home. The implementation of hybrid approaches allows the students to use different kinds of platforms such as Google Drive or Zoom to access lessons. Presently, due to COVID-19, most schools should consider and be open to also include potentials of virtual learning, to enhance learning. An example being using virtual reality to immerse art students inside a virtual gallery in Paris. Similarly, virtual learning allows the students to engage in lessons by engaging in the metaverse.

6.5 Narrative Perspective

The study relied on qualitative data to formulate the results and understand the topic. The participants interview responses were critically analysed and the secondary data. To gain an in-depth understanding of the school research journey, a thematic analysis was performed to understand how the school community caters to twenty-first-century learners' needs. The interviews were time-consuming, due the fact the transcriptions had to be re-read, checked, and agreed with the interviewer for authenticity and accuracy. Then it was coded to complete a thematic analysis. From here it helped develop specific themes related to the topic, based upon the interview responses and specific arguments the participants presented related to the topic. The thematic analysis was the most suitable approach to this study; however, discrepancies may exist in the research, as some themes were based on a limited number of responses. The results, in this instance, were impressive, considering the research process and the focus of the school community on catering to twenty-first century learners' needs. In addition, the challenges of joint research in an international school were also explored. The challenges relate to difficulty in execution and approval, which the primary and secondary findings explored. Generally, schools face issues regarding poor infrastructure, limited focus on digital technology, poor teamwork, poor collaboration, resistance from employees, limited finances, and limited focus on research. These challenges have been emphasised by credible authors and require attention from the relevant stakeholders.

6.6 Classroom Arrangement for Learning

According to Cantero et al. (2016), educational scenarios where the learning pertains to social structure connotations of the power which promotes or limits the influence or interaction of the disciplines are students' attitudes. The arranging of the physical classroom environment is

one way enhancement can be made for the learning environment and to prevent the issues of the behaviours beforehand. Similarly, it is recommended that the educators inaugurate the classroom, and that the classroom may enhance the discipline's attitudes and learning. It has been recommended that teachers are inclined to develop a well-arranged classroom atmosphere to manage the lessons in a much more efficient and effective manner since it will trigger fewer problems in the classroom. However, if the classroom is not adequately organised to reinforce the planned schedule of activities, it shall impede the functioning of the day's work. It has been recommended that for implementation of effective classroom physical spatial arrangement, class teachers must develop aims and objectives for the class in advance and address how the students should behave in the classroom. Educational institutes need the resources and adequate leadership vision, to form effective classroom physical and digital spatial arrangements.

6.7 Student-centred Rather than Teacher-driven Collaboration

Teachers are inclined to personalise learning for the students, and the teachers are initiating the development of a district-wide culture: the student-centred culture. However, the inclusion of the teacher's role is vital to the effectiveness of student-centred learning. According to Muganga and Ssenkusu (2019), in the past decades, the education field has witnessed gradual transformation from teacher- to student-centred approaches for delivering administrative assessments and lessons. However, such kind of transition has happened unevenly in different regions. Similarly, educational institutes are inclined to implement the student-centred approach to give students the opportunity to share their ideas and insights with each other in the classroom. However, it should be noted that even in student-centred approach, the authority remains with the teachers.

6.8 Recent Global Trends

Globalisation has enabled individuals to engage in travelling, resource or cultural exchange, trade, and adapting research and development or the latest technologies. In addition, due to globalisation, economies have become more competitive, and exposure in almost every domain sector has increased. The world has become more intricately connected due to globalisation, which has allowed the economies to work towards the flow of goods, services, education, and finances. In addition, digitisation has entered the education sector, as universities and schools worldwide grapple to adopt to the latest trends for their education system, such as

digitalisation, virtual learning, and the use of e-learning. However, changes in the trends or socio-economic aspects may have an impact on educational settings.

Furthermore, schools and universities should be motivated to incorporate a culture into their settings which allows them to adopt digitalisation. Digitalised culture in schools or universities may increase effectiveness by reducing the expenses of the schools or universities. For instance, teachers may use a PowerPoint presentation rather than a blackboard in lectures. Additionally, the inclusion of digitalisation in the education system makes schools more practical, as the use of teaching and learning applications during the COVID-19 pandemic allowed most schools to keep their operations running and not halt the lectures. However, their inclusion of digitalisation can make educators face challenges, such as competition in the external market.

6.9 The Research Process as a Learning Process for the Teams and School

The findings revealed that the research process is a major element which helps to improve the overall quality of the school. It equally benefits all the key stakeholders, including schools, teachers, learners, research agencies, and parents. However, the critical analysis revealed that there are challenges associated with the research process which impact the school and the research agencies. It indicates that the research process may not necessarily be a learning experience for all stakeholders. The challenges include poor preparation, poor teamwork, few representatives, conflicts, and communication barriers. Poor monitoring restricts team members from learning about the quality assurance and research process. The school can learn to improve in the future based on the assessment given by the research agencies. The learning aspect is that the research process requires active involvement from all stakeholders. In case of poor engagement and limited focus, the research process can be a failure which may stem from incompetency, poor teamwork, and conflicts. The research process prepares schools to implement the latest technological elements which meet the needs of twenty-first century students. It is a learning process in a way that it helps in analysing the core weaknesses, strengths, and opportunities for the educational institution. The critical analysis revealed that some institutions do not consider research a credible process to ensure quality assurance. It is a major concern for research agencies since it compromises the quality of education. Institutions may refrain from going towards the research process, as they may not consider it a credible

process for assessing the quality of education. This aspect indicates that the research process cannot be considered a learning process in every case.

Not every stakeholder is fully aware of the benefits associated with digital technology. At first, some team members may find it difficult to understand the whole process which has to be conducted digitally. It may result in mistakes and errors from the research agency and the school. However, it is a learning process since it teaches the stakeholders to focus on innovation, uniqueness, and creativity when taking part in the research process. Virtual research may not be successful in all cases. The same applies to digital learning which was fuelled by the COVID-19 crisis. It was also challenging for students to manage and learn digitally due to distractions.

In the case of virtual research, the agencies may not be able to verify and cross-check all elements associated with the quality of education, which prevents the members from gaining the most out of the research process and enhancing their capabilities and skills. This challenge exists because there is no physical inspection in the virtual research, which also enables a school to hide their weaknesses. The research process improves the knowledge of research, as it identifies the need to have a strong infrastructure, effective communication, teamwork, collaboration, a learning environment, digital technology, and unity among educators (Kundu, 2019). Another important aspect of the research process is that it encourages educational institutions to use communication software and applications. It is a step towards digitalisation since institutions can improve internal communication by communicating through applications such as Slack, Skype, or ChatWork (Pinto et al., 2017). The need to have increased representatives is another major learning point for research agencies. It helps to conduct research in a fair, transparent, and quick way which saves time. Creativity is also a major learning point because, in the research process, teams may have to improve their evaluation methods based on the situation. The research process also helps to design specific strategies which meet twenty-first century learners' needs, adopting digital tools students are familiar with. Therefore, through the research process, the schools can learn to utilise unique approaches like hybrid learning and blended learning to deliver high-quality education to the students. These strategies can be formulated based on the evaluation provided by the research agency.

There can be arguments among the management regarding whether to pursue research or not. The opponents may argue that research is only to gain a positive reputation in the industry and does not impact the quality of education. However, the learning point is that all the important

stakeholders, including the owner, management, and teachers, require a healthy discussion about what potential benefits can be gained from the research process. With a mutual discussion, a consensus can be reached that indicates the need to have research in place. The results revealed that the financial barrier is a major constraint which affects the research process (Kundu, 2019). The learning point for the educational institution is that it should have a proper budget to bring major improvements to the school. Technology, classroom infrastructure, and recruitment of qualified teachers and staff need initial investment. Therefore, the research process prepares the institutions to invest enough in the infrastructure and create a healthy environment for the learners (Kaya et al., 2020). The research process also teaches institutions to focus excessively on strategic planning. It is generally lacking in schools which have a poor learning environment and quality of education. It further improves the teachers' commitment to work and encourages them to conduct research without discrepancies.

The research process also teaches stakeholders to handle resistance to change. During the process, teachers, and other staff may resist the change. It generally occurs if the stakeholders do not trust the research process and consider it as a tool for gaining a reputation in the industry. It further restricts the learning aspect since stakeholders do not try to learn anything from the process and consider it to be a poor measure of success. However, the research process teaches the educators that this process is beneficial for improving the overall quality of education and, therefore, helps to eliminate resistance to change (Kaya et al., 2020). Healthy discussions with the management help to understand the core elements associated with the research process. If the educational institution does not earn approval from the agency, it teaches the stakeholders to invest in specific areas which require immediate attention. However, the critical analysis revealed that teams must consider the complexity of the process. It requires effective collaboration and conflict resolution so that all the team members work in a comfortable environment. If there is disagreement among the team members regarding the research process, it can negatively affect both the educational institution and the research agency. Therefore, it is essential for the whole team to ensure unity during the process and deal with the challenges which may arise when critically assessing the school's quality of education.

At the outset, before participating in the accreditation process, there was insufficient knowledge about the challenges associated with the research process. By taking part in the research process, it was possible to understand that the challenges and benefits associated with it.

It boosts the learning about elements of educational institutions since it requires a critical evaluation of the institution. These may include teachers' collaboration, involvement of the management, limited focus on the classroom environment, and poor management behaviour. However, poor collaboration was observed in some cases, which restricted learning related to the research process. Despite the challenges, the research process further helps to focus more on open-mindedness and eliminate discrepancies in the process. Research programmes may have different criteria and standards. Some agencies may be excessively strict towards the classroom environment and infrastructure. Some agencies may specifically focus on technology use in the school. The learning further helped in recommending to the agencies that they should collaborate with the school successfully to ensure a transparent and fair evaluation which is free from bias.

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