

**An Investigation of the Gifted Education Programs
and its Effectiveness across the Private Middle Schools
in Dubai**

تحقيق حول برامج تعليم الموهوبين ومدى فعاليتها في المدارس المتوسطة
الخاصة في دبي

by

NEHA HARESH SHARMA

**A thesis submitted in fulfilment
of the requirements for the degree of
DOCTOR OF PHILOSOPHY IN EDUCATION
at
The British University in Dubai**

December 2021

الجامعة
البريطانية في
دبي



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ABSTRACT

The concept of inclusion remains at the heart of successful education and the UAE follows the rights-based model of inclusion. Gifted education programs are essential to offer academically aligned curriculum and instructional practices, cater to the socio-emotional needs of advanced learners, and provide the skills to advance their careers. This study investigated the gifted programs offered and evaluated its effectiveness in private middle schools in Dubai. Currently, we cannot estimate the number of gifted learners that go unidentified or underserved leading to individual needs being unrecognised. This disheartening situation exists owing to the dearth of prior research in giftedness in the local context.

Following the pragmatic paradigm and exploratory sequential mixed methods, the current investigation used the NAFC 2019 PreK-12 gifted education programming standards for guidance alongside appropriate theoretical and conceptual frameworks. Qualitative research including interviews and the document analysis of the KHDA school inspection reports was followed by quantitative analysis of student attainment data in core subjects in the cognitive domain alongside the self-perception data in the affective domain, and concluded with the qualitative analysis of the findings, guided by the giftedness literature. Few suggestions regarding improvements in the gifted programs and recommendations for future research are reported.

يظل مفهوم الدمج القلب النابض لنجاح العملية التعليمية، وتتبع الإمارات العربية المتحدة أفضل الطرق لتطبيق هذا المفهوم بفاعلية.

برامج الموهوبين لا غنى عنها لتقديم مناهج وممارسات تعليمية متوافقة أكاديميًا، وأكثر تلبيه للاحتياجات الاجتماعية والعاطفية للمتعلمين المتقدمين، كما توفر المهارات اللازمة للتقدم في حياتهم المهنية.

ومن هنا استقصت هذه الدراسة برامج الموهوبين المقدمة وقيمت فعاليتها في المدارس المتوسطة الخاصة في دبي.

في الوقت الحالي ، لا يمكننا تقدير عدد المتعلمين الموهوبين الذين لا يتم التعرف عليهم أو لا يحصلون على خدمات كافية مما يؤدي إلى عدم التعرف على الاحتياجات الفردية، ويستمر هذا الوضع المحبط بسبب ندرة البحث السابق محليًا.

وبتطبيق النموذج العملي والأساليب الاستكشافية المتسلسلة والمتنوعة، استخدم البحث الحالي معايير برمجة تعليم للتوجيه جنبًا إلى جنب مع الأطر النظرية والمفاهيمية المناسبة. NAFC 2019 PreK-12 الموهوبين وبعد البحث النوعي المشتمل بالمقابلات وتحليل تقارير التفتيش المدرسي لهيئة المعرفة والتنمية البشرية، ومن خلال التحليل الكمي لبيانات تحصيل الطلاب في المواد الأساسية في المجال المعرفي إلى جانب بيانات الإدراك الذاتي في المجال العاطفي، وختامًا بالتحليل النوعي للنتائج، واشترشادًا بأدب الموهوبين... ينادى البحث بضرورة بحث الاقتراحات المتعلقة بتطوير برامج الموهوبين، وتراعت بعض التوصيات والمجالات التي يتحتم علينا بحثها في المستقبل.

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Finally, I would like to dedicate this study to the students with gifts and talents in Dubai and the UAE, with the hope that they achieve their optimum potential and develop into remarkable global citizens.

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LIST OF ACRONYMS

ACER: Australian Council for Educational Research

ALP: Advanced Learning Plan

AMS: Academic Motivation Scale

ASSET: Assessment of Scholastic Skills through Educational Testing

CASEL: Collaborative for Academic, Social, and Emotional Learning

DoE: Department of Education

DSIB: Dubai School Inspections Bureau

GCSE: General Certificate of Secondary Education

GEPS: Gifted Education Programming Standards

IB: International Baccalaureate

IBT: International Benchmark Test

IEP: Individualized Education Plan

Ind: Indian

KHDA: Knowledge and Human Development Authority

MAP: Measure of Academic Progress

MoE: Ministry of Education

NAGC: National Association for Gifted Children

NWEA: Northwest Evaluation Association

OECD: Organisation for Economic Co-operation and Development

PASS: Pupil Attitude to Self and School

PBL: Project Based Learning

PCM: Parallel Curriculum Model

PISA: Programme for International Student Assessment

PTE: Progress Tests in English

PTM: Progress Tests in Mathematics

PTS: Progress Tests in Science

STEM: Science, Technology, Engineering, and Mathematics

STEAM: Science, Technology, Engineering, Art, and Mathematics

TAG: Talented And Gifted

TIMSS: Trends in International Mathematics and Science Study

UAE: United Arab Emirates

UK: United Kingdom

US: United States

CHAPTER ONE: INTRODUCTION

The principle goal of education in the schools should be creating men and women who are capable of doing new things, not simply repeating what other generations have done. (Jean Piaget as cited in Martin 2018, p. 124)

1.1 Background of the Study

Educational possibilities that can be offered at schools are infinite and empowering students to become future leaders with robust communication and collaboration dexterities is obligatory in the current circumstances of an ever-changing landscape. Every classroom must provide inspiration to students in advancing their learning by offering autonomy, purpose, and mastery. Contemporary education places immense significance on personalized learning owing to the increased emphasis on student autonomy and meaningful learning at schools. Additionally, technology is paramount in modern learning, but students need to be taught the skills to drive it to succeed in this era of acceleration. Promoting skills like critical thinking, prioritizing objectives, problem-solving, decision-making, leadership, and motivation can support students to innovate. Learner engagement in authentic assignments propelled by their inquiry and perceptions can lead to effective development of their life skills, work, and global citizenship (Martin 2018).

One of the critical phases of student life is adolescence, when a student experiences hormonal vicissitudes that spur physical growth and mood swings and mark the genesis of new perceptions and understanding. While the learners are acclimating with the multitude of transformations, they are simultaneously forced to prepare for high stakes assessments with the clock scurrying away on compulsory education and making big

decisions about their career-related educational choices. This complex scenario might compel teachers to resist differentiation for gifted students during the crucial years when learners are most likely to forsake their gifts to gain popularity among peers or encounter boredom with regular curriculum or instructional strategies (Dixon 2009).

In continuation, prior research studies have evidenced the qualitative variances brought by the gifted students to their classrooms from the educational as well as psychological perspectives, providing a compelling rationale for curricular and instructional differentiation, emphasizing the integration of higher order thinking skills, and incorporating student voice to design purposeful personalized learning experiences for these deserving learners. As educators, we need to question our epistemology regarding the disposition of knowledge and its pragmatic relevance to classrooms with gifted learners' evolving views about education and the availability of abundant information at their fingertips (Dixon 2009). This brings us to the purpose of gifted education, its discourse and accountability in current aera.

In the absence of gifted education evaluation standards and guiding publications regarding gifted education within the emirate of Dubai, the present study consulted the Gifted Education Programming Standards for K-12 by the National Association for Gifted Children (NAGC 2010) to investigate the gifted education programs and their effectiveness across the private middle schools in Dubai. The NAGC standards convey the characteristics of effective gifted education programming options that safeguard appropriate levels of consistency across schools including crucial benchmarks regarding policies, procedures, and processes, and recognize evidence-backed practices that are critical to enhance the outcomes for learners with gifts and talents (NAGC, 2012).

Within the UAE context, gifted education is a moderately recent phenomenon and expressed as schooling of learners displaying some exceptional capabilities, resulting in extremely limited research existing for reference. The Ministry of Education (MoE) initiated gifted educational provisions in the year 2000 across government schools, but individual schools could make their own plans, resulting in inconsistent programs for the students (AlGhawi 2017). Private schools in the UAE are governed by the Knowledge and Human Development Authority (KHDA) and although the *UAE School Inspection Framework* 2015-16 offers definitions of students with gifts and talents along with expected provisions, these have not been implemented strongly. In the year 2017, the KHDA established the *Dubai Inclusive Education Policy Framework* aimed towards responsible inclusive education based on the principles of respect, equity, acceptance, fairness, diversity, individualization, and enrichment for all learners. However, this policy discussed the expected outcomes for students with special needs and disabilities without any emphasis on students with gifts and talents, thereby providing testimony to the neglect by the educational authorities regarding gifted education in the local context (KHDA, 2017).

1.2 Purpose and objectives of the study

AlGhawi (2017) conducted a pilot study exploring the implementation of the gifted education programmes across primary government schools in Dubai. There was no study regarding gifted education in private schools and the aspiration of this study was to bridge this enormous gap to some extent. Based on the multifaceted stages of adolescence discussed in the previous section alongside the desperate need to learn about the existing educational provisions for gifted learners within the private sector, the purpose of this

research is to investigate gifted education programs and their effectiveness across the private middle schools in Dubai.

The objectives of the present study were to attend to the following research questions:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

The above research questions were addressed utilizing the exploratory sequential mixed method approaches of data collection, which was appropriate for representing the issues of equity in inclusive education for the underrepresented gifted learners (Creswell 2012). The initial qualitative methods supported the in-depth understanding of the gifted provisions offered at private schools supplemented by the quantitative data analysis that would be indicative of the efficacy of these gifted programming options across the cognitive and affective domains. Finally, the qualitative evaluation of the offered gifted programs was guided by the NAGC standards, and recommendations for the future research concluded this study.

1.3 The United Arab Emirates (UAE)

The United Arab Emirates is a constitutional federation of seven emirates with Abu Dhabi as its capital city. The UAE is an economically and politically stable nation and was ranked 25th globally recognizing its economic growth (World Economic Forum, 2019). There are over 200 nationalities residing in the UAE enjoying their freedom of civil rights, practicing their religion, learning, working, and living in a tolerant country. The expatriate community outnumber the population of the Emirati nationals, with Indians forming the leading foreign community followed by Pakistanis, Bangladeshis, other Asians, Europeans, and Africans. The UAE boasts of 95% literacy rate. The UAE is in the continent of Asia and in eastern part of the Arabian Peninsula. The kingdom of Saudi Arabia and the Sultanate of Oman are its neighbours along with the Arabian Gulf. The UAE has an area of approximately 71,023.6sq km and 84% of its landmass is accounted by the city of Abu Dhabi as shown in figure 1.1 (UAE National Media Council, 2019).

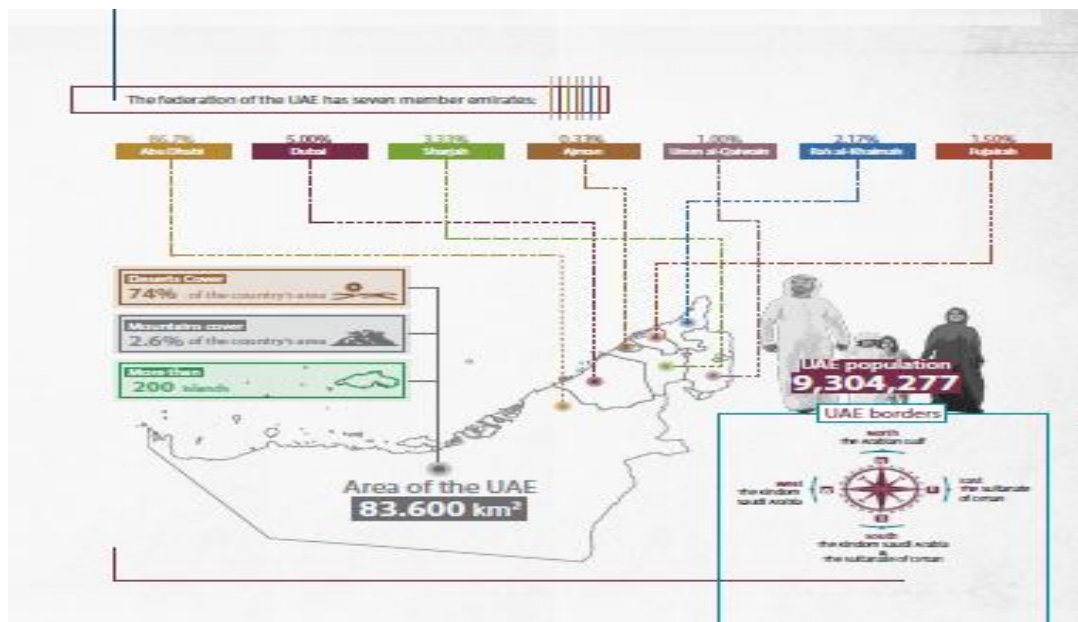


Figure 1.1: UAE Demographics (UAE National Media Council 2019)

1.4 Education system in Dubai

The education system in the UAE is complex and multifarious with the Ministry of Education (MoE) responsible for the public education schools including curriculum design and resources, employing and development of teachers, and continuous evaluation of the system. The public education system is funded by the UAE government, has a strong Arabic and Islamic influence, and is accessible to all the Emirati population. The expatriate communities have established private schooling that cater to their cultural, religious, and educational needs and this sector had greater numbers of schools proportional to the expatriate population living in the UAE (Gaad, Arif and Scott, 2006).

The past two decades has seen immense positive progression in the educational field in the UAE. Creating a first-class educational system was one of the UAE National Agenda pillars in accordance with the UAE Vision 2021 (UAE Government, 2018). The key performance indicators of the Vision 2021 are indicated in figure 1.2 .



Figure 1.2: Key performance indicators of the UAE Vision 2021 (UAE Government 2018)

Recently, H. H. Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai launched UAE Centennial Plan 2071, which is a five-decade long plan with a specific roadmap to reinforce the nation's reputation alongside its soft power. The four pillars of the Centennial Plan are shown as an illustration in figure 1.3.

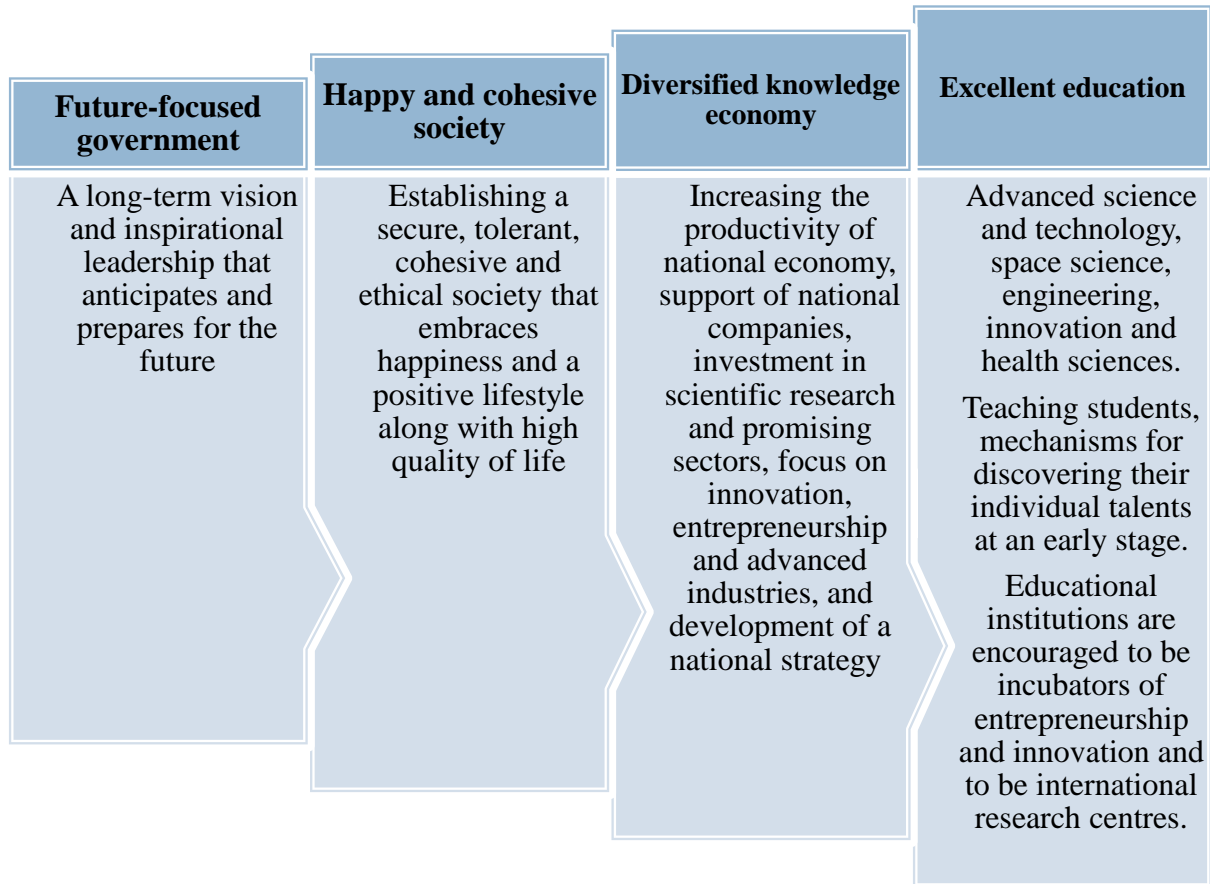


Figure 1.3: Illustration of the 4 pillars of the UAE Centennial Plan 2071 (UAE Government 2021)

Finally, the UAE Centennial plan 2071 intends to invest appropriately in the future generations in terms of upskilling them and providing the knowledge required to progress the country to become the best possible soon (UAE Government, 2021).

Inclusion forms an important part of education with the UAE, which has adopted the social model of inclusion, where barriers to education are envisaged in the learning environment rather than the individual (Alborn and Gaad, 2014). Gifted education forms a part of the inclusive education and students with gifts and talents are categorized under the special educational needs segment within the local context (AlGhawi, 2017).

1.5 Role of the Knowledge and Human Development Authority

The development and quality of the private education sector in the emirate of Dubai is steered by the Knowledge and Human Development Authority (KHDA), including early learning centers, schools, universities, and all higher, vocational, and technical education and training institutions while supporting all the stakeholders involved in private education. The KHDA aspires to develop a high-quality private education sector that emphasizes happiness and wellbeing for students, parents, investors, educators, and government partners (KHDA, 2021).

The KHDA comprises of the following entities with individual functions as explained in the figure 1.4 below:



Figure 1.4: Illustration of the KHDA entities (KHDA 2021)

The Dubai Government guides the work strategies of the KHDA including its regular publications and school annual inspection reports offering evidence-based information available to all the stakeholders of education (KHDA, 2021).

1.6 The NAGC Gifted Education Programming Standards (2010 and 2019)

The NAGC Gifted Education Programming Standards (2010) were guided by the following principles:

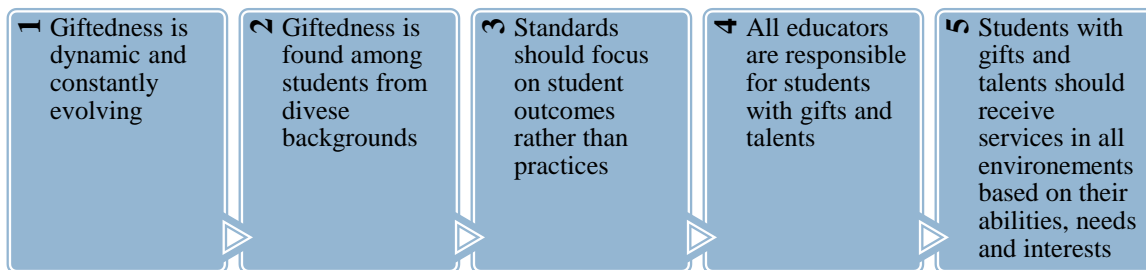


Figure 1.5: Illustration of the NAGC Principles (NAGC 2012)

The NAGC standards comprise of 6 standards and are detailed in chapter three of this report (NAGC, 2019).

1.7 Research Design

The research design of this study was decided by taking a pragmatic approach to the purpose and objectives of the study. The word *pragma* originally Greek meant *action* or gaining knowledge by way of action and learning from the outcomes. For the initial part

of the study, inquiry of the existing gifted programming options offered at private schools required an in-depth contextual investigation from educators and qualitative methods were deemed appropriate for this goal owing to their subjectivity to interpret the existing conditions. Open-ended interviews formed the data collection methods along with the document analysis of the school inspection reports by the educational authorities (Morgan 2014).

The subsequent part of the study involved statistical analysis of student attainment data analysed in correlation to their ability data in the cognitive domain alongside their self-perception by way of motivational survey data in the affective domain. Quantitative methods suited the purposes of these evaluations. Similarly, quantification of any differences based on learner demographic data required statistical analysis (Morgan 2014).

The final part of the study is comprised of detailed inductive analysis of the findings, learning from the social context, and making suitable conclusions and recommendations for future research. Again, qualitative research methods were deemed appropriate for this objective (Morgan 2014).

To summarize, this research followed an exploratory sequential design of qualitative method followed by quantitative analysis and finally qualitative evaluation for this pragmatic inquiry of gifted education programming options offered across six private middle schools in Dubai (Morgan 2014).

1.8 Rationale of the study

The UAE Vision 2021 envisaged first-rate education for all learners and although inclusion has evolved over the past decade with the KHDA establishing a clear policy, guidelines for implementation, and parent guide for advocating inclusion; there is extremely limited emphasis on students with gifts and talents (KHDA 2021). Also, in the UAE Centennial Plan 2071 strategic and excellent education forms one of its four pillars with specific focus on the STEM field, entrepreneurship, and innovation (UAE Government, 2021). Students with gifts and talents could be the biggest asset to any nation and with appropriate support could be novel entrepreneurs and innovators.

The UAE leadership have identified that equity in education is a subject of global significance and recognised as one of the Sustainable Development Goals and are completely committed to developing into an inclusive city with equitable learning opportunities offered to all students. Effective student engagement, active participation with education, and access to relevant challenging opportunities was necessitated as the appropriate step for advocating for the education of every child (KHDA 2021).

Regarding gifted education within the local settings, the UAE follows the definitions of gifted students as possessing natural exceptional abilities in one or more ability domains and talented learners as the ones capable of transforming these abilities into extraordinary performances. These definitions are based on Gagné's Model and are discussed in Chapter Two, alongside some expected support strategies to be followed by schools as listed in the UAE School Inspection Manual 2015-16 (UAE Ministry of Education 2015).

However, the field of gifted education remains a fuzzy one with each private school following its own definitions of giftedness, provisions, and services. In addition, there is no prior research conducted across private schools in the emirate of Dubai and this implies the absence of literature as reference resources for educators. Sensing this urgent need in the gifted education scenario, the researcher decided to conduct the current study to bridge the literature gap to some extent and to utilize the outcomes to advocate for upholding the educationally equitable rights of students with gifts and talents.

1.9 Significance of the study

There is a desperate need for research within the field of gifted education in the emirate of Dubai. The pilot study by AlGhawi (2017) evaluating the implementation of gifted education across seven primary schools provided an insight into the options offered at public schools. The researcher believes that this study investigating the gifted education programs and its effectiveness across the private middle schools in Dubai will be significant in closing the research gap to some extent.

Since the students with gifts and talents merit inclusion within schools, their educators deserve to have access to appropriate evidence-based standards to enhance awareness in the local context. Although the KHDA has specified the definitions and expected provisions, gifted programs do not get equal emphasis as programs for students with special needs and disabilities. As an example, the KHDA collates information regarding the detailed list of students with special needs and disabilities to maintain records and track their progression, but similar documents are not reported for students with gifts and talents. Such inconsistencies lead to discrepancies in provisions and services offered by

various private schools. Owing to the lack of any gifted education standards, the current study used the NAGC standards for evaluating the gifted programming options offered across six private schools to maintain the consistency in the analysis process (NAGC, 2012).

The NAGC standards-based evaluation in this study could help the postulation of a framework with crucial benchmarks, comprised of policy, procedures, identification of best practices offered at schools, professional development of teachers, and most importantly advocacy for standard-based gifted education programming options for the students with gifts and talents across the private schools in Dubai.

1.10 Organization of the chapters

The present study was organised across seven chapters. The first chapter discussed the background of the study. The second chapter presented the overview, definitions used in this study, gifted education in the local context, theoretical framework, conceptual framework, and the emerged themes of relevant literature for this research. The third chapter discussed the research design and methodology used for the purposes of this study. Chapter four described the findings of the study while chapter five explained the detailed evaluation of the findings, forming the most significant part of this study. The sixth chapter is comprised of the conclusion and recommendations for future research and lastly the seventh chapter included the references and appendices pertaining to the current study.

CHAPTER TWO: REVIEW OF LITERATURE

2.1 Introduction

The aims of education are *to enable students to understand the world around them and the talents within them so that they can become fulfilled individuals and active, compassionate citizens* (Ken Robinson 2015, p. xxii).

Educational revolutions surface from people working within the system, namely teachers, principals, or policymakers. Since change is the only constant in current times, the need of the hour is to innovate and do things differently rather than better ourselves at what we do. Today, we can engage students in creative ways using technology to our advantage and personalize their learning meaningfully. Student-centred environments at schools, valuing whatever is important to the learners, help foster purposeful relationships (Robinson 2015).

Globally, education has always taken centre stage with governments, especially since the standard-based movement from the year 2000 with the introduction of the Program for International Student Assessment (PISA). These standardised assessments across reading, Mathematics and Science are conducted once every three years by the OECD organization. The PISA results have had tremendous political influence; particularly with the Asian countries surpassing their western counterparts, there was increased pressure to raise the educational standards further. Every nation's economic affluence depends to a large extent on its educated work force, and hence the drive for 21st century skills, innovation, and entrepreneurship. From a cultural perspective, education may be the

pathway for progression of traditions and values to future generations. Other reasons for the significance given to education could be attributed to the social facet that encourages inclusion of learners from diverse backgrounds within schools. Lastly, the emphasis on personalized learning that intends to support every individual to perform to their optimal potential and enjoy fulfilling lives contributes to making education imperative for all (Robinson, 2015).

In continuation, education is comprised of prescribed curriculum, teaching, and assessment and there has been continued efforts to standardize each element and raise the bar with time. Understandably, at the subject level, mathematics, literacy, and STEM get most prominence followed by humanities (Robinson 2015). Henceforth, the current study is focused on the student data analysis across the core subject areas of English, Mathematics, and Science.

Following the basics of understanding the educational strategy, since learners come from diverse backgrounds, with varied personalities and abilities, educational systems would be effective only with individualization. Converging on education for students with gifts and talents, unique approaches can be imagined for each deserving learner combined with mutually agreed practices of behaviour or common societal rules. Finally, the understanding of learning process itself is crucial to the efficacy of educational policies and school systems (Robinson 2015). A brief review of curriculum, learning process, innovation, growth mindset, and assessment follows in the subsequent discussions.

An effective curriculum model should correlate the knowledge of the content-based authority and information from the instructional specialist to support curriculum designers to ensure that the outcome is appropriate, authentic, and purposeful to the

learners. One exemplar of such an outstanding prototype was the Multiple Menu Model by Renzulli, Leppien, and Hays that encouraged teachers to develop curricular units that allowed the quest for knowledge in an organised manner while utilizing inquiry-based approaches to any subject area. The curriculum plan was required to be based on the intended product, specific field of study comprising of its concepts, principles and methodologies, and educational standards, and it included lesson planning schemes for educators (Renzulli et al., 2000).

Another exemplary curriculum archetype was the Parallel Curriculum Model (PCM) by Tomlinson et al. (2009) providing a comprehensive model encompassing four parallel pathways of perceiving curriculum content in connection to learning as illustrated in figure 2.1.

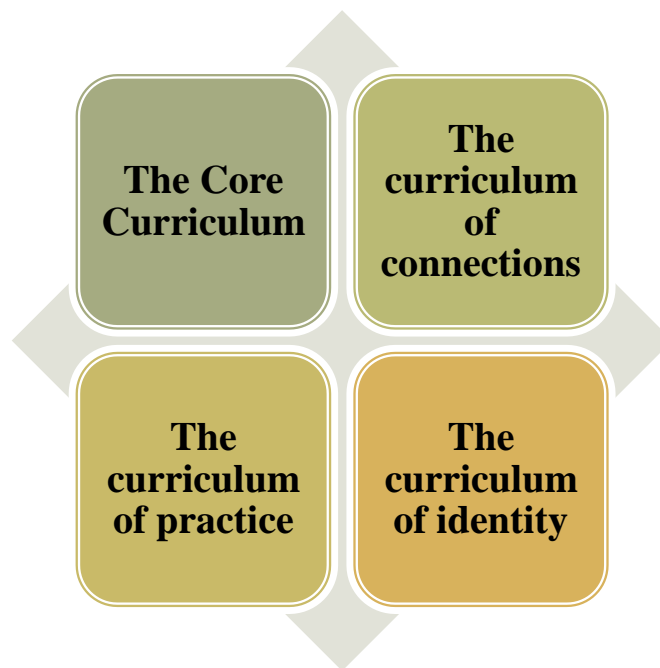


Figure 2.1: Parallel Curriculum Model (Tomlinson et al. 2009)

The PCM is discussed in detail within the Conceptual Framework section of this report, and it guided the current study. Some facets that made this curriculum design distinctive were the emphasis on the conceptual understanding in correlation to subject specific content, and its insistence on abilities and interests alongside learning preferences of the individual learner. One of the unique aspects of the PCM was the innovative insight of *Ascending Intellectual Demand* (AID), that presented gradual stages for the learner to progress from *Novice* to *Expert* levels at a different pace across numerous subjects and enjoy their own personalized journey, receiving appropriate challenges along the way. Experienced teachers found the PCM taught them the strategy to plan for highly effective lesson designs with powerful instructions (Tomlinson et al., 2009).

The previous discussion on curriculum brings us to the process of personalisation within education, which connotes the acknowledgement that intelligence is multifaceted and distinct, encouraging learners to pursue their interests, adapt the teaching strategies to suit diverse pace of students learning, and use flexible assessments that promote every individual's achievement and progress. Ideally, teachers can nurture creativity in their students and inspire them to ignite their passion, alongside supporting students to become independent and self-confident learners (Robinson, 2015).

The aspect of multiple intelligences has been explained by prominent psychologists like Howard Gardner, who extended the traditional acuties of IQ. His theory of multiple intelligences had the necessary impact on the identification procedures of students with gifts and talents while positively influencing more learners receiving the opportunity to reveal their potential (Walton, 2014). Similarly, Joseph Renzulli established the three-ring conceptualization of giftedness that embraced the combination of above average

ability, task commitment and creativity as gifted behaviours. He explained the robust correlation between high ability and high grades if the learners were appropriately challenged. Also, Renzulli highlighted the desired traits of an encouraging learning environment that advanced creativity in students (Renzulli, 1999). Lastly, François Gagné proposed that giftedness could be stated as ownership of spontaneous and untrained natural abilities in at least one domain. Additionally, the notion of talent was described as outstanding mastery of systematically advanced abilities along with knowledge in any sphere of learner activity (Gagné, 2009). These three eminent theories formed the body of reference for the current study and is discussed in the theoretical framework comprehensively.

After multiple intelligences and personalisation, the next buzzword in contemporary education is *Innovation* and can be defined as a way of thinking that creates something *new* and *better* (Couros, 2015). He explains how the term *innovation* could have emanated from either *invention* meaning something totally new, or *iteration* denoting a change in an existing entity. However, if the change is not better or new, then it is not worth being termed as innovative. According to Couros (2015), innovation starts with a query and personalizing education begins with empathy for the student while teachers reflect on the impact of their practices on the future of the learner. Also, schools can step in the forward direction only when their educators have an innovator's mindset (Couros, 2015). Innovation is significant in the UAE context and the local school inspection authorities understand and rate the innovation observed across private schools (KHDA 2020). The 8 characteristics of an innovator's mindset as identified by Couros (2015) are shown in figure 2.2.

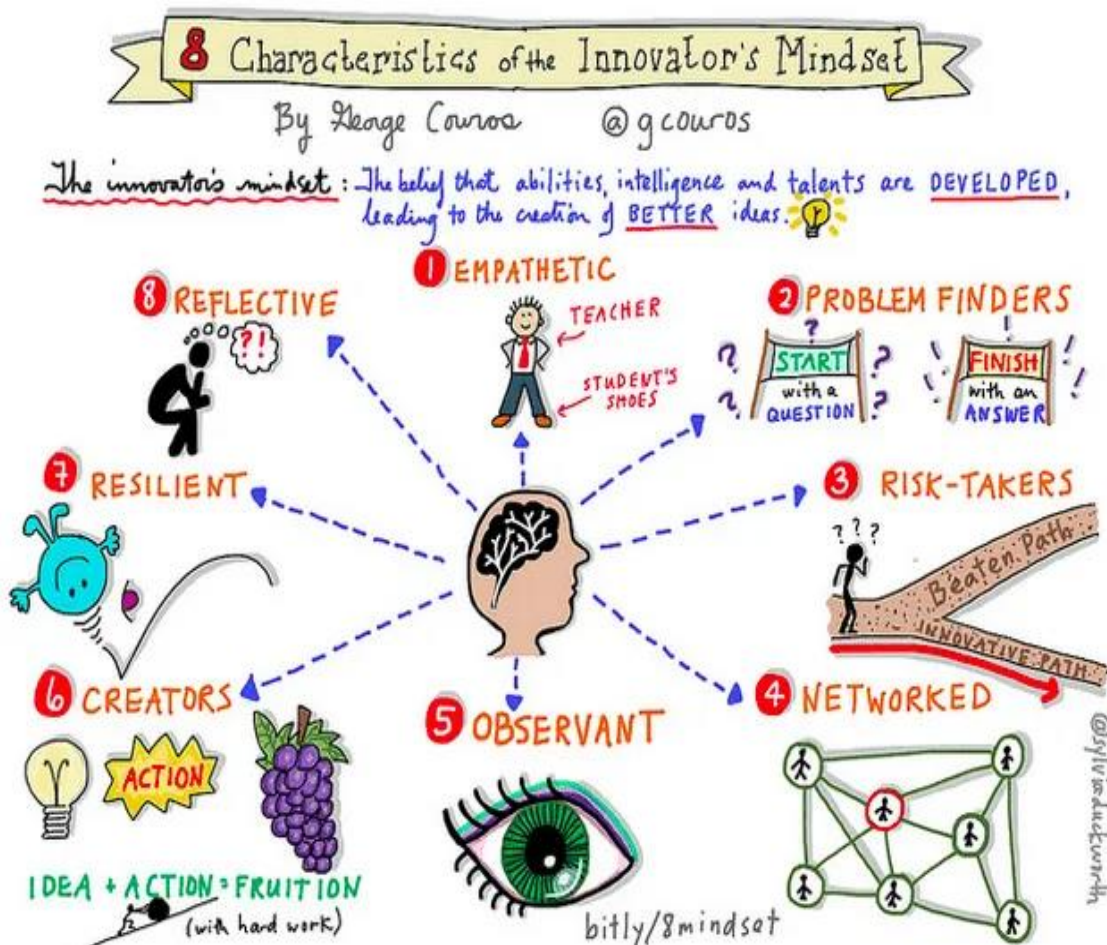


Figure 2.2: Eight Characteristics of the Innovator's Mindset (Couros 2015, p. 48)

Couros' model progresses to the denotation of an innovator's mindset, which could be the conviction that intelligence, abilities, and talents can be fostered to enable the design of something new or better. Carol Dweck, the famous psychologist, invigorated educators to expose students to the concept of *growth mindset* which was critical to being open-minded about the learning process itself. Prior research studies have evidenced the positive impact of the growth mindset in advancing the intellectual ability, which leads to further improvement in academic achievement and perseverance (Yeager & Dweck, 2020).

Learning can happen when teachers move beyond the culture of compliance and embrace the latest evidence-based practices. Modern education values innovation and cognitive ability alongside soft skills like humility, enterprise, ownership, and leadership. The traditional perceptions about the expectations in a school versus the current learning are listed below in figure 2.3 (Couros, 2015).

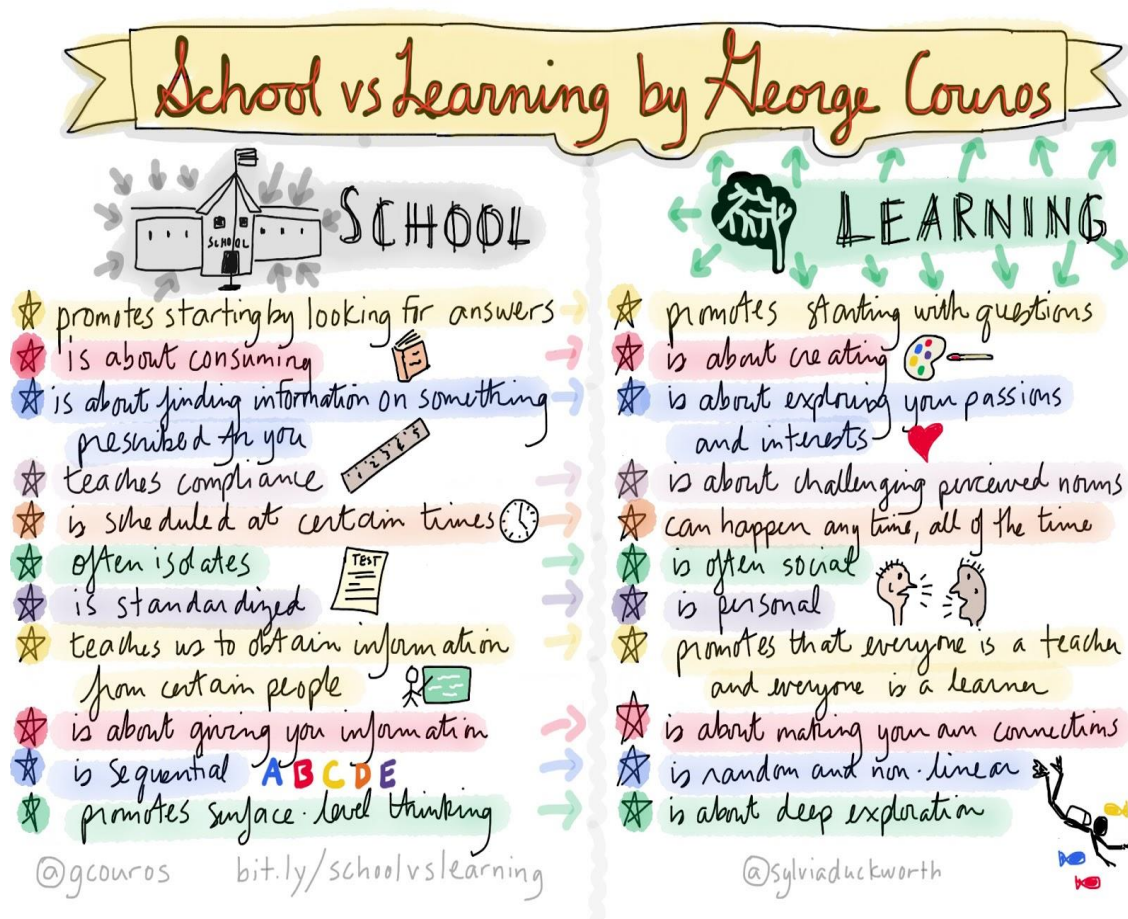


Figure 2.3: School vs Learning (Couros 2015, p. 103)

Couros (2015) discusses that when educators engage in learning themselves, they can envisage how the learning opportunities should be presented to their students. Further, he

describes the eight observations that exemplify the modern classroom as shown in figure 2.4.

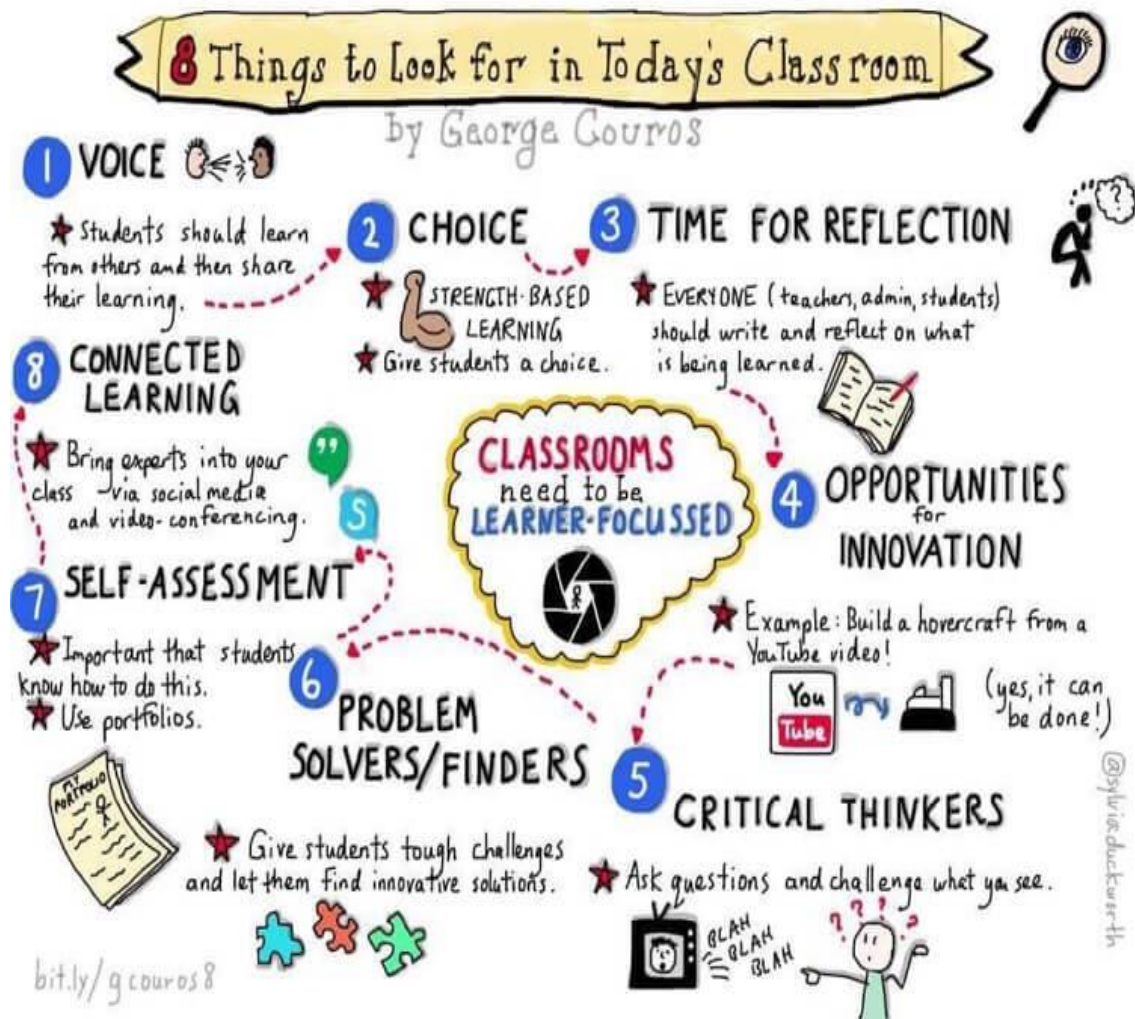


Figure 2.4: Eight Things to look for in Today's Classroom (Couros 2015, p. 116)

For meaningful learning to take place, the presence of the differentiated classroom is a prerequisite. Teachers are required to be aware of the flexible instructional approaches that must be utilized to engage the gamut of student interests with varied pace, complexity, and appropriate scaffolding. In a nutshell, the differentiated classroom offers a nurturing environment where meaningful learning occurs for each student. Tomlinson's

Differentiation of Instruction Model is discussed in-depth within the Conceptual Framework (Tomlinson, 2014).

One of the most significant barriers to learning is probably our standardised testing and other summative ways of grading our students. Educational authorities need to rethink standardisation of assessments to reflect the soft skills of students like maybe rate the storytelling of students or their innovative products. The possibilities are innumerable, but the intent is to make learning enjoyable for our students while preparing them to be successful in this ever-changing world (Couros, 2015).

Regarding the competencies expected by the current career providers, Daniel Coleman enlisted the qualities of positivity, self-awareness, motivation, perseverance, empathy, and self-regulation of emotions. As Buggy (2008) explained, numerous government agendas anticipate schools to plan and promote emotional literacy along with enterprise abilities of learners and empower them to demonstrate optimistic attitudes, voice their opinions, have a flexible approach, be health-conscious and self-confident, and be involved in their personal and social development while forming positive relationships. (Buggy, 2008). An empirical study conducted by Portela-Pino et al. (2021) discussed the growing importance of teaching socio-emotional skills at schools owing to their correlation to the personal, academic and professional success of the student. The researchers found that learners participating in extracurricular clubs, and musical or artistic after school activities demonstrated improvement in their social awareness. However, the findings were not similar for physical or sports activities where the only noticeable advancement was in the learner's self-awareness levels (Portela-Pino et al., 2021).

In furtherance, learning becomes fun when students' interests and abilities are appropriately partnered with the curriculum and the emphasis is on practical tasks. When the teaching strategies are learner-focused, motivation is automatically taken care of. Initiation, passion, direction, perseverance, and goal-focused behaviour can explicate the term *Motivation*. Traditional schooling used the behavioural theories about motivation whereby learners were steadily propelled toward the expected objectives using successive approximations. With evolution in the motivational concepts, cognitive models were established with the *Needs Theories* emerging to explain human behaviours as responses to their needs (Brophy 2010). Abraham Maslow's Hierarch of Human Needs was one of the most popular motivational theory as shown in figure 2.5.



Figure 2.5: Maslow's Pyramid (adapted from "Motivation and Personality" Maslow, 1954 in Ortet 2019, p. 27)

Over time, the progression from Maslow's Needs theory to the shift in focus towards the concept of motivation as self-determination of goals alongside self-regulation of actions to the *Intrinsic Motivation* theories led contemporary perceptions of motivation. Edward Deci and Richard Ryan established the renowned Self-Determination Theory (SDT), and explained that the social context can advance intrinsic motivation when it fulfils the ternary innate psychological needs of autonomy, relatedness, and competence (Brophy 2010). The SDT is further discussed in detail in the Theoretical Framework of this study.

While the above motivational theories apply to all neurotypical pupils, the advanced cognitive abilities of students with gifts and talents create disharmony with their affective attributes and present peculiar challenges disturbing their peer relationships or sync with their environment. Understanding their socio-emotional health and wellbeing forms an important part of the gifted program provisions and services at schools (Neihart et al., 2016). In addition to these complexities are the diverse cultural backgrounds of students which merit special sensitivities alongside their gender and age differences. This situation is relevant to the student population in Dubai where the learner population is extremely diverse.

Historically, there has been a trend to overlook the needs of learners with gifts and talents based on assumptions that they are intelligent enough to take care of themselves. Fortunately, there has been a paradigm swing from the outmoded high IQ based identification to increasingly comprehensive procedures over the past few decades. The multifaceted identification processes were extremely useful in designing individual student profiles and the creativity assessments advanced our perceptions of giftedness and talent (Nakano et al., 2016). The improved understanding of the term *Gifted* gave

proper direction to the identification practices and provisions for learners with exceptional needs and henceforward exceedingly significant to gifted education (Valler et al., 2017). In the past, the identification procedures traditionally measured only IQ and leaned towards marginalizing the culturally diverse learners despite numerous theories and definitions of giftedness indicating creativity as an essential component of the identification process. Inclusion of the creativity facet in the assessment process of students with gifts and talents would augment the equity aspect of identification and reduce the bias against the diverse learners (Luria, O'Brien & Kaufman, 2016).

The above discussion regarding the lack of focus about the needs of students with gifts and talents applies to the local context. While the inclusion of students with special needs and disabilities has evolved tremendously over the past decade, the same does not hold true for students with gifts and talents. The Dubai Inclusive Education policy and the subsequent publications by the KHDA have concentrated on students with special needs and disabilities, and similar prominence should be given to the gifted learners from the KHDA pertaining to private education in Dubai. Analogous findings regarding public education were reported by AlGhawi (2017). The research purpose of the current study is discussed in the following section.

2.1.1 Research Purpose and questions

The current research was a pilot study across private schools and focused on exploring the gifted programs offered for students with gifts and talents within the middle schools and their effectiveness. Based on the multifaceted stage of adolescence discussed in the previous section alongside the desperate need to understand the existing educational

provisions and services for the gifted learners within private sector, the scope of this study was limited to middle schools in Dubai.

The objectives of the present study were to attend to the following research questions:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

The above research questions were addressed utilizing the exploratory sequential mixed method approaches of data collection, which was deemed suitable for representing the issues of equity in inclusive education for the underrepresented gifted learners (Creswell 2012). The definitions used in the current study are presented below.

2.1.2 Definitions

The following definitions have been used in the current study:

Giftedness refers to ‘a student who is in possession of untrained and spontaneously-expressed exceptional natural ability in one or more domain of human ability’ (UAE Ministry of Education 2015, p. 119).

Talented refers to ‘a student who has been able to transform their ‘giftedness’ into exceptional performance’ (UAE Ministry of Education 2015, p. 119).

Motivation can be described as a mechanism of initiating followed by sustaining efforts towards student goals (Schunk et al. in Clinkenbeard, 2012, p.4).

The subsequent sections will explain the gifted education in the local context followed by the theoretical framework, the conceptual framework and the relevant literature guiding the present study.

2.2 Gifted education in the UAE

Private education in the emirate of Dubai is governed by the *Knowledge and Human Development Authority* (KHDA). While the Ministry of Education (MoE) allots licenses to schools, the KHDA oversees the growth, educational management, annual inspections, and appraising the quality of learning and education. The KHDA was established in 2006 and established a group of highly qualified inspectors called the *Dubai School Inspection Bureau* (DSIB), operational since the year 2008. The chief function of the DSIB is to conduct school inspections, give comprehensive feedback to the school authorities and provide detailed information regarding the standards of private education offered by all private schools to the KHDA (UAE Government 2021).

These meticulously written School Inspection Reports are published on the KHDA website and are available in the public domain for reference by all stakeholders of education. The DSIB rates the private schools from Very weak, Weak, Acceptable, Good, Very Good, to Outstanding. The schools are permitted to increase the annual fees by a specified percentage in correlation to its inspection rating. In addition to the above

functions, the KHDA also publishes policies, standards, inspection frameworks, reports regarding the UAE's performance in international benchmarking assessments like the PISA, TIMSS, and PIRLS; guidance documents; and the latest educational issues on its website (KHDA 2021).

Within the UAE context, gifted education is considered under the umbrella of Inclusion (AlGhawi, 2017). The annual inspection process of private schools by the KHDA authorities started in the year 2003. Gradually, this process improved over the consecutive years with one of the earliest guidance documents for giftedness was published by the Ministry of Education (MoE) in the year 2010, as explained below.

2.2.1 General Rules for the Provision of Special Education Programs and Services (Public & Private Schools) 2010

Gifted and Talented was categorized as Special educational Needs and defined as outstanding ability or a great deal of willingness in one or more areas of intelligence, creativity, academic achievement, or special talents and abilities. Special provisions for the Gifted and Talented students were envisaged within regular classrooms with support from specialists. The MoE provided varied gifted programs including enrichment options, individual projects, educational tours, competitions, leadership opportunities, technology-based programs, and other services. However, these programs were made available only to public schools. Although this document had defined Gifted and Talented terms and explained numerous programs, provisions, and services; the *General Rules for the Provision of Special Education Programs and Services (2010)* was not enforced by

the educational authorities. The lack of awareness regarding these Inclusion rules and expectations led to inconsistent practices across schools (AlGhawi, 2017).

The first guidance document mandated by the KHDA was the UAE school inspection framework 2015-16, detailed below along with all the important Giftedness or Inclusion-related publications applicable to educational context within private schooling in Dubai.

2.2.2 UAE School Inspection Framework 2015-16

The UAE vision for a magnificent educational journey guided by HH Sheikh Bin Sultan Al Nahyan and followed by the concerted efforts by the Prime Minister's Office led to the development of the UAE school inspection framework that provided unified standards to achieve the National Agenda goals. These standards offered the required quality assurance indicators for the provision of outstanding education, drive innovation, develop global leaders, raise achievement, and ensure great future for all learners. The UAE Vision 2021 encompassed progressive learner attainment, aspirational entrepreneurship, economy based on knowledge, and enhanced essence of citizenship that was propelled by research, science, technology, and innovation. The UAE recognised the significance of employing rigorous and reliable inspection standards to evaluate school performance and advance learner outcomes and support educational improvements. The core values of the UAE school inspection service were stated as *Commitment* to consistent progress, *Excellence* in the system of school inspection, *Transparency* in the communication between the inspectors and school authorities always, and *Cooperation* among schools and required stakeholders that led to improved efficacy of the inspection procedures.

The Vice President and Prime Minister of the UAE, HH Sheikh Mohammed Bin Rashid Al Maktoum (2014) initiated the UAE National Agenda, as an extension of the Vision 2021, to coincide with the UAE golden jubilee year, with a stronger emphasis on education. The aims of this national agenda included the intent of the UAE to be amongst the top twenty performing nations in PISA and top fifteen performing countries in TIMSS, and to ensure that all schools have high-quality teaching staff and effectual school leaders, along with other aspirations like developing into one of the most innovative nations in the world.

Inclusion found central stage in this framework with the UAE resolved to establish a rights-based society free of barriers, promoting the educational success of every individual student. The provisional aspects to advance inclusion of all groups of learners were comprised of effective identification processes, appropriate curriculum modifications, tracking the impact of individual support or specific interventions on learner achievement, and utilizing the assessment data to inform teaching and learning.

Precision of school self-evaluations and their alignment with the inspection performance standards was established as a pre-requisite for further improvement and thoroughly scrutinised by the educational authorities. Important areas like student progress and attainment, learning skills, social and personal development alongside innovation skills, improved awareness of their values and world culture, social responsibilities, teaching skills, use of assessments, curriculum design and adaptations, student protection, guidance and support of learners, efficacy of leadership, parent voice and student inputs, governance, management, staffing, resources and school facilities along with self-evaluations formed the inspection focus.

The most important aspect of the inspections regarding gifted education was the Indicator 5.2 Care and support which was comprised of the elements of teacher-student relationships, school management systems of attendance and punctuality, identification of students who are gifted and talented, support provided to these learners, and guidance offered by relevant authorities. The UAE inspection framework detailed outstanding, good, and acceptable descriptors to guide schools regarding expected outcomes to enable the leaders to manage effective self-evaluation and planning of next steps in their action plans. Some illustrations for outstanding descriptors included comprehensive and focused systems of support, curriculum modifications, individual educational plans, and comprehensive reviews leading to outstanding learner progress. Other areas include student access to socio-emotional support, and guidance regarding suitable career pathways aligned to their individual and national goals.

The UAE school inspection framework included the definitions of the terms *Gifted* and *Talented* based on Gagné's Differentiation Model of Giftedness and Talent, various identification methods, characteristics of personalized support encompassing pace, groupings, differentiation, assessment, advanced level of work, and enrichment options. Numerous supplements to this framework were introduced in the subsequent years, but this inspection framework is used till date by the KHDA inspectors to evaluate educational provisions offered at private schools in the Dubai emirate.

2.2.3 DSIB School Inspection Supplement 2016-17

The DSIB school inspection supplement discussed that school inspection process started in the emirate of Dubai from the academic year 2008-09. The authorities recorded good

results where the number of schools rated as *Outstanding* had doubled and many others were ranked as *Very Good*. This supplement was released to ensure consistency in the understanding of the inspection procedures by the DSIB inspectors and the school staff. Another purpose of this document was to explain the main areas of inspection emphasis to the teachers and school leaders.

Some key features of the supplement included greater focus on learner outcomes in key subject attainment rather than the all the curriculum options available to students, introduction of UAE Social Studies as a mandatory subject at school, and the requirement of schools to develop the DSIB Self-evaluation online formats prior to the inspection process. Of particular significance to the field of gifted education was the increased importance given to special educational needs as part of UAE's commitment to progressing into a fully inclusive society with enhanced attention to innovation elements available to learners.

To better evaluate the school progression in student outcomes and its advancement towards meeting the UAE National Agenda Parameters, the DSIB made the following three constituents mandatory for all schools:

- i) GL Cognitive Ability Test – CAT4 or an appropriate assessment for measuring the cognitive ability of the student with prior approval from DSIB.
- ii) OECD PISA tests for schools for students in Grade 10 or Year 11 (UK Schools)
- iii) Any Benchmark assessment for English, Mathematics, Science and Arabic (for MoE Schools).

Based on the curriculum offered, schools could opt for ASSET, ACER ISA, ACER IBT, NWEA MAP, GL Assessments Progress Tests in English/Math/Science (PTE/PTM/PTS) or CEM InCAS, and Cambridge Checkpoints. The DSIB judgments based on attainment using the above international benchmarked tests was specifically stated for schools offering various curricula in Dubai.

Within the special need provisions and services, the DSIB supplement clearly encouraged the use of the Social Model of Inclusion and not the Medical Model used in the previous years. Enhanced guidance was given regarding students with special educational needs and disabilities but did not include any additional information regarding students with gifts and talents.

2.2.4 DSIB School Inspection Supplement 2017-18

DSIB reported substantial improvement in the performances of private schools in Dubai based on the annual school inspections using the UAE school inspection framework. The focal areas continued to be the National Agenda parameters, promotion of innovation, and provision for students with special needs and disabilities. The push for schools to participate in international benchmarking assessments (CAT4, PTE/PTM/PTS, ACER, ASSET, NWEA MAP, UAE NAP) and to use the results to develop their strategic action plan to achieving the National Agenda parameters was enhanced. Additionally, the school preparations for TIMSS participation were stressed upon alongside personalisation of learning for all students with the pedagogical and curriculum modifications in correlation to the CAT4 scores.

The important changes regarding the field of inclusion were the mandatory requirement for the appointments of an *Inclusion Champion, Governor* responsible for inclusion, development of an *inclusive education action team, learning support assistants*, and a *Strategic inclusive education improvement plan*. The role of the Inclusion Champion was to lead the cultural makeover and enhance the awareness regarding inclusion among all the educational stakeholders. As expected, the responsibility of the Governor was to hold the leadership team accountable for the enhancement in inclusive provisions. The inclusive education action team was to comprise of the governor, inclusion champion, and all stakeholders responsible for inclusion within the school to ensure impactful provisions.

The self-evaluation for learners with special needs was further updated to include two additional sections. The first component *Governance and Leadership* comprised of appraisal of school commitment, investment in resources, policy, accountability, capacity to improve, and systems and coordination. In addition, the second new component *Identification and Intervention* included indicators of the available identification assessment procedures, identification categories with matching interventions, and trends and patterns of student data over three years.

This inspection process for this academic year had an increased focus on *Innovation* with five new indicators being added to this supplement. These key indicators were Teaching, Learning skills, Leadership, Curriculum adaptation, and Social responsibility and Enterprise. The private schools were expected to collaborate with all stakeholders to initiate methodical, creative, cutting-edge, and original approaches to various facets of provision. The DSIB inspection supplement also described the significance of learners'

acquisition of critical reading skills like interpretation, inference, and assimilation of information in the key subject areas of mathematics, science, and English along with Arabic and any other language of instruction.

2.2.5 Dubai Inclusive Education Policy Framework 2017

The Dubai inclusive education policy framework stated that inclusive education is momentous to creating responsible education, and is based on the imperative principles of respect, equity, acceptance, fairness, diversity, individualization, and enrichment for all learners. As explained within this policy framework, a truly inclusive education system merited highly effective support services embracing the evidence-based teaching and learning methodologies catering to the unique needs of learners. A robust support system was required to be established with educational leaders and other stakeholders sharing the inclusive vision, appropriate support strategies for learners and teachers, flexible and innovative teaching and learning approaches, manifold curricular pathways, and a comprehensive array of assessments. The emirate of Dubai had developed its strategic improvement plans and aspired to be fully inclusive by the year 2020.

The 2017 inclusive education policy framework by the KHDA proposed to characterize the students with disabilities as *Persons of determination* (POD) to recognise and respect their valour and endurance. This policy explained how the Dubai Disabilities Strategy had a vision of creating a unified inclusive community by the year 2020. The Dubai inclusive education policy framework challenged the archaic perceptions and definitions while stating communal terms of reference and was required to be followed by all educational institutions. The rationale of this policy framework was to postulate the

standards and processes required for the progression of these inclusive provisions in the emirate of Dubai.

The KHDA realised that to achieve the inclusion agenda, all schools need to invest in resources to cater to the local population of learners with individual needs. The new policy framework gives a clear indication regarding the staffing resources, roles, and responsibilities of all stakeholders of education, expected learner outcomes, developing the country's database, differentiation, alternate curricular pathways, and other relevant support services from pre-primary to employment stage. All schools were expected to comply with the policy expectations by the year 2020.

The core guiding principles and all ten of the Standards of Dubai Inclusive Education Policy Framework 2017 were accepting and valuing learner diversity, realizing the individual potential of students' ability to learn, effective differentiation in teaching and learning, recognizing the need for rights-based education, reducing barriers to learning, refraining from ability-based grouping, and promoting an inclusive culture at all educational institutions. Additionally, this policy framework provides specific guidance on the following ten standards expected to be adhered to by all relevant authorities in the emirate of Dubai:

- Identification and Early Intervention: An authentic and rigorous process of identification of individual needs of students leading to the design of highly effective support provision to help them perform to their true potential.
- Admissions, Participation and Equity: This standard is based on the rights-based approach to admission to educational institutions for people of determination. In

addition, the sibling priority for access to preferred school was also recognised by the policy.

- **Leadership and Accountability:** Promoting the culture of inclusion and respecting diversity within an educational environment of any institute is the responsibility of every leader. This standard refers to the degree to which all leaders empower every stakeholder to enhance the holistic well-being of people of determination.
- **Systems of Support for Inclusive Education:** Robust systems of policies, best practices and effective procedures must be established by all educational institutions for successful inclusion of people of determination. This standard specifies every strand of high-quality support system including teaching and learning strategies, curricular pathways, differentiated assessments and support mechanisms expected by the KHDA.
- **Special Centers as a Resource for Inclusive Education:** The services expected from special centers in terms of providing therapist provisions, collaboration with various schools, providing vocational course options and catering to needs of all people of determination, form the essence of this standard.
- **Co-operation, Co-ordination, and Partnerships:** This standard enumerates the key involvement by all stakeholders and organization of standards and practices to ensure quality services to students of determination.
- **Fostering a Culture of Inclusive Education:** Sustainable inclusion necessitates consistent progression in attitudes, beliefs, practices, behaviours and standards and these are reflected in standard 7 of the policy frameworks.

- **Monitoring, Evaluation and Reporting:** A credible system of evaluation and reporting is required to monitor the progress achieved in inclusive provisions and systems across educational institutions for further guided action. The standard 8 details this significant requirement for educators and authorities.
- **Resourcing for Inclusive Education:** One of the crucial factors of successful inclusion remains the resourcing by the education providers for students of determination. Specific recommendations for resourcing have been enlisted in this standard and all education providers are expected to follow these practices.
- **Technical, Vocational Education and Training (TVET), Higher Education and Post-School Employment:** Ensuring that students of determination have access to appropriate post-secondary curricular pathways, accredited courses and employment opportunities forms the core of this standard.

Two important definitions that are relevant to the Gifted education stated in the Dubai inclusive education policy framework are as follows:

***BARRIERS:** Attitudes, beliefs, practices, physical or technological obstacles, or the lack of support, that result in a student's exclusion from, or in their less-than-full participation as a valued equal in, the common learning environment in mainstream schools and classrooms (P. 53, Dubai inclusive education policy framework 2017).*

***INCLUSIVE EDUCATION:** Inclusive education is about ensuring access to quality education for all students by effectively meeting their diverse needs in a way that is responsive, accepting, respectful and supportive. This is evident*

through student engagement and participation in an education programme within a common learning environment with the benefit of targeted support which enables the reduction and removal of barriers that may lead to exclusion. Inclusive education is not a project or an initiative. It is the progressive development of attitudes, behaviours, systems and beliefs that enable inclusive education to become a norm that underpins school culture and is reflected in the everyday life of the school community (P. 53, Dubai inclusive education policy framework 2017).

2.2.6 Implementing Inclusive Education: A Guide for Schools (KHDA, 2019)

The aim of this implementation guide was to assist the private schools in embedding inclusion along with equity in their educational policies and practices in the emirate of Dubai with the intention of generating a major shift in the educational system to overcome any barriers to access, learning, and engagement of students with individual needs. The significance of inclusive provisions to ensure growth of every educational institution towards achieving the inspirational vision of the *UAE Centennial 2071* was emphasised in this guide.

Some highlights of this guide included the establishment of alternative curriculum models to enable each learner's rights-based access to education, setting up continuous professional development for all teachers towards this objective, creating tertiary and vocational course options at schools, following the social model of inclusion, and meeting the standards of the Dubai Inclusive Education Policy Framework (2017). Many affective

aspects like valuing the learner irrespective of their individual needs, focusing on developing their self-confidence, resilience, and improving their attitude towards learning, and importance of holistic development of students were discussed in this document. Student access requirements were required to be meaningful, relevant, and functional and schools were expected to focus on the personal, social, and academic development of all learners.

Although this guide explained all implementation aspects of the 2017 policy framework in detail, the guidelines were meant for students with special educational needs and disabilities with no emphasis on students with gifts and talents.

2.2.7 Directives and Guidelines for Inclusive Education (KHDA, 2020)

Following the Policy framework and the implementation guide, the KHDA released the Directives and Guidelines which stated the legal responsibilities of all private schools in Dubai to endorse the rights of students of determination. According to these directives, all learners must be provided with appropriate and relevant challenging opportunities. This document reiterated the UAE Federal Law no. 29/2006 (articles 12, 13, 14, and 15), the UAE signed the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) in 2008 and ratified it in 2010, Dubai Law no. 2/2014, and Executive Council Resolution no. 2 of 2017 regulating all private schools in Dubai.

The 2020 directives and guidelines mandated schools to develop and encourage robust inclusive practices including commitment to engage learners in relevant extra-curricular activities, differentiation based on personalized preferences and profiles of students, and harmonizing between individual goals and learning with peers based on the principles of

fairness, accepting diversity, equity, and complete accessibility. Details of KHDA expectations of schools encompassing individual education plans, learner profile development, classroom accommodations, inclusion team, resources, and explicit services for students were included in these guidelines. However, the directives and guidelines were specific to students with special needs and disabilities and there were none for students with gifts and talents.

2.2.8 Advocating for Inclusive Education: A Guide for Parents (KHDA, 2021)

The KHDA released a parental guide advocating the rights of students to an inclusive education at private schools in Dubai in March 2021. The most significant feature of this guide was the emphasis on the *Equity in Education* in the aspirational journey towards sustainable futuristic education by the nation. Educating parents regarding their rights, opportunities, and responsibilities to empower them in traversing the landscape of inclusion in schools remained the central objective of this guide. The KHDA explained that educational equity concerned providing learners with comprehensive support required to ensure their success within schools.

The six steps to guide parents are illustrated as indicated in figure 2.6.

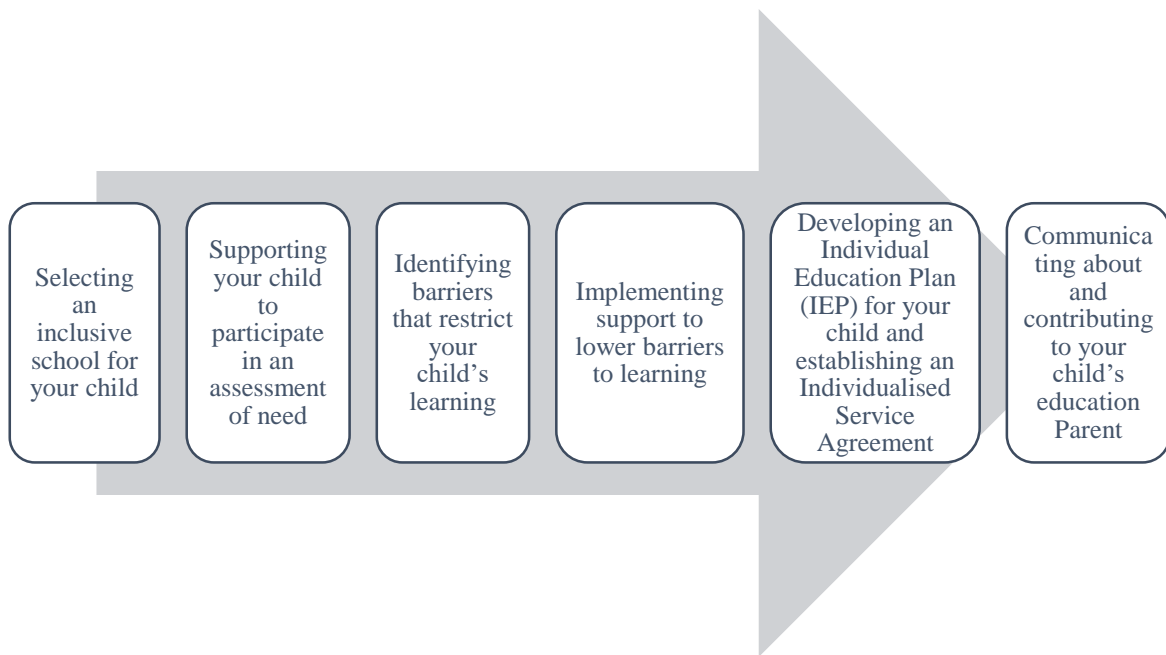


Figure 2.6: An illustration of 6 Steps of A Guide to Parents (KHDA 2021)

In conclusion, equity in education was underscored as being the fundamental aspect of inclusion and all private schools were expected to embrace learner diversity while recognizing the significant contribution brought to student outcomes and education in general (KHDA, 2021). To summarize, the inclusion has evolved tremendously within UAE and particularly the emirate of Dubai over the past decade. Although there has been justified attention to the advancement of learning of students with special needs and disabilities, similar importance has not been offered to enhance the education regarding learners with gifts and talents by the KHDA. The needs of the more able students have been ignored largely and this study is a small endeavour by the researcher to draw attention to this huge gap in the emirate of Dubai.

2.3 Theoretical Framework

Educational practices founded in the absence of a robust theory lead to provisions and services that are fragmented, disorganised, and non-cohesive experiences rather than programs embedded with robust theory that result in consistency and reliability in goal setting to services, provisions, and evaluation. In continuation, theoretical models emphasise the educational services offered to learners irrespective of the organisational strategies utilised by schools. Such models integrate engaging instructional practices in the prevailing administrative infrastructure of schools and demonstrate enhanced probability of successful approaches for providing meaningful challenges to gifted students (Renzulli & Reis, 2014). Having understood the importance of theoretical models in education, let us examine the evolving trends in the concept of giftedness over the past decade.

Historically there have been several perceptions regarding giftedness, with an increased emphasis by eminent scholars during the last century. The most common deliberations were accenting the roles of nature and nurture in the development of human intelligence. Although the initial conceptions of experts stressed the intelligence quotient (IQ) as the standard indicator of intelligence, there were prominent scholars that challenged this notion and presented their theories that explained much broader views on intelligence and these theories altered the identification of giftedness within the field of education (Walton, 2014).

In the early 1900s, Alfred Binet designed a pilot functional intelligence assessment while indicating that human intelligence is dynamic and can be enhanced by the learning

environment. Following this development, Lewis Terman, regarded as the father of gifted education in the US, announced the Stanford-Binet assessment as a significant component of the gifted education movement. However, a singular intelligence score used for gifted identification resulted in very few students being selected for the special provisions while neglecting those with high abilities in numerous subjects like mathematics, languages, and creativity (Singer et al., 2018). Some other prominent intelligence assessments utilised to identify giftedness included the Wechsler Intelligence Scales and Spearman's theory of intelligence that comprised of generalised intelligence quotient and task specific intelligence. Whipple indicated the IQ of 115 for identifying gifted learners explaining that reliable intelligence assessments were important indicator of giftedness. Other eminent theorists that influenced the field of giftedness included Guilford's perspective on creativity that resulted in altered paradigms in 1959, Torrance expressing the complexity of assessing creativity, and similar difficulties faced in identification of leadership capabilities. Further advancements to develop a comprehensive giftedness model led to the Differentiated Model of Giftedness and Talent by Gagne (Jolly, 2005).

Historically, the terms *gifted* and *talented* have been used with varied contexts by educators to recognise the higher potential of students as compared to their peers. Internationally, there seemed to be a lack of common agreement on the label of giftedness and hence the expected educational provisions varied substantially from one country to another. The only consensus among scholars was the need to cater to the higher abilities of learners within schools and provide appropriate challenges within the curriculum to the extent possible (Walton, 2014). The discontent of experts on measuring intelligence using the IQ number impelled them to cogitate alternative theories and develop

unconventional models that better explained human intelligence. Famous scholars like Guilford, Spearman, Thurstone, Gardner, Sternberg, Gagné, Renzulli and many others presented numerous intelligence models and the unanimity in these explanations were that intelligence could not be characterised by a narrow view of a single IQ measure (Walton, 2014). While Sternberg's triarchic theory and Gardner's Multiple Intelligences (MI) theory heavily influenced the existing impressions regarding intelligence, Gardner's work had the utmost impact on the educational implications and teaching practices (Walton, 2014). Similarly, Gagné's Differentiated Model of Giftedness and Talent (DGMT) model and Gardner's MI theory demonstrated many commonalities, as explained by Walton (2014). The local education system in the UAE bases its giftedness education on Gagné's DGMT model as detailed by the KHDA authorities (KHDA, 2015).

The present research intended to explore the gifted programming options offered at private schools in Dubai and analyse the progress in learner outcomes in the cognitive and affective domains based on these gifted provisions. Gardner's Multiple Intelligences Theory (1983), Renzulli's three-ring conception of giftedness (1978) and the Schoolwide Enrichment Model (SEM 1997), Gagné's DMGT model, and Deci and Ryan's Self-determination Theory have guided this study followed by few insights from the Actiotope Model of Giftedness by Ziegler (2013). The pictorial representation of the Theoretical Framework educating this research can be represented as figure 2.7.

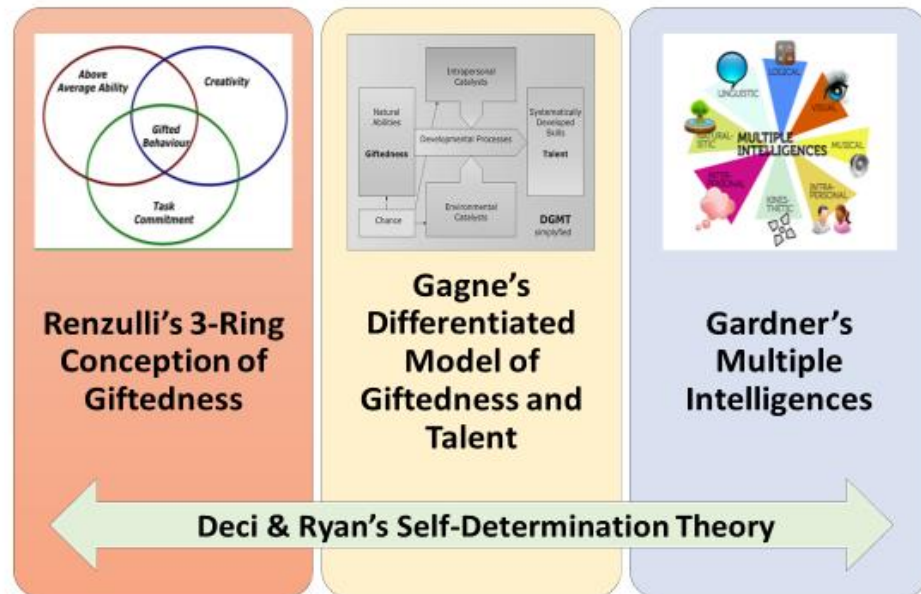


Figure 2.7: Theoretical Framework of the study (illustration)

Few deliberations on these major theories regarding giftedness are presented in detail in the subsequent sections.

2.3.1 Gardner's Multiple Intelligences Theory (1983)

Howard Gardner developed the Multiple Intelligences (MI) theory in the year 1983 to broaden the traditional perceptions of intelligence. The application of MI theory had a profound influence on the identification processes of gifted and talented students and positively influenced more learners receiving the opportunity to demonstrate their potential. Gardner refuted the belief at that time that intelligence could be denoted by a single IQ number. He proposed that every learner had varied forms of intelligences which developed in correlation of the nature and nurture, including the cultural inputs, values, opportunities, and talent. Gardner expressed human intelligence as problem-solving

ability or creating innovative products that would be of value within multiple societal settings (Walton, 2014).

Gardner's MI theory satisfied the criteria he expected to explain intelligence to categorise individuals with unique abilities, isolation caused by brain damage, progression of an individual's development, definitive set of operations, evidence from investigative psychological activities and psychometrics results, conceivable evolutionary record, and predisposition to symbol-based programming abilities. According to the psychiatrist Gardner's theory, every individual displayed unique intelligences, ways of learning and abilities that collectively formed a unique intellectual profile (Walton, 2014). To explain further, Gardner proposed the theory that human intelligence comprised of many unique aspects as shown in the figure 2.8 below:

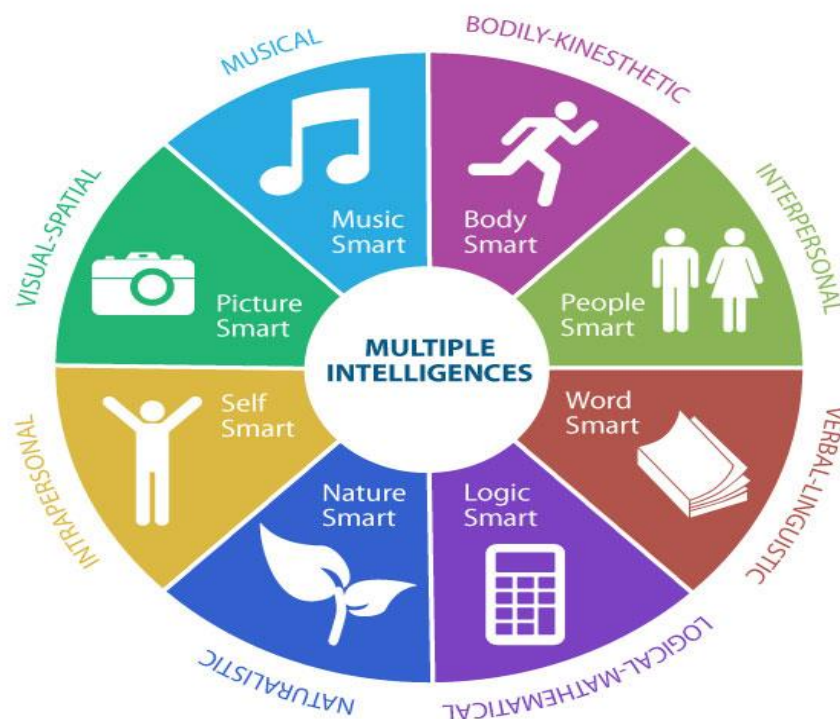


Figure 2.8: Gardner's Multiple Intelligences (adapted by Kurt 2020)

The implications of the MI theory in education could be illustrated as shown in figure 2.9 below:

Intelligence Area	Strengths	Preferences	Learns best through:	Needs:
Verbal / Linguistic	Writing, reading, memorizing dates, thinking in words, telling stories	Write, read, tell stories, talk, memorize, work at solving puzzles	Hearing and seeing words, speaking, reading, writing, discussing and debating	Books, tapes, paper diaries, writing tools, dialogue, discussion, debated, stories, etc.
Mathematical/ Logical	Math, logic, problem-solving, reasoning, patterns	Question, work with numbers, experiment, solve problems	Working with relationships and patterns, classifying, categorizing, working with the abstract	Things to think about and explore, science materials, manipulative, trips to the planetarium and science museum, etc.
Visual / Spatial	Maps, reading charts, drawing, mazes, puzzles, imagining things, visualization	Draw, build, design, create, daydream, look at pictures	Working with pictures and colors, visualizing, using the mind's eye, drawing	Video, movies, slides, art, imagination games, mazes, puzzles, illustrated book, trips to art museums, etc.
Bodily / Kinesthetic	Athletics, dancing, crafts, using tools, acting	Move around, touch and talk, body language	Touching, moving, knowledge through bodily sensations, processing	Role-play, drama, things to build, movement, sports and physical games, tactile experience4s, hands-on learning, etc.
Musical	Picking up sounds, remembering melodies, rhythms, singing	Sing, play an instrument, listen to music, hum	Rhythm, singing, melody, listening to music and melodies	Sing-along time, trips to concerts, music playing at home and school, musical instruments, etc.
Interpersonal	Leading, organizing, understanding people, communicating, resolving conflicts, selling	Talk to people, have friends, join groups	Comparing, relating, sharing, interviewing, cooperating	Friends, group games, social gatherings, community events, clubs, mentors/ apprenticeships, etc.
Intrapersonal	Recognizing strengths and weaknesses, setting goals, understanding self	Work alone, reflect pursue interests	Working alone, having space, reflecting, doing self-paced projects	Secret places, time alone, self-paced projects, choices, etc.
Naturalistic	Understanding nature, making distinctions, identifying flora and fauna	Be involved with nature, make distinctions	Working in nature, exploring living things, learning about plants and natural events	Order, same/different, connections to real life and science issues, patterns

Figure 2.9: Multiple Intelligences Theory (adapted by Razmjoo 2008, p. 163)

Eminent researchers have tried to correlate these multiple intelligences with psychological constructs to explain learner characteristics. For example, the logical, linguistic, and kinaesthetic facets were linked to the non-verbal intelligence used to recognise patterns, spatial ability, and reasoning by analogy among students. The influence of teaching strategies based on the multiple intelligences' theory have been a topic of extensive research alongside its effect on student achievement (Ekinci 2014).

As explained by Walton (2014), the MI theory discussed how every learner could enhance specific intelligences based on the following four dynamics:

- **Pluralisation:** This aspect explains the impacts of cultures and societies on values associated with intelligences including the pedagogical acumen or capability to teach others.
- **Contextualisation:** Familiar settings allow demonstration of individual intelligence owing to the values placed on articulation of intelligence.
- **Distribution:** This factor discussed the importance of technological, concrete resources or collaboration with others in advancing individual performances.
- **Learning environment:** Appropriate educational provisions, teaching and learning practices, and assessments have great significance in a learner's performance enhancement. Other important aspects include role of families, societies, and governmental supports in ensuring that students achieve their potential at school.

Like multiple intelligences theory, the standardised assessment used across all the schools within the UAE is the Cognitive Ability Testing – Version 4 (CAT4). All educators use the CAT4 results to develop a learner's profile to understand their cognitive abilities across the verbal reasoning comprising of language skills, non-verbal reasoning skills like problem-solving, spatial reasoning in three dimensions, and quantitative reasoning or ability to solve numerical problems. These student profiles facilitate the understanding of their strengths and weaknesses and enable teachers to make appropriate support provisions (GL Assessments, 2020). The CAT4 assessments are mandated by the KHDA and assist in identification of high ability learners (KHDA, 2015). Since the current study

used the CAT4 testing as a measure of learner's abilities, Gardner's MI theory was considered important for this theoretical framework. This is followed by some details of Renzulli's Theory on Giftedness, Operation Houndstooth, and SEM in the next subsection.

2.3.2 Renzulli's three-ring conception of giftedness (1978) and Schoolwide Enrichment Model (1997)

Joseph Renzulli developed the three-ring conceptualization of giftedness comprised of above average ability, task commitment and creativity leading to identified gifted behaviours. He discussed the strong correlation between high ability and high grades if the learners were appropriately challenged. Renzulli also highlighted the learning environment that advanced creativity in students which included the practical applications of the knowledge and critical thinking in a real problem orientation (Renzulli, 1999).

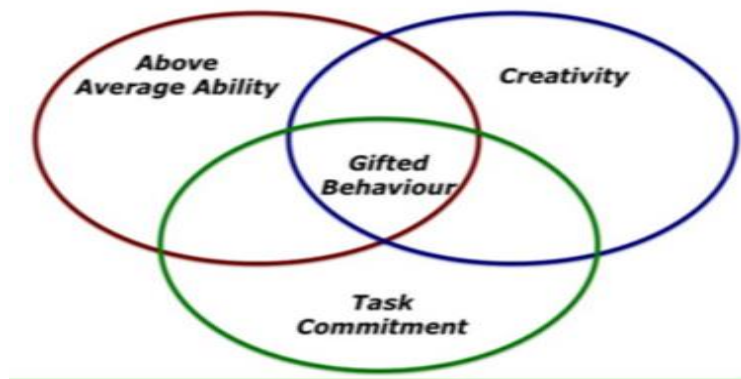


Figure 2.10: Renzulli's 3-ring Conception (adapted from Renzulli & Reis 2014, p.22)

Sharma (2018) reiterated that Renzulli's model moved away from the traditional assessment of giftedness that only regarded above average cognitive abilities and the

description of individual rings based on the 3-ring conception as shown in figure 2.10 are summarised below:

- 1) Above average ability:
 - a) General ability: This could be demonstrated as abstract thinking capability, information processing skill, capacity to assimilate experience to adapt appropriate responses to new situations.
 - b) Specific ability: This would be displayed as domain specific skills.
- 2) Commitment to task: This could be broadly explained as intrinsic motivation in a specific area.
- 3) Creativity: This trait is the most complicated to define and measure. It could be explained as divergent thinking or thinking out of the box (Renzulli, 1999).
- 4) Renzulli further entrenched the three conception rings into a houndstooth model that personified the interactions among the learner and their environment. According to Renzulli (2020), these interactions led to the progression of the three groups of characteristics that could be identified as gifted behaviours. Renzulli was interested in investigating the conditions that could encourage learners to develop into future empathetic leaders who were equally considerate about the environmental and artistic aspects. Other areas of interest comprised of exploring the correlation between the non-cognitive traits of a person and the extent to which these characteristics influenced the enhancement of their social capital (Renzulli, 2020). A diagrammatic representation of the gifted behaviours and their avenues

of performance areas as explained by Renzulli (2020) is shown as figure 2.11 below:

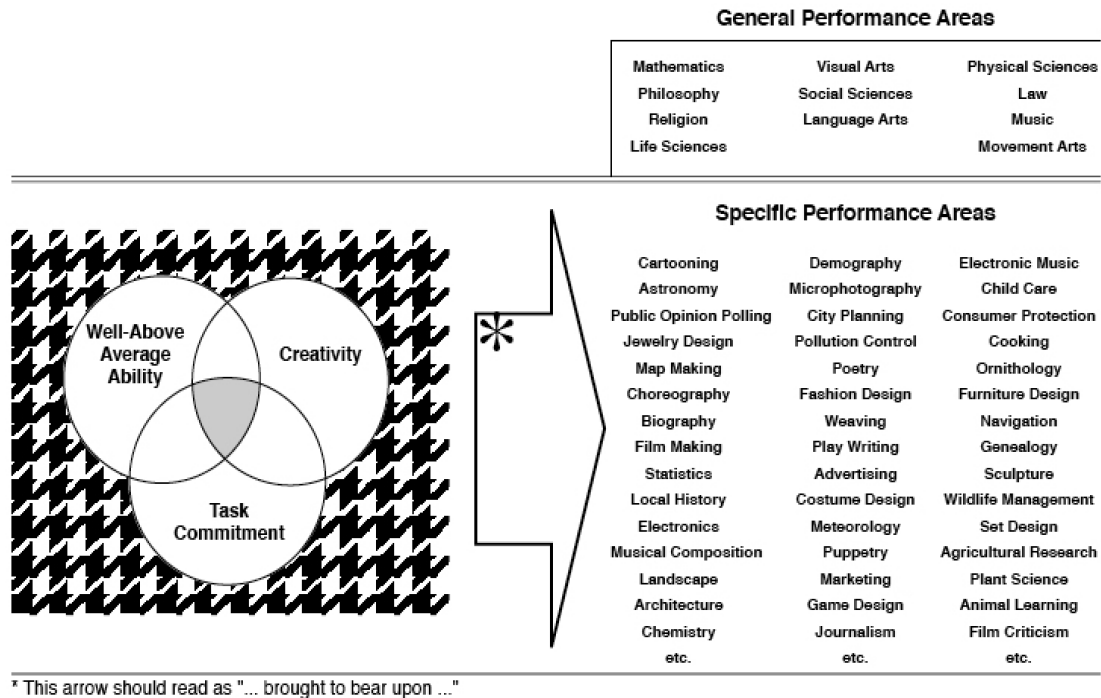


Figure 2.11: Gifted Behaviours and performances (Renzulli 2020, p. 3)

5) Although the effect of intellectual along with financial capital on a country's economy can be relatively easily measured, the influence of its social capital is not that obvious. Renzulli (2020) further discussed the positive impacts of social capital on the greater community including the advancements in value systems, trust, collaboration, and cooperation towards achieving the betterment of society. A prominent and providential movement in the field of social sciences was that of the positive psychology by Martin Seligmen, which converged on advancing the good in the learner's life instead of the focus on their maladaptive actions. The main objective of positive psychology as applicable to school environments, was

to develop a knowledge of learner strengths to help educators understand effective strategies to nurture socially productive values in our students (Renzulli 2020). Numerous elements of positive progression like leadership, innovation, creativity, philanthropy, and civic commitment could result from appropriate opportunities presented to young adults within their educational institutions. The various categories of learner traits underlying Renzulli's three ring conception of giftedness with recommendations regarding strategies or providing rich experiences to boost these characteristics at schools can be denoted as below:

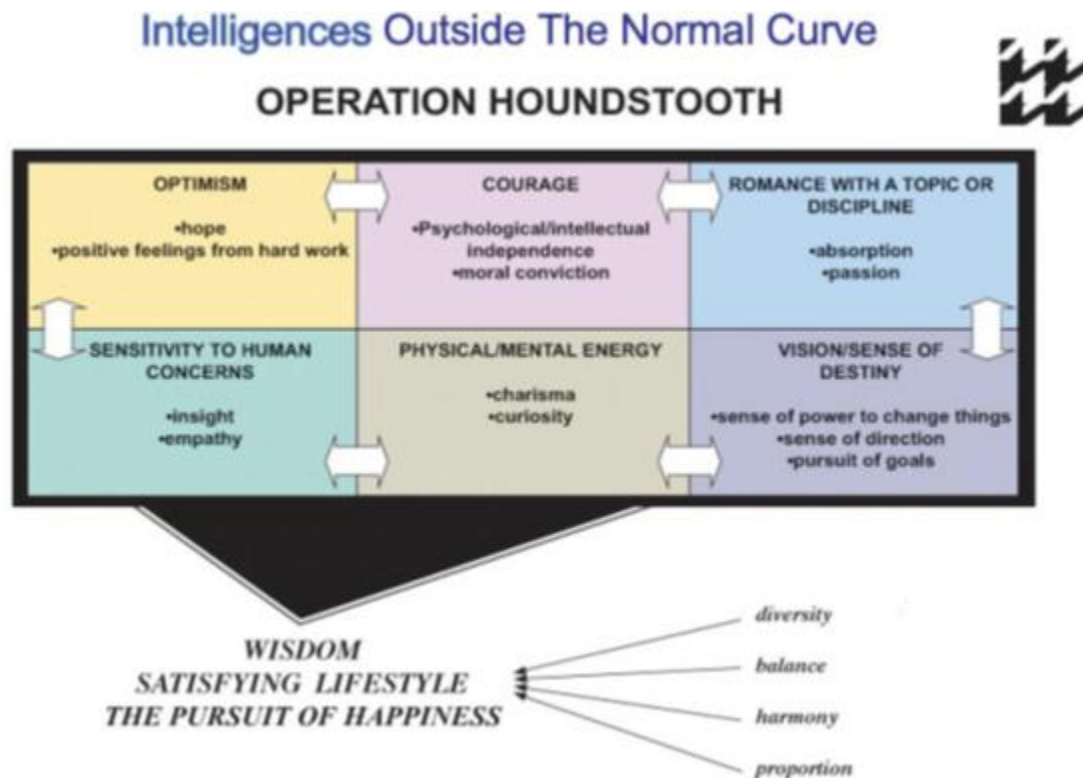


Figure 2.12: Operation Houndstooth (Renzulli 2020, p.7)

- 6) As explained by Renzulli (2020), gifted students must be presented with appropriate opportunities to enhance their intellectual and social capital to provide

a holistic education within schools considering their cognitive and co-cognitive abilities.

Renzulli recognised that educators faced many restrictions in the controlled learning environments and challenges by other regulations enforced upon them and developed the Schoolwide Enrichment Model (SEM) to bring back the joy of education for the students and teachers alike. The SEM based on the 3-ring conception of giftedness provided a balanced approach with the expected curriculum demands infused with frequent and methodical enrichment opportunities to engage learners in advancing their abilities, interests, learning flairs, and preferred styles of expression (Renzulli & Reis, 2014).

The SEM placed huge significance on the academic achievement and creativity of students and essentially offered an intricate design for development of schoolwide talent that could be individualised based on learner populations, local resources, school leaderships, and staff creativity and strengths. The original Enrichment Triad Model (1977) by Renzulli described Type-I activities that offered opportunities to learners to a broad range of topics, disciplines, persons, places, and experiences beyond the prescribed curriculum. Further, Type-II enrichment comprised of resources to advance the critical thinking and affective processes alongside instructional practices to promote specific areas of student interest. Finally, Type-III enrichment concerned learners who demonstrated self-regulation, genuine interest, commitment, and independence in pursuing activities or acquisition of specific content or skill (Renzulli & Reis, 2014). However, these enrichment opportunities were available only to the select few identified as gifted by the school.

To rectify this shortcoming and improve the identification of the eligible learners for enrichment, the SEM (1997) was established, whereby approximately 10-15% of high ability learners became eligible for enrichment through comprehensive measures including teacher nominations, numerous assessments, self and parent nominations, or IQ tests. The SEM consisted of ternary service constituents comprising of Curriculum modification and differentiation, Total talent portfolio, and Enrichment as depicted in figure 2.13 below.

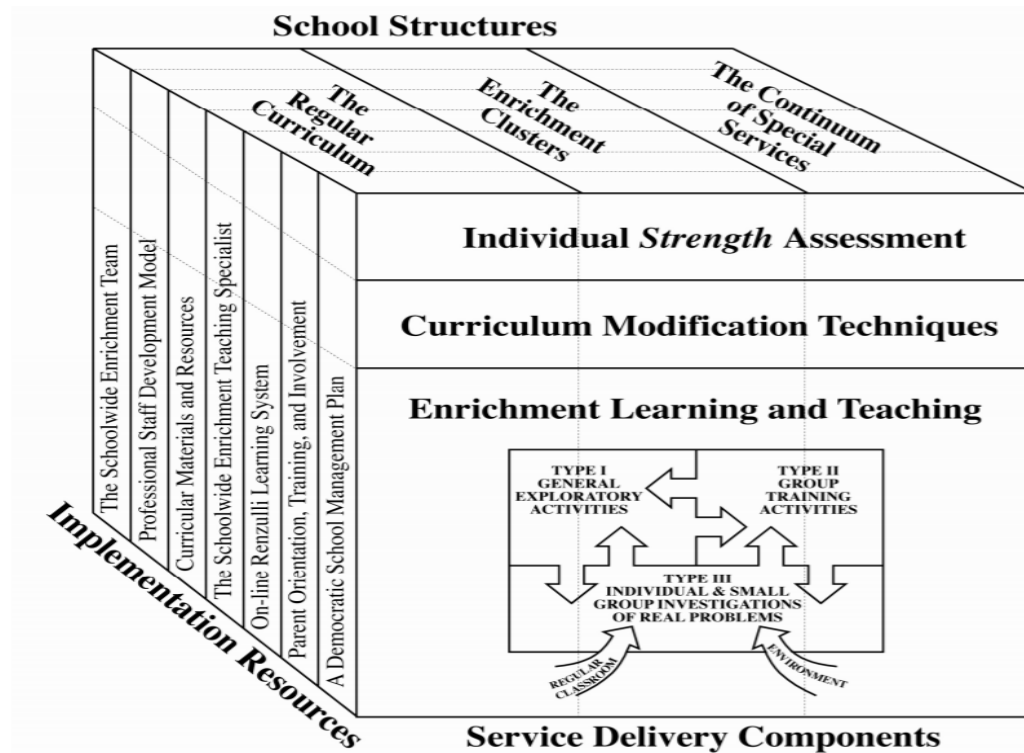


Figure 2.13: Schoolwide Enrichment Model (Renzulli & Reis 2014, p. 47)

Renzulli Learning, an online interactive program, was recently introduced to support the SEM implementation to personalise gifted learning for students. Similarly, the Renzulli Profiler was introduced to assess the learner's strengths, talents, interests, and preferred styles of expression to provide comprehensive information across thirteen important

categories including academics, performing arts, sports, and languages from the student's perspective. This tool enhanced the efficacy of the enrichment program presented to the gifted learners (Renzulli & Reis, 2014). Renzulli's Scales for Rating the Behavioural Characteristics of Superior Students (SRBCSS) can be used for identification information that can enhance the student profiles and help in provision of appropriate enrichment opportunities (Renzulli et al., 2010).

Renzulli's theoretical model presented appropriate understanding of systematic enrichment opportunities that could be offered to gifted learners over and above the regular curriculum. The next sub-section explains the Gagné's Differentiated Model of Giftedness and Talent which was fascinating and captured various interactions between the learner and the environment and was mandated by the KHDA for private education in the UAE (KHDA, 2015).

2.3.3 Gagné's Differentiated Model of Giftedness and Talent (DMGT 2.0, 2009)

François Gagné, a French-Canadian educational psychologist from Montreal, proposed distinct differences in the conceptions of giftedness and talent in the 1990s. According to Gagné, giftedness could be expressed as possession of spontaneous and untrained natural abilities in at least one domain to the extent that the learner could be placed in the top ten percent of similar age peers. In comparison, the notion of talent was explained as outstanding mastery of methodically advanced abilities along with knowledge in any sphere of learner activity which places them in the topmost ten percent of their peers (Gagné, 1998).

The above definitions of giftedness and talent is followed by all the schools in the emirate of Dubai (KHDA, 2015). Gagné's Differentiated Model of Giftedness and talent (DGMT) henceforth forms one of the most important theories and is discussed in detail in the subsequent section.

According to Gagné's theory, giftedness are natural abilities present within the learner but are probably not obvious or noticeable in the absence of suitable learning environments. Numerous versions of DMGT evolved over years when Gagné enhanced the explanations of the process of giftedness developing into appropriate talents with the contemporary 2.0 version being used widely by educators (Gagné, 2013).

Gagné's DMGT comprised of five specific constructs influenced by the chance factor, which accounted for the causes not in the individual's hegemony, including the impacts of nature and nurture. These five components involved the natural abilities or gifts (G) of an individual, the environmental (E) impacts and intrapersonal (I) factors, the developmental (D) process where the gifts could be advanced into talents (T). Each of these domains are described in brief henceforth:

- 1) Natural abilities or Gifts (G): These realms can be observed as ease and rapidity of acquiring any new skills by an individual. They can be further divided into mental clusters of social skills, creativity, intellectual abilities, and perceptual skills alongside physical clusters like muscular abilities and motor skills.
- 2) Talents (T): The outstanding performances in the fields of academics, art, technical, business, social services, or sports.

- 3) Development (D) process: The methodical quest by the learner to advance their individual abilities into competent skills with appropriate programs over time directed towards excellent learning goals constitutes this domain, which further comprises of investment, activities, and progress sub-domains.
- 4) Intrapersonal (I) Catalysts: These facilitators can be grouped in the categories of traits that are sub-categorised into the physical factors including an individual's appearance, disabilities, and other similar ones whereas the mental aspects comprise of disposition, emotional traits, and personality. The second sub-category includes the goal accomplishment processes like motivation, cognisance, and volition.
- 5) Environmental (E) catalysts: Regarding the field of education, this domain is incredibly significant to the progression of the talent development of gifted learners. According to Gagné, the environmental stimuli can be further grouped into three sets. Firstly, the milieu (EM) consisting of physical, familial, societal, and cultural factors are particularly important. Second, the individual (EI) aspects comprising of family, peers, teachers, and mentors that form the crucial layer of support for the gifted learners. Lastly, the gifted provisions including pedagogical aspects, differentiation, enrichment opportunities, flexible grouping strategies, acceleration, and curriculum adaptations (Gagné, 2013).

Gagné explained that the enhancement of giftedness into talent depended on the individual composition of all the factors detailed above and that this complex scenario was specific to every learner. Based on his expertise, he discussed that natural high abilities may not be innate but present owing to suitable provisions combined with a

biological impact. The physiological, structural, and hereditary characteristics shaped the biological influence of Gagné's Developmental Model for Natural Abilities (DMNA) which laid the foundation for the enhanced behaviour emphasis and the talent progression perception by the DMGT model (Walton, 2014).

Gagné's DMGT can be diagrammatically represented as below:

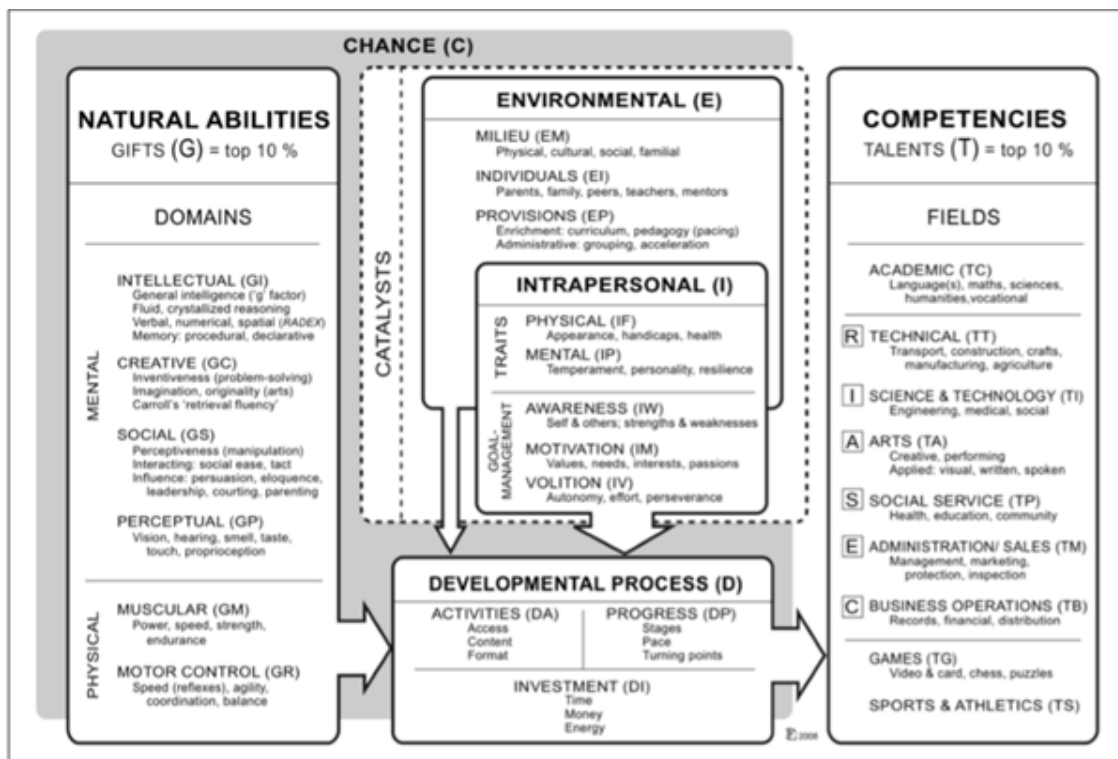


Figure 2.14: Gagné's Differentiating Model of Giftedness and Talent (Walton 2014, p. 41)

To summarise, many eminent scholars regarded giftedness as either early developing stages owing to strong biological factors or totally developed adult stages based on learner potential, aptitudes, and competence. Gagné's DMGT was enhanced to address these evolving views of giftedness and the distinct concepts of giftedness and talents were established. The concept of giftedness designated the raw and spontaneous ability or dexterity of the student while talents described the mastery attained due to methodically

developed competency (Gagné, 2013). As seen in the figure above, the DMGT model recognises six types of natural abilities and nine categories of talents. The development process comprised of three smaller components, namely, activities which managed over a duration of time led to progress towards expected goal competency. Gagné modified the environmental component to acknowledge the critical part played by the influences in the surroundings in relation to the learner's interests, needs and personality attributes. The DMGT addressed motivation as an important catalyst in the development of talents (Gagné, 2013). Further research in the field of giftedness led Gagné to introduce the Expanded Model of Talent Development (EMTD) which was rather complicated and discussed talent development process as a complex sequence of interactions between different catalysts which could be personalized for everyone (Gagné, 2013).

To reiterate, Gagné's Differentiated Model of Giftedness and Talent (1999) acknowledged the various domains of giftedness and the contemporary version DMGT 2.0 (2009) differentiated between giftedness as aptitude specific and talent as field specific aspect alongside explaining the progressive path to be the correlation between the abilities of gifted learners and their expressive skills as talents demonstrated by them (Miller, 2012). The current study uses the definitions of giftedness and talent as explained by Gagné as this is in line with the KHDA mandated version for all the schools in Dubai. Henceforth, the DMGT model is discussed in detail as it forms the most significant theory as far as the gifted education is concerned in the local context and the scope of this study. Also, there are numerous similarities between the DMGT model by Gagné and the Multiple Intelligences model by Gardner, and both these theories had strong influences on gifted education (Walton, 2014).

As discussed in the above sub-sections, Gardner's MI, Gagné's DGMT and Renzulli's SEM have the commonality regarding the importance of affective factors like interpersonal and intrapersonal abilities of learners. The past two decades have witnessed the evolution of socio-emotional learning (SEL) and numerous research studies have reiterated the significance of SEL programs in advancing academic success and positive development of students (Durlak et al., 2015). Educators face the challenges of teaching an increasingly diverse group of students with wide-ranging cultural backgrounds, nationalities, languages, individual needs with the complexity of progressing technology and social media added as stressors. SEL could play an important role in enhancing the character strengths, resilience, motivation, academic performance, learning environment, and overall socio-emotional competence of students (Durlak et al. 2015). Since the socio-emotional learning is overly broad, this study focused on one specific but important aspect of student motivation within gifted education. Deci and Ryan's Self-determination Theory of Motivation has been well established, and its discussion is imperative and covered in the subsequent sub-section.

2.3.4 Deci & Ryan's Self-determination Theory (SDT) of Motivation

Historically, our urge to control our environment and the concept of competence motivation was explained by White in the year 1959. In the later years, the importance of one's self-actualization needs being expressed after our basic needs were fulfilled, comprising the gratification of curiosity, creative methods of self-expression, and other skills development, were explained well by Maslow (Brophy, 2010). With evolution of motivational theories over time, the balancing of learner engagement with a task for meaning rather than expectation led to the progress of the concept of intrinsic motivation

during the 1990s (Brophy, 2010). A recent perspective on the extrinsic-intrinsic motivation that differentiated between autonomous and controlled motivation based on the origin of student behaviours was provided by Deci & Ryan's *self-determination theory (SDT)* (Deci & Ryan, 2000).

The goals of educators are to create an aspirational environment where students are appropriately engaged at schools and display self-regulated learning behaviours. Extrinsically motivated students work towards achieving outcomes that are discernible from the task itself, and these could be high grades, pleasing teachers or parents and other external benefits. In contrast, learners that are motivated intrinsically enjoy the task and display meaningful engagement on most occasions (Brophy, 2010). During the 1990s, prominent scholars like Ryan, Grolnick, and Connell explained that learner self-regulation involved the advancement of learner engagement from dependence on external incentives towards intrinsic satisfaction with the learning process itself (Brophy, 2010).

Owing to curriculum demands, it may be impossible for teachers to plan for daily tasks to be matched to learner's prevailing intrinsic motivation levels. Brophy (2010) recommended few useful strategies including classroom management styles and teaching methods to enhance the student's learning needs, developing learning tasks that would be intrinsically rewarding for students, along with adapting the activities or tasks to make it appealing to learners. While few intrinsic motivation theories focused on the affective facets of learner engagement in terms of enjoyment or fun, other theories concentrated on the cognitive traits including empowering, enriching, self-actualising, and meaningful engagement. However, most eminent theorists converged on the aspect of learner control,

directing that for intrinsic motivation to be advanced in students, their actions must be experienced as self-determined by them (Brophy, 2010).

Further research on this self-determination attribute that centered on the social environment, which either accelerated or decelerated learner motivation and vigorous psychological growth, was undertaken by Richard Ryan and Edward Deci. These scholars converged on the aspects that affected self-regulation, wellbeing, and intrinsic motivation which in turn steered the proposition of the three distinctive psychological wants of competence, relatedness, and autonomy and their importance in the field of education (Ryan & Deci, 2000). The self-determination theory (SDT) put forth by Deci and Ryan enthused many researchers to focus on the value facets of educational motivation (Brophy, 2010). Since the current study used the SDT, the following sections explain this theory in detail.

Deci & Ryan investigated learner's innate growth predispositions and inherent psychological wants, which formed the core of their personality development and self-motivation, alongside the social conditions that could positively influence this progression. They explained that the nature of motivation involved perseverance, energy, decisiveness, and direction, and since motivation led to positive outcomes from students, its study has been of great significance to all educators. Deci and Ryan explored the differences between external control and intrinsic motivation along with the factors that affected learning behaviours in terms of wellbeing, performance, and experience at any given time. They postulated a suite of guiding principles for each category of motivation and presented a differentiated approach to learner motivation (Ryan & Deci, 2000), as represented further.

The Self-Determination Continuum Showing Types of Motivation With Their Regulatory Styles, Loci of Causality, and Corresponding Processes

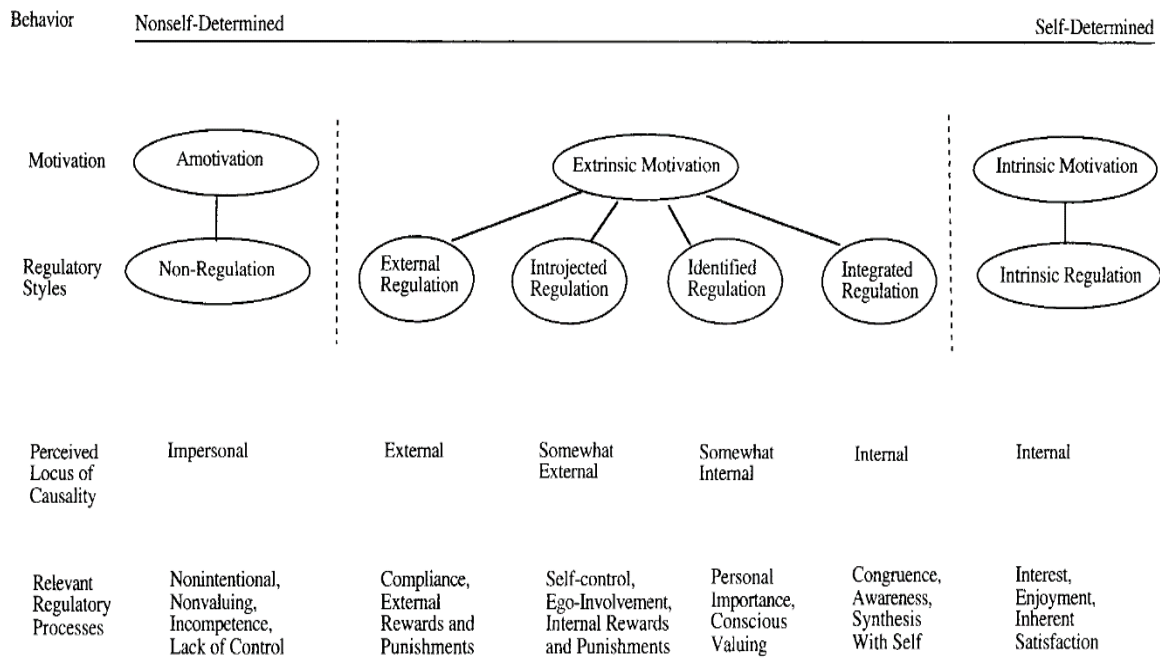


Figure 2.15: Self-Determination Continuum (Deci & Ryan 2000, p. 72)

The SDT provided an alternate and abstruse view of motivation, presenting it as an evolving characteristic. This motivational theory explained that while the learning process could be controlled externally, the objective of education was to develop learner self-regulation. In other words, the student should move away from heteronomy towards autonomy in knowledge acquisition for the joy of the learning progression intrinsically (Brophy, 2010). To reiterate, Deci and Ryan recognised three psychological desires of autonomy, relatedness, and competence as elementary, global, and comprehensively affecting goal-oriented behaviours. They explained that if these three basic needs were satisfied, the learner's sense of self-perception would reflect their interests or what they considered important and lead to learner autonomy. The SDT broadly explained how cultural and societal factors influence student behaviours and motivation. This meta-

theory could be applied to various settings like the classroom, various organisations and groups, families, and diverse cultural and social settings.

The SDT (Deci & Ryan, 2000) consists of six mini theories discussed in brief in the subsequent sections herewith and illustrated as shown in figure 2.16 below.

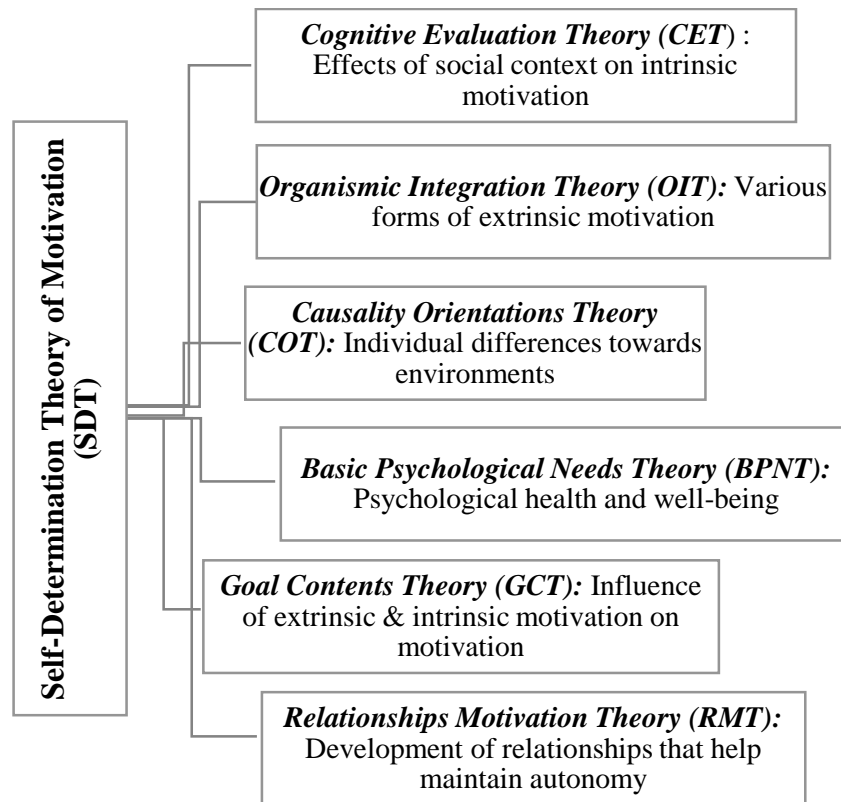


Figure 2.16: Self-Determination Theory of Motivation (illustrated based on Deci & Ryan 2000, p. 71)

- *Cognitive Evaluation Theory (CET)*

This mini theory addressed the influences of social environment including ego-attachments, rewards, and interpersonal factors on learner's interest and intrinsic motivation. CET also explained the importance of autonomy and competence in advancing intrinsic motivation in the field of education.

- *Organismic Integration Theory (OIT)*

The second mini theory focused on the numerous forms of extrinsic motivation along with their causes, characteristics, and consequences. OIT explored the traits of different types of behaviours ranging from integration, identification, introjection to external controls that could be trailing along the internalization continuum. Any enhancement of learner internalization would automatically lead to the desired effect of increased autonomous behaviours.

- *Casualty Orientations Theory (COT)*

Individual differences in students while adapting to their environments and their correlation to their behaviour regulation were described by this mini theory. COT further explained all three casualty orientations, namely,

- Autonomy orientation where a student valued the learning and acted out of self-interest.
- Control orientation explained the effects of gains, rewards, and approvals.
- Amotivated orientation portrayed by self-doubts regarding one's competence.

- *Basic Psychological Needs Theory (BPNT)*

This mini theory expanded on the changed psychological wants and their correlation to the learner's wellbeing and psychological health. BPNT elaborated on the influences of culture and cross developmental situations on motivation.

- *Goal Contents Theory (GCT)*

The fifth mini theory developed from the differences among extrinsic factors including appearance, financial background, and fame and intrinsic objectives including social relations and personal growth along with their control over wellbeing and motivation.

- *Relationships Motivation Theory (RMT)*

Lastly, this mini theory described the significance of close relationships and the feeling of belonging to any community with the suggestion that excellent partners encourage the progress of competence, relatedness, and autonomy desires of the other.

The SDT recommends strategies to promote learner autonomy by providing them with periodic opportunities to make individual choices in their learning environment while linking tasks to their individual areas of interests. Similarly, student competence can be advanced by ensuring that the expected task is consistent with the abilities and knowledge gained, offers prospects for active responses while giving immediate feedback, and integrates game-based learning tasks that would lead to development of various skills, alongside handing authentic tasks that can be independently managed from beginning to end. Lastly, the pupil relatedness could be enhanced by maintaining a collaborative classroom, promoting positive peer relations, close interactions with families and strong teacher-student relations (Brophy, 2010). To summarise, the Self-determination Theory provided an extensive framework for learner motivation and personality. When learners become autonomous, they can achieve goals commensurate with their high potential (Deci & Ryan, 2000).

To summarise the selection of the above theories for this study, using a single IQ construct to identify the students with gifts and talents was considered a narrow viewpoint and disregarded by experts. Several alternatives like the Gardner's MI theory and Renzulli's 3-ring conception that utilised several intelligences were well established and researched. Gagné's DGMT provided interesting facets of environment that could support progression of learning in gifted students along with the perceptions of growth of talents and gifts within the learner (Ziegler, 2005). Also, Ziegler criticized that prior research on gifted education proposed to explicate effective actions in particular domains rather than conducting empirical studies on the in-depth analysis of expected actions in learners demonstrating excellence. Ziegler proposed the Actiotope Model of Giftedness that involved analytic study of numerous variables including the environmental aspects, interactions between constituents, alongside the feedback loops into the process (Ziegler, 2005). His theoretical model was focused on actions and not traits, the unique journey of everyone, and the complicated system of development offered a new perspective on giftedness. His systemic approach is worth being used for further research within the local context by a quantitative expert.

For the purposes of this study, the theoretical framework used with the rationale is explained above and the conceptual framework applying these theories to the current study is presented in the next section of the thesis.

2.4 Conceptual Framework

The current situation of gifted programming provisions within the local context is an appalling one. There have been no prior investigations within the private sector and

unfortunately minimal focus, or guidance given by the KHDA. The gifted and talented students deserve to be represented under the inclusion umbrella and gifted educators need standards-based programming to be steadily engaged in national discussions regarding underserved populations (NAGC, 2012). The 2019 NAGC gifted education programming standards and the recommended cognitive and affective provisions that can be offered at schools to cater to the needs of gifted learners are discussed later in this section (NAGC, 2019). A brief explanation of the complex nature of giftedness identification, its effect on the learners and the strategies used to cater to the unique needs within the educational context follows herewith.

Many prior studies have investigated the effects of giftedness label on the learners' socioemotional growth as well as academic achievement. Some earlier studies conducted between 1950s to 70s reported negative perceptions by students, and studies in later years evidenced mixed outcomes whereas contemporary researchers have found increasingly positive self-perceptions of gifted learners regarding their identification (Meadows & Neumann, 2017). Also, studies that focused on gifted adolescents discussed the disparity between their cognitive and affective developments, and how this may lead to humiliation or fear of underachievement further materializing into social isolation, low self-esteem, depression or on the other hand traits like perfectionism could surface as underachievement. Some experts strongly recommended understanding the unique needs of gifted students and making appropriate gifted provisions to nurture their gifts and support them succeed in their educational journey (Doyle, 2017). Within the school context, gifted learners can be cognitively challenged within the regular classrooms by suitable differentiation by the teacher and /or enrichment opportunities in a small group

of like-minded peers (Imenda 2014). To understand the expected provisions and services that must be provided by schools, the subsequent sections discuss numerous evidence-based practices.

Utilising the knowledge gained from the major giftedness theories discussed in the previous section, breaking down abstract terms into smaller concepts and applying them to the gifted provisions being investigated by the current study form the crux of this conceptual framework (Imenda 2014). To explain further, the contemporary models of differentiation, enrichment opportunities, learner motivation, and the NAGC programming standards are detailed in the following parts of the proposal. The conceptual framework of the present investigation can be figuratively represented as shown in figure 2.17 follows:

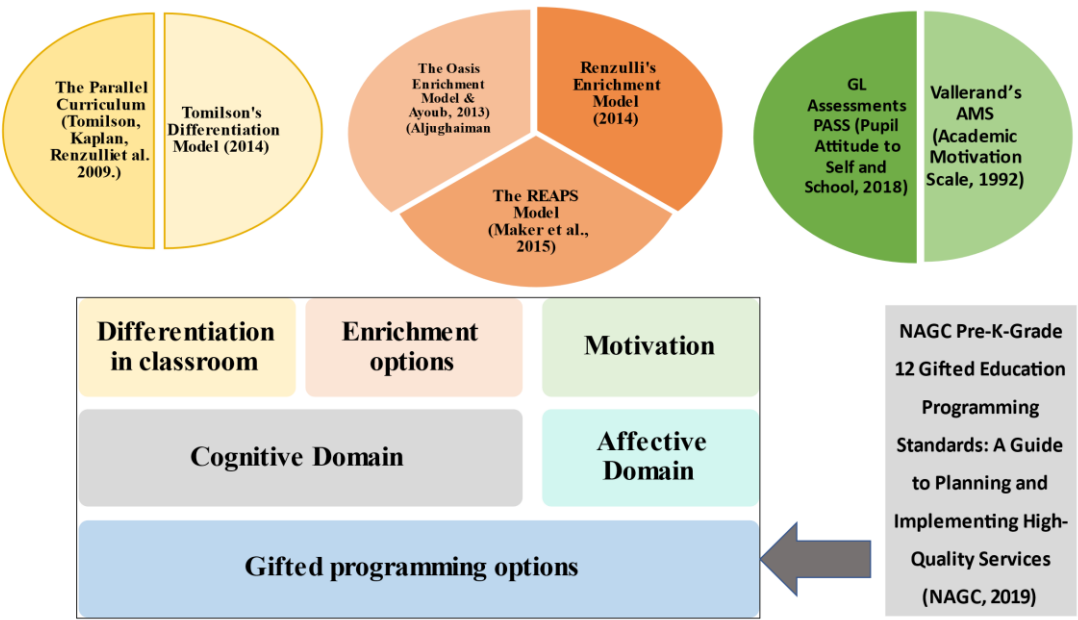


Figure 2.17: Conceptual Framework of the Study (illustration)

The subsequent sections attempt to describe each component of the conceptual framework in detail.

2.4.1 NAGC Pre-K-Grade 12 Gifted Education Programming Standards (NAGC, 2012 and 2019)

In the United States, the movement to establish national gifted standards has been advancing rapidly since the publication *A Nation at Risk* in 1983. Since the needs of gifted and talented students merited recognition within the inclusion framework, educators sensed the demand for gifted programming standards. The NAGC pre-K-Grade 12 Gifted Education Programming Standards (GEPS) 2010 contributed to this requirement by developing a structured approach to gifted programs focused on student outcomes that supported the accountability movement while providing a basis for advocacy for the underrepresented learner group (NAGC, 2012).

The NAGC 2010 GEPS furnished essential benchmarking for evolution of policies, systems, evidence-based teaching and learning practices, curriculum development, assessment procedures and improving the academic services for the deserving gifted students. The development process of GEPS was guided by the following general principles illustrated in figure 2.18.

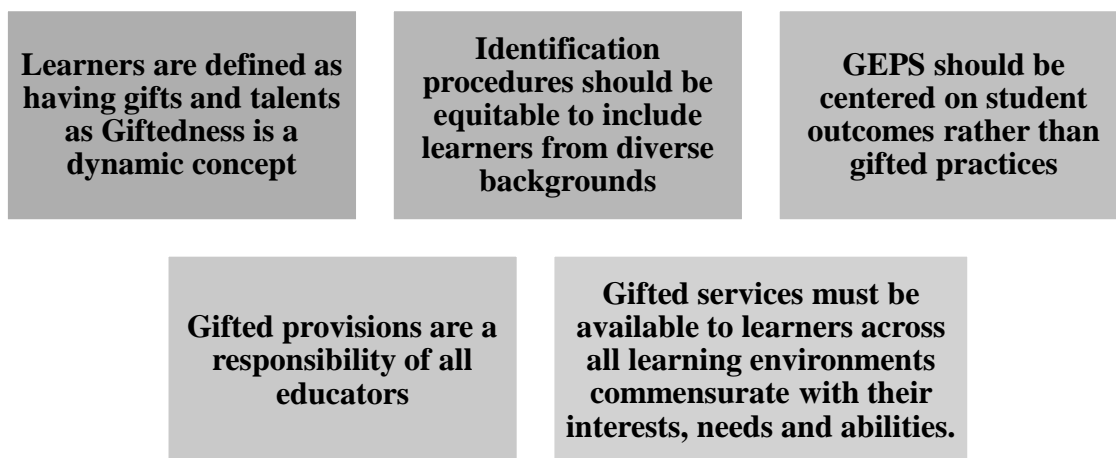


Figure 2.18: The NAGC General Principles (Illustration based on NAGC 2012, p. 7)

The NAGC 2019 GEPS consists of thirty-six learner outcomes formulated within the following six standards (S1-S6), namely:

- Learning and development

This standard forms the baseline for all the subsequent standards and it is of utmost significance that the gifted learner's characteristics and unique needs be understood by the educators prior to planning of curriculum, teaching and learning instructions, assessments, programs, learning environment and staff professional development. The learner outcomes within the first standard discern and encourage the learner's ongoing self-awareness and self-perception alongside recognizing their affective and cognitive involvement in a holistic manner. Some recommended practices include developing student profiles with their interests, gifts, strengths, and weaknesses; designing interventions appropriately suited to learner needs, creating culturally responsive classes,

using evidence-based grouping, mentoring the learners, collaborating with their families effectively, and lastly, providing career guidance within schools.

- Assessment

The second standard comprises of all types of assessments including the identification tests and various assessments of learning and outcomes, alongside those evaluating the gifted programming as all of these are interlinked to each other. The recommended practices include provision of encouraging environments that allow learners to demonstrate their gifts or talents; using comprehensive identification processes; using diverse assessments to gauge student outcomes in terms of products or performances or pre and post measures; and establishing reliable and robust evaluation procedures.

- Curriculum planning and instruction

This standard encompasses curriculum planning including cultural responsiveness, instructional strategies, talent progression and strategies to engage students in diverse ways alongside developing their independence. The suggestions for teachers are using effective differentiated curriculum, employ research-based strategies to enhance creativity, critical thinking, problem-solving, inquiry-based learning, and metacognition while integrating technology seamlessly.

- Learning environments

The fourth standard specifies the ideal learning environment for gifted learners to flourish and grow personally, socially, and culturally, and to enhance their leadership alongside effective communication capabilities. Recommended outcomes for learners should include self-advocacy, self-awareness, motivation, confidence, resilience, independence,

self-efficacy, curiosity, positive peer relations, interpersonal and intrapersonal communication skills, and technical capabilities. Educators must foster healthy learning environments with high expectations of each student, recognise consistent efforts, support the unique needs of learners, and promote their leadership capabilities alongside socioemotional skills.

- Programming

Diverse programming options combined with relevant resources, policies coupled with processes to design extensive gifted services including talent progression and career planning form the constituents of this standard. Learner outcomes are comprised of consistent progress, advancement in their affective and cognitive performances alongside effective pathways to enhance their talents. Some successful strategies that can be utilized by educators include enrichment opportunities, acceleration, internships, personalized learning, and mentorships together with developing the learners' technology skills.

- Professional learning

Some of the important factors that influence the teachers' development including knowledge and capabilities are covered by the sixth standard. It is obligatory on behalf of the educators to engage in continuous professional development, keep up to date with research-based practices, be responsive to personal and cultural progressions and adhere to policies, rules, and standards of ethical practices.

The above-mentioned standards can assist educators in monitoring the programming options provided and decide the next steps for improvement in serving the gifted learners. Within the local context, where there are no gifted education standards and minimal

guidance from the KHDA, the researcher felt the need for gifted programming standards to evaluate the current programs across private schools. The GEPS provided the required standards that ensured some degree of consistency in the analysis and the researcher could monitor the implementation of evidence-based practices in terms of learner outcomes that in turn would help to indicate the significance of specific gifted program provisions and making future research recommendations (NAGC, 2012). Also, the GEPS provide an ideal backdrop for advocacy for educational services and suggest innovative practices to cater to the unique needs of the underrepresented gifted learner population in the local context.

While the NAGC GEPS broadly guide the current study, the elements of the conceptual framework in the cognitive domain are explained in detail in the following sub-section.

2.4.2 The Cognitive Domain (CDs)

Robinson (2016) explained that educators need to focus on what interested learners the most and that when they feel valued at school, they would value the teaching and learning happening every day. He discussed how PISA further triggered the global movement to improve educational standards to keep pace with the competitions in reading, mathematics, and science. The TED expert described the reasons the educational reform was politically motivated were due to its economic implications of an educated population leading to national prosperity, cultural values of transferring values to the next generation, social purposes of educating all, and personal reasons of fulfilling everyone's potential and become productive citizens. Within the U.S., the consortium promoting the twenty-first century skills proposed a comprehensive curriculum comprising of

interdisciplinary themes of global awareness, entrepreneurial abilities, environmental, health and civic literacies; learning skills including innovation, creativity, problem-solving, critical thinking, collaboration and communication; and career and life skills consisting of adaptability, flexibility, self-direction, social skills, accountability, responsibility and leadership skills (Robinson, 2016). He elaborated on the significance of educators understanding the nature of learning, processes of personalisation, teachers who can inspire learners alongside enhancing their confidence and creativity; while ensuring that the curriculum caters to diversity along with being dynamic and responsive, and lastly the school endorses an empowering ethos of learning (Robinson, 2016).

A variety of well-researched differentiation models and enrichment models are discussed below that can cater to the unique needs of the gifted learners.

2.4.2.1 CD1: Differentiation in classrooms

2.4.2.1.1 Tomlinson's Differentiation Model (2014)

Globally, innumerable students may be present in the classroom physically but psychologically oblivious to the learning happening in the common environment. The challenge facing teachers encompass the effective strategies to cater to individual needs, learning attitudes, diverse backgrounds, varied levels of prior knowledge and interests of pupils (Tomlinson, 2014). This complex learning environment in the classroom can be catered to by differentiated teaching and learning strategies by the teacher. Successful attributes of a differentiated classroom include an open-minded ethos and readiness by the teacher to involve students through varied approaches to learning, catering to diverse interests, using numerous instructional methods and yet progressing toward or ahead of

the expected content goals (Tomlinson, 2014). The recommended model of differentiation of teacher instruction by Tomlinson is shown in figure 2.19 below:

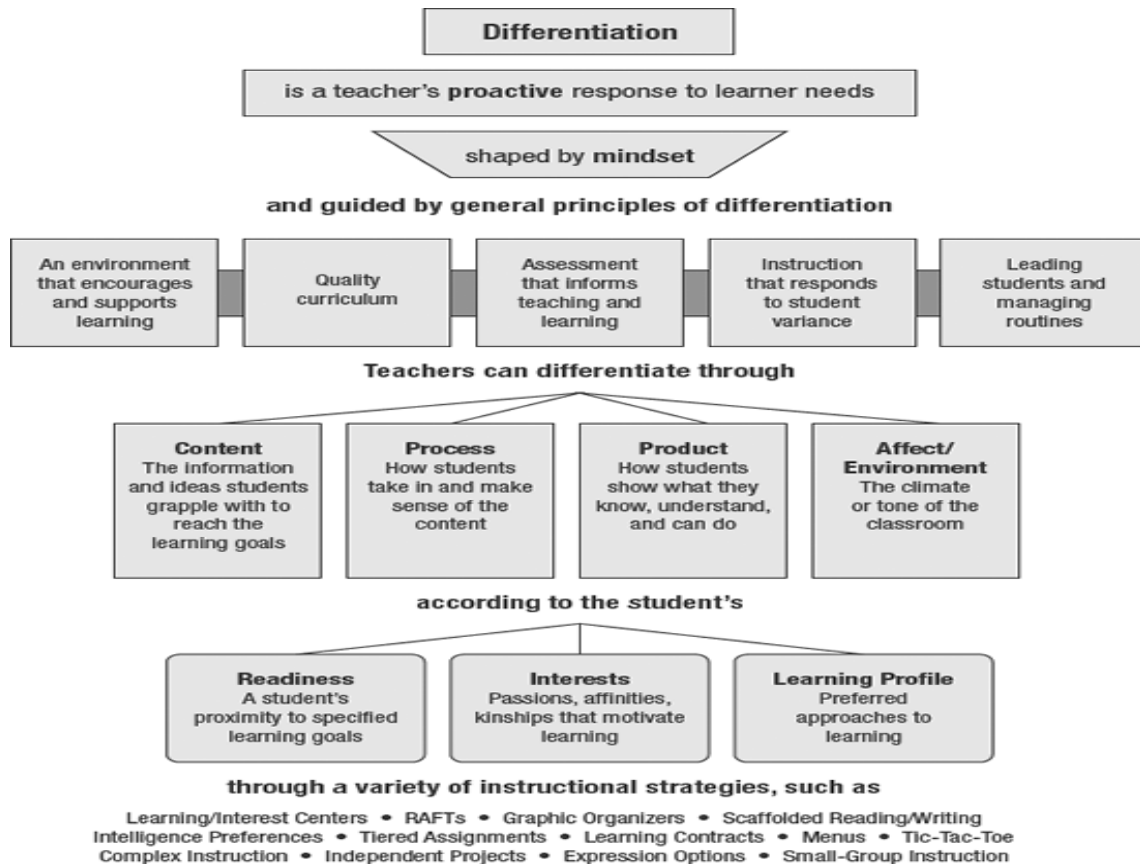


Figure 2.19: Differentiation of Instruction (Tomlinson 2014, p. 20)

Tomlinson (2014) explained the dual critical basics that every teacher is forced to adhere to within the classrooms. Firstly, the curriculum content or standards that present the known destination signposts for all students. Secondly, every classroom will have diverse learners, who need to be appropriately engaged with varied instructional approaches, including differences in pace, complexity and scaffolding by the teachers while maintaining high expectations at all times. Teachers in an exemplary differentiated classroom start with a clear and robust understanding of dynamic curriculum combined with engaging instructions followed by effective modification personalized to each

learner's prior knowledge, skills and understanding to ensure progress for all. One of the most influential factors to an effectively differentiated classroom is the active learning environment created by teachers where learners feel valued and appreciated, work collaboratively to support each other's progress, are aware that successes and failures form imminent part of learning, demonstrate consistent hard work, find classroom routines are suited to their individual needs and perceive that their teachers are confident of their capability to learn. Other important success strategies for educators are the inevitable requirement to personalize the curriculum to ensure every learner's progress, actively serve the unique needs of all learners, understand that formative assessments inform instructions, and provide lessons differentiated based on learner profiles. The three pillars of effective differentiation as explained by Tomlinson (2014) is shown in figure 2.20 below:

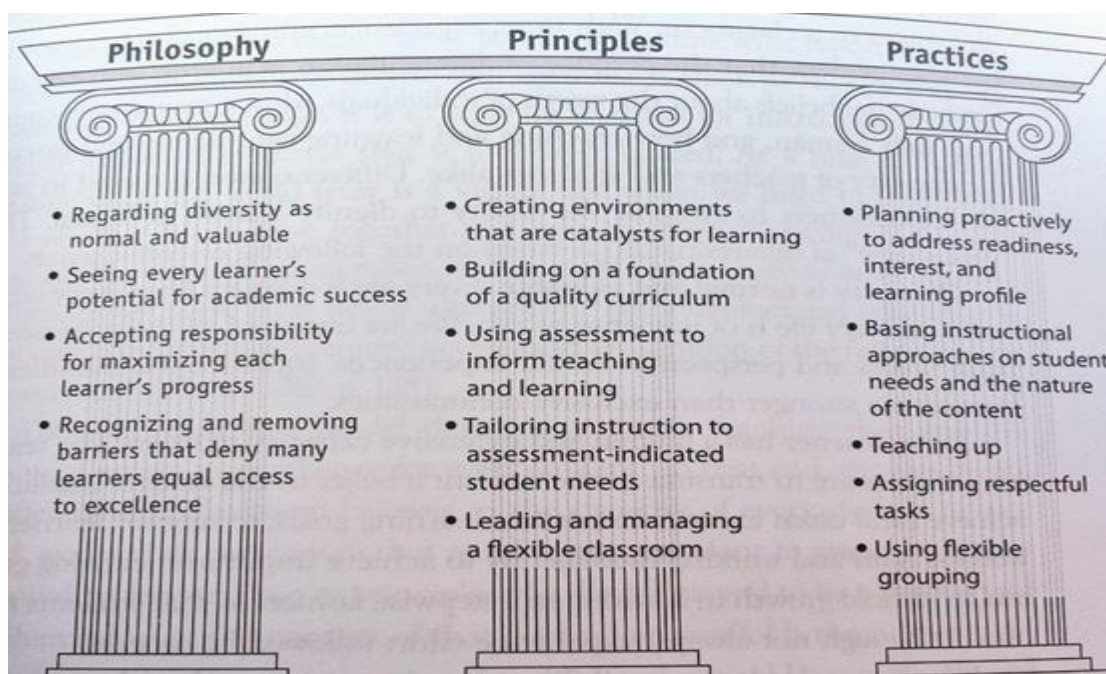


Figure 2.20: Three Pillars of Effective Differentiation (Tomlinson 2014, p. 25)

An investigative study by Maeng (2017) focusing on differentiation as a teaching philosophy used Tomlinson's model as the conceptual framework and explained how learner profile with details of their learning style, cultural background, preferred intelligence, gender, interests, strengths, and weaknesses could serve as a basis for differentiated instructions, appropriate learning environment and varied ways of expression or presenting outcomes for the educators.

2.4.2.1.2 The Parallel Curriculum (Tomlinson et al., 2009)

Prominent educators like Tomlinson, Kaplan, Renzulli, Purcell, Leppien, Burns, Strickland and Imbeau evaluated the knowledge structure, evidence-based instructional strategies, learner characteristics, future educational requirements, and current practices with the objective of developing a dynamic curriculum design that was responsive to individual student needs and could be applied within any discipline. The Parallel Curriculum Model (PCM) was a well-researched representation of the thoughts of eminent theorists like Bandura, Bruner, Gardner, Dweck, Glasser, Piaget, Vygotsky, Sternberg, and others to promote an appropriately differentiated curriculum.

The analysis of the PCM reveals the correlation between the parallel curriculum model, knowledge continuum, and content standards within any discipline. The PCM recommends four approaches to curriculum while reiterating that the curriculum and instruction design must cater to the diverse needs of all learners, teachers must be confident and comfortable as high-quality curriculum planners and that these approaches can be used independently or as a combination. Within each approach, the scholars recommend numerous ascending intellectual demands (AID) that can be provided to gifted learners to make the curriculum appropriately challenging and engaging for them.

The important principles that form the basis of the PCM are enlisted as an illustration in the figure 2.21.

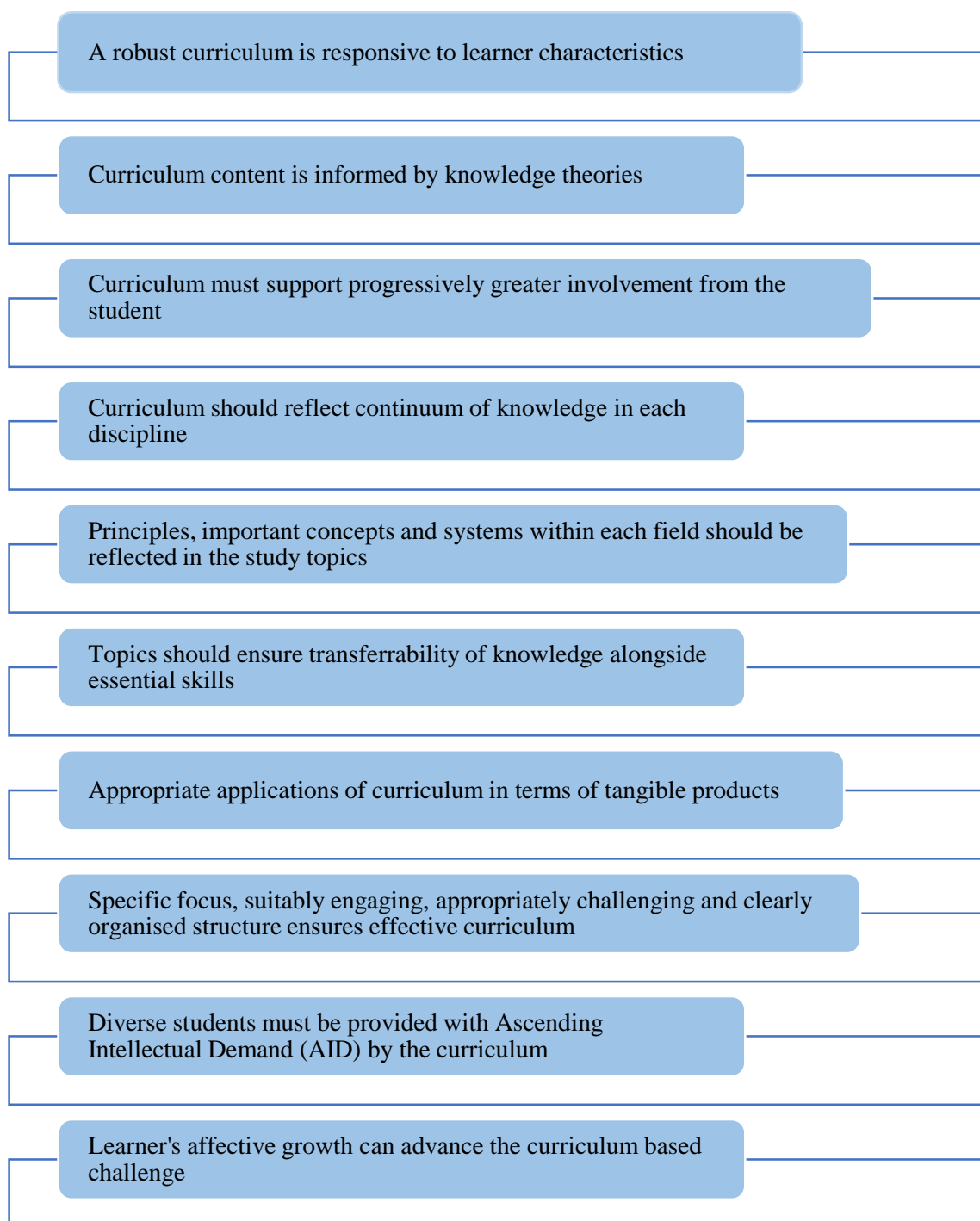


Figure 2.21: The Principles of the Parallel Curriculum Model (illustration based on Tomlinson et al. 2009, p. 5-11)

The four curriculum approaches are described briefly below:

- Core Curriculum

By nature, this forms the initial stage for any robust and reliable curriculum and almost all learners are required to work from this stage. The characteristics of the core curriculum are shown as an illustration in figure 2.22 as follows:

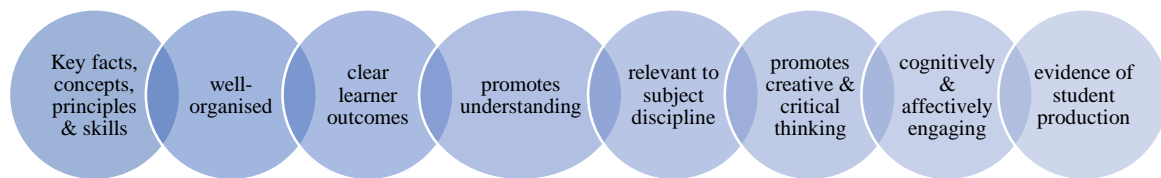


Figure 2.22: The Core Curriculum (illustration based on Tomlinson et al. 2009, p. 19)

In the event of any student presenting any learning gaps or advanced knowledge, appropriately differentiated support needs to be put in place. Some recommendations for the AID include provision of suitable reading materials, varied pace of instructions, different complexity levels, opportunities for transfer of skills, open-ended tasks, rubrics for learners to progress from novice to mastery levels, collaboration with peers or subject experts, and encouraging learner self-reflections.

- Curriculum of Connections

Learners are expected to explore connections between the key concepts, information, or principles by comparing and contrasting within a discipline or its subdisciplines. The traits of this curriculum can be represented as an illustration in figure 2.23.

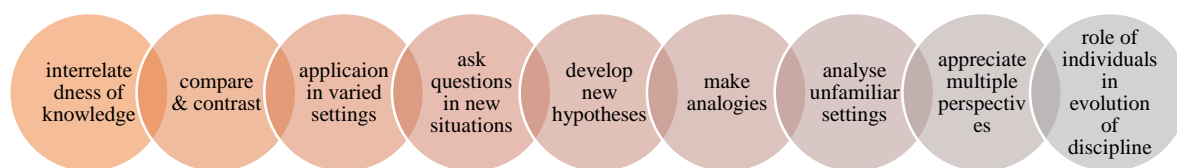


Figure 2.23: The Curriculum of Connections (illustration based on Tomlinson et al. 2009, p. 21)

The AID within the curriculum of connections could be regulating the level of challenge of an activity commensurate with the learner’s knowledge, skills, understanding and experience.

- Curriculum of Practice

This curriculum approach expects the students to familiarize themselves with the possible ways in which the discipline expert or practitioner would use the knowledge, skills, information, subject principles, or concepts. Experiential learning is important, and curriculum of practice requires learners to think like the subject scholars while advancing their proficiency within the discipline. This approach may be briefly represented as illustrated in figure 2.24 as follows:

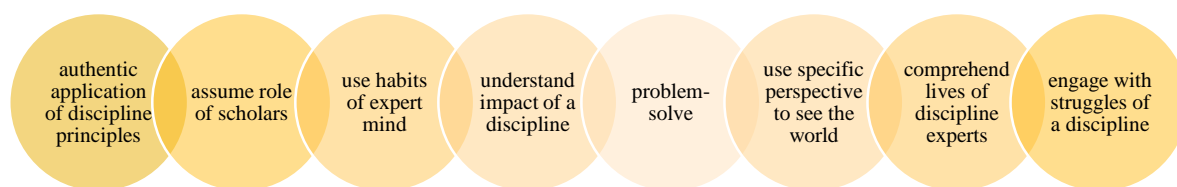


Figure 2.24: The Curriculum of Practice (illustration based on Tomlinson et al. 2009, p. 25)

The AID within the curriculum of practice can be comprised of, but not limited to, encouraging learners to design and test their individual framework of knowledge, collaborate with subject experts, develop objectives for self, problem-solve with scholars, engage in self-reflections over prolonged periods of time, compare and contrast their own progression of approaches over time, and increase expected degree of independence.

- Curriculum of Identity

This unique approach raises learner self-awareness by reflecting on their abilities, interests, and preferences to numerous disciplines, concepts, scholars and appreciate the contribution or possible ways any discipline can help evolution of the world. In brief, the curriculum of identity helps learners to gain the varied skills as illustrated in figure 2.25 below:

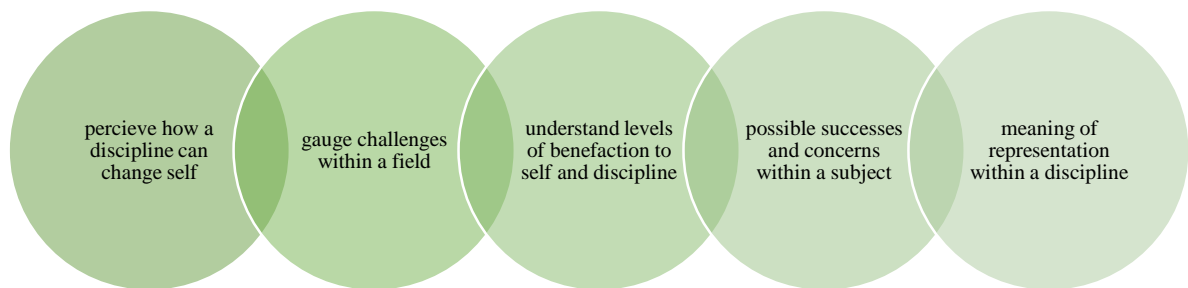


Figure 2.25: The Curriculum of Identity (illustration based on Tomlinson et al. 2009, p. 26)

Suggested AID within this curriculum approach are to share self-reflections, investigate multiple perspectives, develop clear connections to self, work with a mentor or expert, become familiar with biographies of scholars, analyse personality traits of discipline experts, make commitment to problem-solve within the chosen field, and determine characteristics of a personality passionate regarding the selected discipline.

Thus, the PCM establishes a powerful technique of providing gifted learners with ascending challenge within the curriculum approaches and caters to their diverse abilities, interests and learning preferences while ensuring progress from novice to expert levels thus securing appropriate student engagement in their learning process (Tomlinson et al., 2009).

In summary, Tomlinson's differentiation model and the PCM are comprehensive and contemporary models and will be chiefly used to evaluate the differentiation by classroom teacher to cater to the needs of learners of high potential within the present study. Another noteworthy differentiation model was proposed by Renzulli, Leppien and Hays (2000) who attempted to bridge the gap between the knowledge of the content and instruction experts by developing an authentic, meaningful, and relevant design called the *Multiple Menu Model* as shown in figure 2.26.

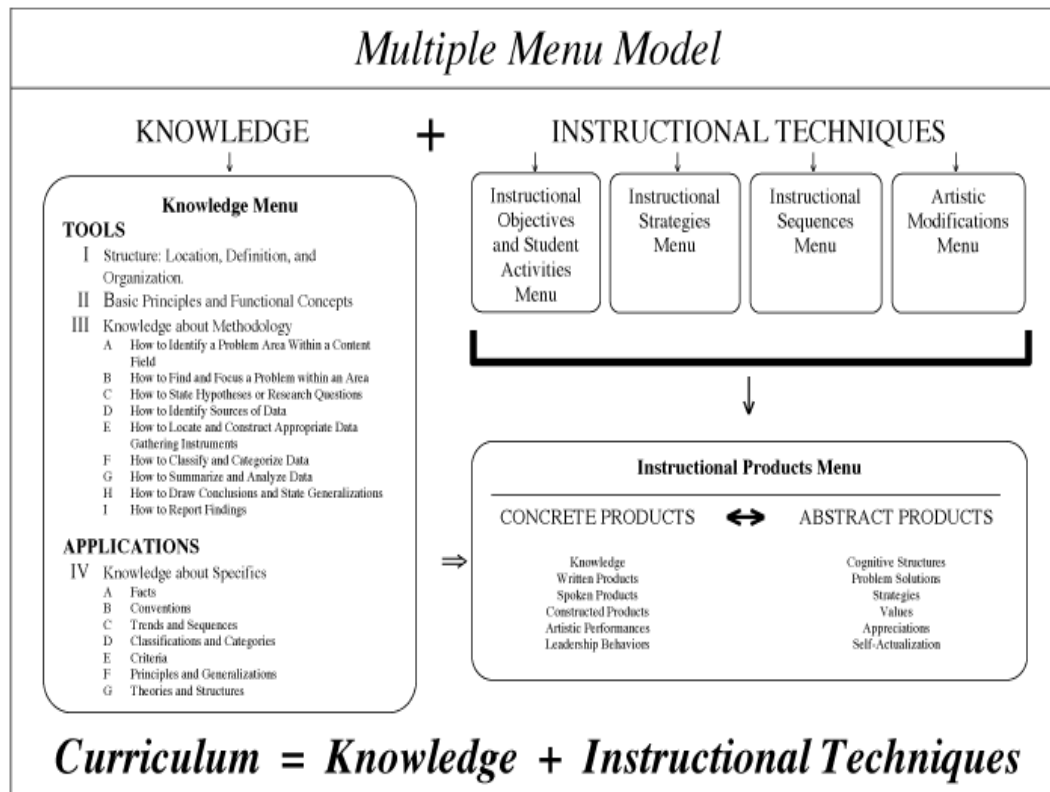


Figure 2.26: Multiple Menu Model (Renzulli et al. 2000)

Many research-evidenced resources for gifted learners include the internet-based research projects relevant to middle school gifted students (Mahoney, 2018) and strategies for independent study (Johnsen & Goree, 2005). Following up on the curriculum differentiation and modification strategies combined with instructional practices that can cater to the specific needs of students with gifts and talents, the next cognitive strategy is offering enrichment opportunities.

Some notable evidence-based practices of engaging gifted learners within the educational context by providing appropriate enrichment provisions are detailed in the sub-section below.

2.4.2.2 CD2: The Enrichment Models

2.4.2.2.1 The Schoolwide Enrichment Model (Renzulli & Reis, 2014)

When education offered in schools become *enjoyable* for gifted students, their learning would be more *engaging* and invariably lead to increased *enthusiasm* and improved attainment results. A well-balanced and comprehensive curriculum for gifted learners should incorporate enrichment opportunities based on the individual students' interests, strengths, learning styles, and preferred ways of expression and abilities. Renzulli & Reis (2014) highlighted these three Es that could positively impact the learner engagement across various educational institutions. These three Es are shown in the figure 2.27 below:

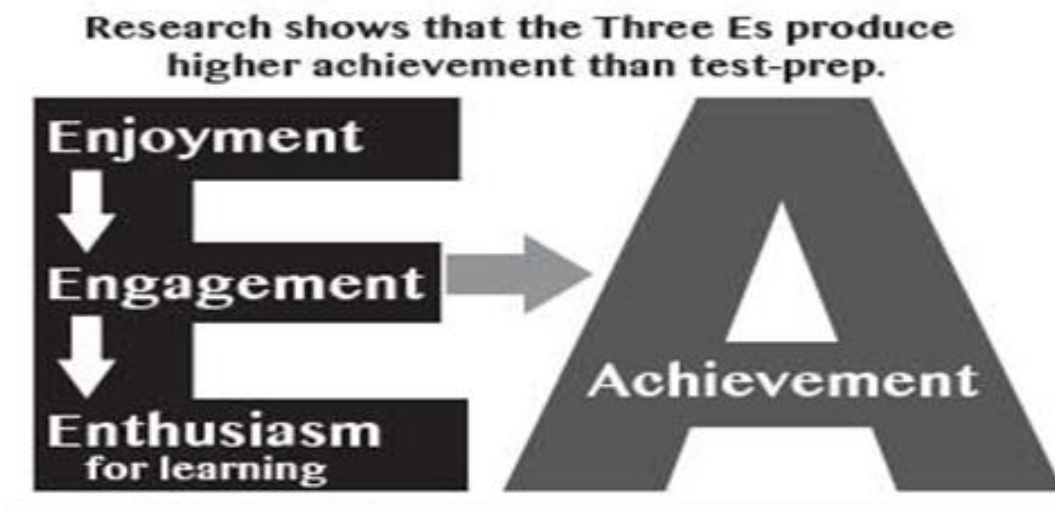


Figure 2.27: The Three Es of Gifted Curriculum (Renzulli & Reis 2014, p.3)

The scholars explained that the standards-based curriculum would continue to be offered at schools owing to accountability issues. With a vision that learners should be advancing their talents within schools, a practical solution recommended by Renzulli & Reis was to infuse enrichment experiences within the prescribed curricula to enhance academic

achievement alongside other affective skills. The Schoolwide Enrichment Model (SEM) is a research-based approach that is flexible in nature and can be adapted by any school to design appropriate programs depending on the available resources, leaderships, learner populations, staff strengths and creativity.

Giftedness being a dynamic concept, the SEM aims to promote gifted behaviours rather than label students as gifted or not. Additionally, the scholars have deliberately distinguished between high-achieving learners that excel in traditional lessons and creative learners that demonstrate characteristics of authors, artists, inventors, and so on. Renzulli & Reis instituted a knowledge-based theory that exemplified the significance of respecting and blending three derivatives of knowledge discussed within the epistemological framework as shown in figure 2.28 below:

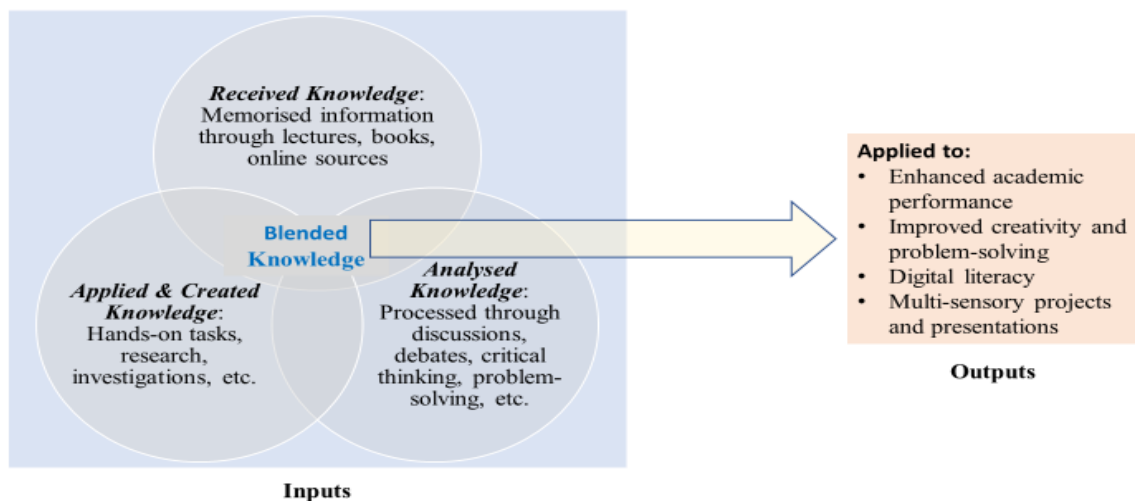


Figure 2.28: Three types of Knowledge (Adapted from Renzulli & Reis 2014, p. 19)

The above theory comprises of four sub-theories that can make the SEM so effective and are described in the following subsections.

Sub theory1: The three-ring conception of giftedness

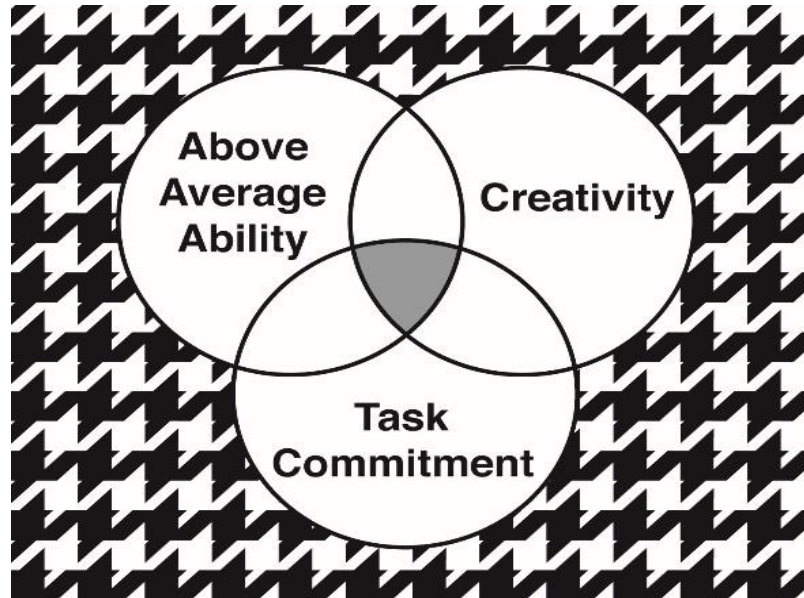


Figure 2.29: Three ring conception of giftedness (Renzulli & Reis 2014, p. 22)

The three-interactive group of characteristics as shown in figure 2.29 above portrays the measures of learner potential for creative abundance. Renzulli & Reis point out that while the abilities might not vary with time, task commitment and creativity are changeable and circumstantial. The taxonomy of behavioural manifestations of giftedness explained the Above average ability, Task Commitment, and Creativity behaviours that can be observed in gifted learners.

Sub theory II: The enrichment triad model

The triad consisted of three categories of enrichment that could work harmoniously and interactively to lead to dynamic outcomes shown by arrows and are significant in progressing to inductive learning approach. The enrichment triad model could be represented figuratively as shown in figure 2.30.

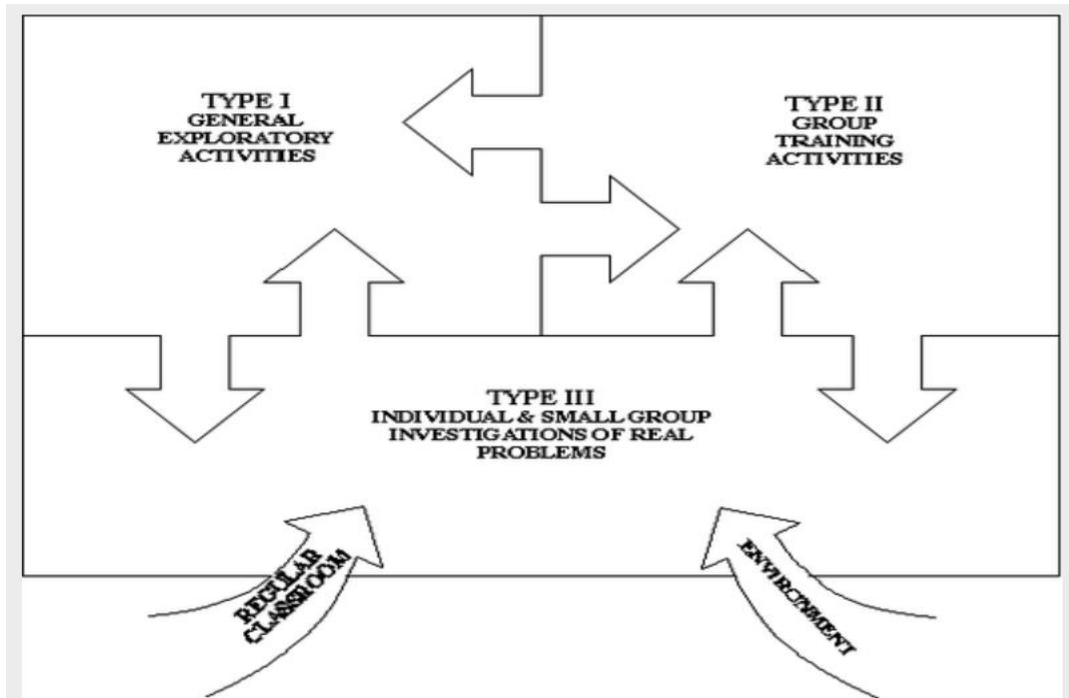


Figure 2.30: Renzulli's Enrichment Triad (Renzulli & Reis 2014, p. 50)

Type I enrichment encompasses exploratory tasks to support learners with problem-solving skills and work as catalysts to enhance their intrinsic motivation and curiosity. Type II enrichment involves development of cognitive, metacognitive, affective, and systematic work skills and expects learners to resolve real-world problems through information collection and skills advancement. Type III enrichment intends to help students gain advanced levels of understanding, design innovative services or products, enhance their self-directed learning alongside advancing confidence, creativity, task commitment and collaborative skills.

Sub theory III: Operation Houndstooth- Gifted education and social capital

Prior research explained the essential traits of learners' commitment to generation of social capital comprise of courage, optimism, passion, energy, vision, and potential to

make a difference to society. These characteristics can be inculcated into gifted learners by using this theory purposefully to accelerate their sense of responsibility.

Sub theory IV: Executive functions- Leadership for a changing world

This theory serves to advance the important leadership skills including enhanced analytic abilities, creativity, organization, sequencing, clear judgments, optimism, social intelligence, and task commitment. Executive functions are described as the ability to deal with novel issues demanding problem-solving, decision-making, planning, ethical and compassionate leadership skills. Researchers have converged on the *Big Five* characteristics that need to be targeted by education as positive attitude, agreeableness, conscientiousness, openness, and extroversion. A study by McCabe et al. (2013) explored the correlation between the Big Five traits and achievement goals. The researchers indicated the influence of individual characteristics on their achievement and recommended studies exploring the effect of modified achievement goals on personality traits (McCabe et al., 2013).

In summary, the authors suggested a learning continuum from deductive to inductive learning across three student-centred enrichment clusters that were developed to work concurrently focusing on motivation and student engagement by catering to their interests, abilities, and talents. Students were expected to take ownership of their learning pathway and with appropriate challenges being infused regularly, the SEM could lead to progression in critical thinking and support them becoming into lifelong learners. The teacher's role would be altered to that of a mentor, guide or coach and students would become the driver of their own learning. The goal of education has always been to develop life-long learners and help student to perform to their true potential. The enrichment triad

has proven to be an immensely popular model used to support learners with high ability (Renzulli & Reis, 2014). In addition to Renzulli's SEM, there are other popular contemporary enrichment models and some of these are detailed herewith.

2.4.2.2.2 Real Engagement in Active Problem Solving (Maker et al., 2015)

Another contemporary teaching and learning model that is research-backed and comprehensively caters to the needs of the gifted learners was the Real Engagement in Active Problem Solving (REAPS) model. Maker, Zimmerman, and Schiever proposed this framework as flexible, comprehensive, and valid for all students especially those with high potential as it assimilated the differentiated provisions of content, process, product along with the learning environment. The REAPS model was established since 2004 and evaluated across multiple schools in numerous countries for 5 years before being initiated in the kingdom of Saudi Arabia in 2011. The REAPS model comprises of the following three sub-models that can be illustrated as shown in figure 2.31.

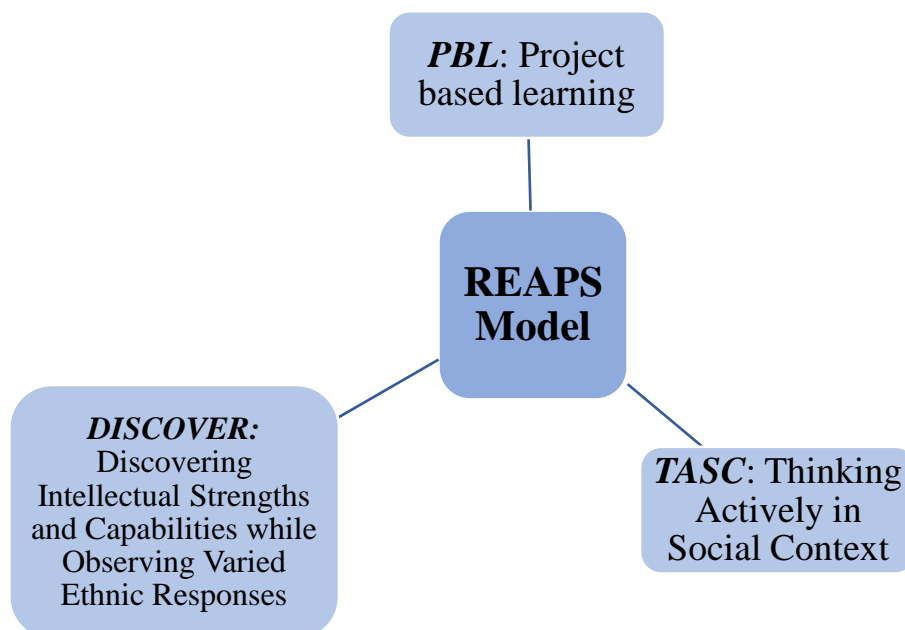


Figure 2.31: REAPS Enrichment Model (illustrated based on Maker et al. 2015, p.3)

All the three components of the REAPS model supplement each other as they intend to enhance problem-solving skills in diverse ways and each of these sub-models are explained briefly herewith.

2.4.2.2.2.1 Problem Based Learning (PBL)

PBL provides strategies to integrate tasks based on real-life contexts arising from the student's local or national scenarios. The level of complexity of the selected problem can be adapted to suit the needs of the individual or group, and opportunities can be provided to allow for consideration of multiple perspectives, with the high expectation that the solutions would be presented to authentic audiences or experts, who can provide appropriate feedback to the learners.

2.4.2.2.2.2 Thinking Actively in a Social Context (TASC)

TASC offers the structure, organization, and sequencing required to resolve any open-ended problem in individual or group settings and is portrayed as a wheel to explain that this process is non-linear and non-restrictive. Although the wheel movement is sequential, the order is not preconceived. TASC comprises of skills of identifying the problem, collecting information, organising, analysing, making decisions, implementation, evaluation, communicating and gaining rich experience.

2.4.2.2.2.3 Discovering Intellectual Strengths and Capabilities while Observing Varied Ethnic Responses (DISCOVER)

DISCOVER delivers a range of problems that can enhance the critical thinking alongside content knowledge of learners. This sub-model consists of a continuum of six varieties of problem-solving while accenting the multiple abilities of learners, as explained by

Gardner. DISCOVER serves to advance the active learning needs of gifted students with appropriate cultural integrations while drawing from curriculum standards but offering varied levels of abstraction. However, there is not much research supporting the DISCOVER model.

Maker et al. (2015) reported that the REAPS model was extraordinarily successful in improving the learner's knowledge and skills in science discipline. This finding was reiterated by students and teachers with specific progression evidenced in creative skills. The sub-models were broad skills based with an intent to promote critical thinking, creativity and problem-solving skills in gifted learners while aligning with their interests or passions. Maker et al. (2015) believed that the REAPS model could be used for all age groups and a variety of curricular frameworks.

2.4.2.2.3 OASIS Enrichment Model (Aljughaiman & Ayoub, 2013):

This meta-analysis evaluated the outcomes of thirty-five studies based the Oasis Enrichment Model (OEM) for gifted learners in Saudi Arabia between the years 2009-2011. During recent years, OEM was reported to be exceedingly popular among all the stakeholders owing to its responsiveness to the social, emotional, and cognitive needs of the participants. Aljughaiman and Ayoub (2013) discussed the significance of evaluating gifted programs to inform the ongoing improvement and make appropriate decisions. The OEM was designed over a decade of hard work and its framework comprised of three axes forming the core of the model and focusing on academic content in-depth, thinking skills along with research abilities, and affective characteristics; followed by the three stages of creativity, exploration alongside perfection; and four sequential stages requiring a year each for successful completion. Aljughaiman and Ayoub (2013) evidenced

significant positive results in terms of learner's creativity, analytical abilities, critical thinking, problem solving, attitude to learning, motivation, decision making, content of knowledge, classroom performance, and personal and social traits, while there was no statistically significant effect of these programs on the variable of integrated science processes.

The current study will be mainly guided by the above discussed enrichment models to analyse the challenging opportunities offered to gifted learners in the private schools in Dubai. In addition to the cognitive domain strategies detailed above, another significant area that needs deliberation is the affective domain and is explained in the subsequent part of this conceptual framework.

2.4.3 The Affective Domain (AD)

Adolescence is a perplexing phase for learners consisting of physical transformations that are obvious and probably get due considerations by educators. However, this phase is also accompanied by some inherent hormonal changes causing mood swings, internal alterations in the brain, and evolving thought process that may not be evident to others. Combined with these major confusions is the urgent need for students to get prepared for college education while the teachers are equally rushed to support them to achieve the appropriate knowledge, diligence, and skills to pursue higher education of their interest independent of their family or law (Dixon, 2009). The stress of getting these learners prepared for the high-stakes assessments that lead to graduation may not allow the teachers to plan for differentiated lesson plans. Adolescent gifted learners are at the maximum risk of discarding their gifts during this stage due to lack of engagement with

their regular curriculum or a craving to be popular with their peers. Research-based qualitative evidence from educational and psychological studies recommends the enhancement of higher-order thinking skills, modification of curriculum content, and listening to student voice to develop purposeful differentiated objectives to meaningfully educate them during this delicate period (Dixon, 2009).

In addition to the above-mentioned affective factors, the significance of learner motivation to realise the true self-potential cannot be understated in gifted programming provisions. Gagné's Differentiated Model of giftedness (2010) stated student motivation as one of the prominent intrapersonal impetuses for systematic advancement of giftedness (Neihart et al., 2016). Similarly, the integral role of student motivation has been explained by scholars like Clinkenbeard (2012), McCoach & Siegle (2014), and Brophy (2010). Many contemporary research studies on motivation in the field of giftedness were guided by Bandura's social cognitive theory (2001). His theory discussed the extent to which the quality, measure and outcome of student engagement were correlated to important motivational aspects of learner's perception of their abilities, contextual factors, and tasks. Bandura explained that the socio-emotional factors that influence learner self-beliefs could be changed by specific interventions. Various motivation models discussed the importance of extrinsic-intrinsic and pupil self-determination, sensed competence, expectancy value, growth mindset and achievement goal (Neihart et al., 2016).

2.4.3.1 AD1: Vallerand's Academic Motivations Scale (AMS)

Various prominent researchers used the Self Determination Theory (SDT) to get an enhanced understanding of gifted learner motivation owing to the evidence provided by numerous studies that advanced autonomous forms of motivation could correlate to

progressive educational outcomes. There are three well-known studies that attempted to study the effect of motivational styles on the learner's educational outcomes (Vallerand & Bissonnette, 1992). In 1984, Harter & Connell evidenced that learner's academic achievement was interrelated to mastery motivation. However, this scale set intrinsic against extrinsic motivation which did not allow their independent evaluation. Additionally, Harter & Connell's scale did not account for amotivation. Henceforth, the current study did not use this scale despite being recommended by NAGC. Similarly, another study by Grolnick & Ryan assessed the student's introjected, external, intrinsic motivation alongside identified regulation regarding their school using the Self-Regulation Questionnaire in the year 1987. Unfortunately, the experts failed to test the effective role of individual construct in the learning process. Lastly, the study by Vallerand et al. designed the Academic Motivation Scale (AMS) to evaluate the SDT based concepts of introjected, identified regulation, amotivation, extrinsic and intrinsic motivation regarding school in the year 1989 (Vallerand & Bissonnette, 1992).

Originally, the AMS tool was intended for use with college students and provided important information concerning the predictive effects of motivational styles on academic outcomes along with purposeful learning behaviours, which aided in a better understanding of individual differences. The AMS tool is made up of two sections, enclosed as an Appendix, and evaluated every concept explained by Deci and Ryan's SDT. The validity of the AMS was verified and strong correlations of all the six subscales of the self-determination could be confirmed empirically. The findings of their study reported the self-determination as lowest from amotivation to highest from intrinsic

motivation alongside significant correlation to positive educational outcomes. The second part of the tool collected student demographic data (Vallerand & Bissonnette, 1992).

Since the AMS by Vallerand et al. measured additional useful affective factors like student perceptions of concentration, positive emotions, competence along with time used on tasks and henceforth this tool and its adaptations were since used extensively by numerous researchers, as indicated in the literature review of this study. One of the contemporary studies conducted using the AMS reported inconclusive findings probably owing to weak correlations (Litalien et al., 2017). Although there is no dearth of research regarding academic motivation of students, there seems to a lack of consensus about the representation of the motivation continuum (Litalien et al., 2017).

Based on the popularity of the AMS tool and SDT, the present study would use the Deci & Ryan's SDT to evaluate student motivation using the AMS tool that measures learner motivation quantitatively. Additionally, if schools use the PASS assessments, the data available would add to the richness of the discussion.

Some of the recommended evidence-based practices collated from numerous studies that may be helpful to educators of gifted middle school learners that cater to their socioemotional needs are enlisted below:

- Teacher-student relationship: Students needs a good listener in a trusted adult who can additionally guide them, act as their mentor, provide a different perspective, develop their self-growth and problem-solving skills.
- Proper identification of the learner strengths, gifts, abilities, and cultural biases by educators and utilizing this information counsel students effectively. Students

may need support to understand their own capabilities, enhance their self-confidence or develop their leadership skills.

- Assistance in advancing the time-management skills and organizational abilities of students with gifts and talents.
- Monitoring the student experiences in their classrooms to be aware of any underachievement or the inability of the learner to cope with the pressures of the gifted identification. The gifted students may need guidance to deal with their adverse perfectionistic attitudes to work through their tasks in the expected timelines.
- Support gifted learners with appropriate college education options and choices, career guidance, managing relevant internships, and provide counselling to their parents to better understand their needs.
- Schools must offer an appropriate and comprehensive affective curriculum with prevention and intervention provisions.
- School counsellors must be aware of the possible feelings of loneliness that gifted learners might experience or their heightened emotions and provide the necessary coping strategies.
- Gifted learners would benefit with learning positive communication skills which might enhance the quality and number of friends at school.

- Some students might benefit with journaling or diary-writing skills. Self-reflections of their individual thoughts and feelings might facilitate their objectivity and help them identify any trends in their behaviours.

The strategies discussed above are the few professionally researched and documented ones explained by various experts in the field (Dixon, 2009). Another effective assessment that measures student's attitude and is highly effective in developing pastoral interventions is discussed below.

2.4.3.2 AD2: GL Assessments Pupil Attitude to Self and School (GL Assessments, 2018)

The GL Pupil Attitude to Self and School (PASS) is a psychometric assessment commonly used by schools to understand learner's wellbeing, determine affective barriers to their learning or unearth attitudinal or emotional concerns, plan appropriate interventions to address these barriers and avoid any adverse impact on their educational performance. PASS was designed by a group of educational psychologists and the test was evidenced to be produce statistically reliable results for emotionally sensitive and subjective concerns. The outcomes of the assessment are helpful in identifying affective barriers to learning using a simplified traffic light colour coding system. PASS augments the holistic learner profile by screening for socioemotional factors and records student response on the nine standards (S1-S9), which can be illustrated as shown in figure 2.32.

S1: Feelings about school
•Do students feel a part of the school learning community?
S2: Percieved learning capacity
•What do students think about their self-worth and are they open to learning?
S3: Learner self-regard
•How aware are learners about themselves and are they motivated to learn?
S4: Preparedness for learning
•Measuring student attention, focus and study skills
S5: Attitudes to teachers
•student relations with their teachers and respect towards their teachers
S6: General work ethic
•Assesses learner's motivation and eagerness to learn
S7: Confidence in learning
•Gauges pupil's independence and problem-solving skills
S8: Attitudes to attendance
•correlates student learning attitude with attendance
S9: Response to curriculum demands
•Measures student motivation to complete curriculum-based activities

Figure 2.32: Nine Standards of PASS (illustrated from GL Assessments 2018, PASS, p. 3)

PASS can be administered to learners from ages 4-18+ and provides quantitative data for analysis, based on which comprehensive pastoral interventions can be put in place for learners. Understanding the learner's mindset, motivation and attitudes towards learning is of utmost importance to support them perform to their optimal potential. GL Assessments provide an expedient and wide-ranging list of pastoral interventions for educators to make the most of these assessments. These interventions comprise of guidance from experts and resolution strategies based on the individual student report. Additional advice regarding the possible manifestations of learning behaviours that may be presented in the classrooms and appropriate approaches is available. PASS contains over fifty pastoral interventions correlating to the nine factors mentioned above alongside

handy suggestions for other possible issues. A sample PASS report is enclosed in the appendices (GL Assessments, 2018).

The current study used the AMS Surveys to evaluate the motivational data of students with gifts and talents with the intention of using the PASS the data to add to the richness of the affective evaluation.

In summary, the conceptual framework used the valuable knowledge from the theoretical framework to design a suitable framework of curriculum and instructional differentiation strategies, enrichment options, and learner motivation information to inform effective interventions, with overall guidance from the NAGC GEPS. Numerous research studies situating the above discussed frameworks related to gifted programming options at their centre are discussed briefly in the succeeding section on the emerged themes from relevant literature.

2.5 Emerged Themes from Literature

Historically, giftedness has been viewed as high academic achievement. Despite multiple definitions on giftedness, the US states mainly relied on the IQ testing as a measure for identification purposes. Consequently, learners from minority and culturally diverse backgrounds were marginalized and a public outcry led to the federal recognition of the rights of the disadvantaged students and the Javits Gifted and Talented Students Education Act was established in 1988 (Luria et al., 2016). Similarly, the process of making provisions in terms of ability streaming for the intellectually highly able students formed the traditional methods in the UK. The recent conceptualizations of gifted education gained momentum only in the 1990s (Davis et al. 2011).

Despite the evolution in the field of giftedness over the past years, the educators designing the gifted programs may lack the propensity to examine the effectiveness of the provisions. (Davis et al., 2011). Although the evaluation of gifted programming can be demanding, the process itself is essential in providing evidence to administrators necessary to ensure continuum of gifted services. Teachers and program developers need constant feedback regarding their services to make further enhancements and include the contemporary research-backed practices. Some of the previous evaluation models included Renzulli and Ward's DESDEG (Diagnostic and Evaluation Scales for Differential Education for the Gifted) model (1969), William and Mary's Eclectic Model, the Rimm Model (1977) and Callahan's Practitioners Guide to Program Evaluation (PGPE, 2009) that provided the basic framework for gifted program assessment (Davis et al., 2011).

In the US, the publishing of the National Excellence Report in 1993 led to the vision of gifted program analysis and improvement, raising the learning standards, differentiated curriculum, research-based teaching strategies and numerous programming models. Evaluation of these programs was partially hindered by multiple analytical methodologies proposed by experts in the transitional field of giftedness. For example, Carter (1992) suggested assessing the lesson plans to gauge the efficacy of the curriculum whereas Coleman (1995) provided alternate approaches to evaluate student satisfaction alongside their cognitive outcomes. NAGC publicized the pre-K-Grade 12 Gifted Programming Standards initially in the year 1998 (NAGC, 2012). The *No Child Left Behind* Act (2001) described the lack of sensitivity towards the less able learners and the needs of student with high abilities were relatively ignored (VanTassel-Baska 2006).

A major project was initiated in the US to develop a comprehensive guide regarding programs and provisions for gifted secondary students by the NAGC. Prominent researchers like VanTassel-Baska, Olenchak, Siegle, Gallagher, Wood, and others from the field of gifted education formed this task force or provided their expertise in the context of gifted services focusing on adolescents (Dixon, 2009). The NAGC Pre-K-Grade 12 GEPS were specifically developed to provide rigorous and quantifiable standards to evaluate the academic performance expectations, and these comprehensively assess teacher readiness, programs offered for various disciplines or specific content thereby increasing accountability (NAGC, 2012). The current study utilised the upgraded 2019 NAGC standards to evaluate the gifted programs offered within Dubai (NAGC, 2019).

Learning from the above literature, the current study investigated the gifted programming options offered by private schools in the emirate of Dubai and applied the NAGC Pre-K-Grade 12 GEPS to evaluate these provisions and services. This initial qualitative investigation was followed up with quantitative analysis of student ability versus academic attainment data across English, Math, and Science. The final part of the study involved quantitative analysis of student motivation survey data followed by any notable differences observed based on student demographics.

The following prominent themes emerged relevant in this research to establish clear and concise correlations between the theoretical and conceptual frameworks, and the pertinent literature; namely:

- *Theme-1: Studies investigating Gifted Programs.*

- *Theme-2: Studies based on NAGC Gifted Education Programming Standards.*
- *Theme-3: Studies based on Cognitive Domain:*
 - *English*
 - *Mathematics*
 - *Science*
- *Theme-4: Studies based on Affective Domain.*

The detailed discussions on the conforming literature for each of the above-mentioned themes are detailed in the subsequent sections. Since these themes are interlinked within themselves, there might be studies that were discussed in multiple themes but with relevant information in that section of the literature review. Additionally, the selected literature either informed the direction of the current study or tied in with the situation in the local context and were purposefully shortlisted by the researcher. Although few articles were not data-backed, they were included in the next section to broaden the horizon of gifted programming options.

2.5.1 Theme 1: Studies investigating Gifted Programs:

- How US states have addressed Gifted Education (Kaul & Davis, 2018)

Every Student Succeeds Act (ESSA) was developed in the US in the year 2015, which included mandatory services for the gifted and talented students. The previous NCLB policy was replaced by the ESSA, which stated that each state could exercise increased flexibility within their education plans but would be mandated to document and submit their plans to the U.S. DoE with detailed explanations regarding their goals. The

Department of Education released the Consolidated State Plan alongside the Revised State Template in the first quarter of 2017, and secured the expected information, details and declarations that would be admitted in these plans.

Kaul & Davis (2018) assessed the gifted provisions of all fifty-two acceded ESSA plans. Their findings revealed encouraging support services for the diverse learner populations with states required to be compliant in meeting the needs of the identified gifted students. The researchers advocated for enhanced gifted provisions due to the nation-wide focus on the issue including quality professional development for staff, improved identification processes for gifted learners and more financial resources by states for gifted resources.

- Exploratory study regarding gifted services in Australia (Long et al., 2015)

Long et al. carried out a qualitative exploratory study to assess the effectiveness of gifted policy on services offered to students across ten government secondary schools. The researchers explained the reliance of gifted provisions on the leader or gifted coordinator and henceforth the program offered by schools could gain or suffer depending on the presence of a gifted leader. Long et al. (2015) also explained the significance of gifted policies in ensuring that schools make appropriate provisions for learners in a consistent manner.

The findings of their research indicated that schools with a well-established gifted policy offered better provisions as compared to those without a clear policy and the principals were more likely to ensure meaningful gifted practices including professional development for teachers. They also reported that schools that were selective or provided specific classes for gifted learners were more inclined to make gifted provisions.

However, they explained that the aspirations of the school principals to offer gifted services would not always be consistent with actual situations due to lack of appropriate resources.

- Gifted Education in German-Speaking Europe (Ziegler et al., 2013)

Ziegler et al. explained the evolution of the giftedness and talents conceptions across German speaking Europe. The authors discussed the tetrad hallmarks of the advancing gifted educational provisions as the progression achieved by embedding the latest evidence-based practices regarding learning alongside social facets, self-regulation, mentoring strategies, time-proven successful practices, and recent applications of systemic approaches by Stoeger and Ziegler (2009). The systemic model of conception of the simultaneous evolution of a gifted person's actiotope constituents of action gamut, subjective action space, environment, and goals along the path of excellence in the domain of proven talent. Ziegler et al. reported a commendable overview of the giftedness provisions mandated by the governing bodies and offered across schools in Germany, Austria, Luxembourg, Switzerland, Liechtenstein, and South Tirol including policies, acceleration, enrichment, magnet schools, inclusive practices, teacher training, gifted services outside of school, STEM-based programs, and counselling.

- Gifted research reviewing challenges in India (Kurup & Maithreyi, 2012)

The researchers explain the mediocre position of giftedness provisions in India and challenges faced by educators. The diversity present in India in terms of culture, religions, geographical conditions, socioeconomic backgrounds, curricula offered, education quality and instructional mediums were only a few of the barriers presented to

development of gifted programs as mentioned by Kurup and Maithreyi (2012). Additional concerns included the diverse parental background that adversely affect their ability to cater to the needs of their children with enrichment opportunities, the general education focusing on the needs of the average learner, and the desperate requirements of multi-disciplinary approaches and response-to-intervention provisions for all students. Post-independence in India, the educational priority was to include all learners up to the age of fourteen years positioned by the Right to Education (RTE) Act by the Government of India in the year 2009. Since securing this basic education for all learners itself conferred a tremendous challenge on a national level, the demand for gifted programs could not be met by educators.

Some efforts made by the government comprised of the Navodaya Vidyalaya Scheme that intended to encourage minority talent whereas national assessments like the science and mathematics Olympiads, national talent search, Kishor Vigyanik Prothsaan Yojna on national level alongside some talent searches on local levels examined the knowledge gained and skills acquired by all learners. Also, a few international assessments like the Stanford-Binet scale and the Wechsler Intelligence Scale were adapted to make them suitable for the country's context but struggled to make real impact due to the lack of translations made in the variety of regional languages used in India alongside the diverse socioeconomic and cultural conditions in the student population. Kurup and Maithreyi (2012) recommended increased research studies on giftedness in the country combined with enhanced identification procedures, gifted policies, and suggested that better collaboration among educators and leaders could lay foundations for advancements in the field of giftedness in India.

- Practice and evaluation of enrichment programs for gifted and talented learners (Chen & Chen, 2020)

One of the recent studies evaluating the enrichment options provided to the gifted learners in Taiwan was conducted by Chen and Chen (2020). The authors describe the evolution of the gifted provisions over four decades including the release of the White Book of Gifted Education by the Ministry of Education in the year 2008. Chen and Chen suggested standards for gifted program evaluation including the success criteria, establishing relevant measurement mechanisms, need for follow-up researches or long-term program analysis and recommending evidence-based practices. They reported the latest statistics (China MoE 2019) of 20 percent of special education services was directed towards gifted students of the total 5.67 percent of school students on the special education register. Chen and Chen highlighted the significance given to gifted program evaluation from the year 2014 to inform improved gifted education related decisions like fund allocations, enhanced policies, and improved gifted provisions. In Taiwan, the enrichment options consisted of programs put in place owing to the Special Education Act alongside alternative ones led by local authorities, private firms, and other educators. This scenario prompted Chen and Chen to encourage consistency in standards for evaluating gifted provisions that would lead to evidence-based practices and sustainable gifted services in future.

- Index for Inclusion (Alborno & Gaad, 2014)

Prominent educators Alborno and Gaad used the tool designed by Booth and Ainscow (2011) as a basic framework for evaluating the inclusive services in the UAE. The findings of their study reported positive trends like affable school environment, key

stakeholders' support, and emanating community partnerships. Some of the concerning areas recounted were lack of professional development for teachers, support provisions for learners and research-based teaching practices alongside barriers to effective inclusive implementation. Although this study explained the status of inclusion with the UAE context in general and did not focus on gifted education, it provided important information regarding the evolution of inclusive services in the local context.

- Gifted Education in the UAE (AlGhawi, 2017)

The pilot research on gifted provisions in the UAE was conducted by AlGhawi across public schools in the primary sector. AlGhawi explained that the conception of giftedness and developing appropriate services were in the elementary stages across schools with extremely limited research-based information. This scholar used the NAGC standards to analyse existing gifted services and the results demonstrated that there was a positive progression in gifted education in the UAE over the past decade. AlGhawi recommended more attention should be given to improve the gifted identification process, establish a clear giftedness federal policy, professional development for educators, consistency in gifted provisions, improved parental awareness, counselling, and guidance for gifted learners and regular evaluation of gifted programs across schools across all emirates.

Based on the literature above, the present study aims to cover the research gap highlighted by AlGhawi (2017) by investigating the gifted programs offered to middle school students in private sector in Dubai. These provisions investigated would include gifted programs provided through differentiation within the classroom or enrichment opportunities within resource rooms alongside learner motivation. The details of all the six standards with the strands being investigated, the corresponding student outcome

being measured, and the information being collected from schools have been tabulated and enclosed in the appendices. The research approach being used, tools, participants and data analysis methods planned are detailed in the research methodology for the current investigation.

2.5.2 Theme 2: Studies based on NAGC Gifted Education Programming

Standards

- Differentiation of Instruction for Gifted Learners: Collated Evaluative Studies of Teacher Classroom Practices (VanTassel-Baska, Hubbard & Robbins, 2020)

This important article converged on the research outcomes of numerous appraisement studies regarding differentiation practices by teachers for gifted students across four states in the eastern US. VanTassel-Baska et al. (2020) asked significant research questions about the differentiation practices used alongside various levels of curriculum content within gifted educational provisions. The scholars reported their findings were disappointing as teachers of the gifted and regular student population did not fully utilize differentiation practices, which were not analogous with the instructions and henceforth failed to engage the learners purposefully. Additional findings revealed were inconsistent practices of flexible grouping strategy in most classrooms and varying levels of effective differentiation used by different teachers especially with the poorest implementation observed in the middle school classes as compared to the elementary or high school years. Another important finding recorded by VanTassel-Baska et al. (2020) was the use of relatively effective differentiation within mathematics lessons for the gifted students.

One of the important connotations from the study was the specific focus required on teacher training regarding research-evidenced differentiation practices for gifted educational programs. VanTassel-Baska et al. (2020) defined differentiation as the procedures of modifying curriculum, instructions, and assessments to cater to the unique needs of gifted learners. The scholars utilized the NAGC Pre-K12 GEPS to investigate how effectively educators used differentiation practices to engage the gifted students across schools that had well developed gifted programs in place for at least 3 decades. The school provisions included student grouping strategies comprising of pull-out sessions, cluster grouping and special lessons for K-12 grades.

VanTassel-Baska et al. (2020) explained that effective differentiation within the gifted classes were reliant on the quality of teaching offered to learners. They reported the outcomes of other studies that informed genuine passion, flexible approach, sense of humour and high intelligence as the common traits of good teachers of gifted students whereas another study documented subject expertise conjugated with passion for the subject as the befitting teacher characteristics for successful learner engagement. Presently, the common practice was to provide professional development in differentiation to existing teachers working with gifted learners. Prior studies have also reported the significant impact teachers have on the students in their class and this impact was increasingly prominent in case of gifted learners. Another research recommended student voice and choice in their tasks as a good teaching strategy for gifted learners. VanTassel-Baska et al. (2020) further discuss that although small building blocks like multiple ways of instructional grouping were generally observed in classrooms, these were not sufficient to lead to effective differentiation for students. The experts pointed

out that the lack of metacognition seen in teachers about enhancing the self-perception of gifted learners regarding their high ability or critical thinking skills that could levitate their learning experiences. Some of the higher order skills that staff specifically targeted were observed to be inferencing skills and synthesis but seemed to miss out were purposeful grouping based on teaching instructions or use of differentiated resources for gifted students. VanTassel-Baska et al. (2020) further reported that learner groupings were noticed in English and Mathematics classes in a few districts, but most teachers used ineffective student groups as they were not coupled with instructional differentiations.

- Research using NAGC GEPS for evaluative study (Matthews & Shaunessy, 2010)

The authors used the NSGC GEPS as a framework to analyse the effectiveness of gifted policy, identification and locally designed plans using qualitative methods in the southeastern US. Matthews and Shaunessy (2010) discussed the important role of evaluation of gifted provisions and the availability of few prior studies focusing on giftedness appraisal and accountability by educators leading to huge research gap within the U.S. They praised and commended the NAGC for establishing the gifted standards that inculcated professionalism in gifted education across the country.

Matthews and Shaunessy documented the modified gifted education regulations by Florida, which made it possible for flexible identification processes encouraging more learners to be categorized as the gifted while recognizing leadership or creativity as aspects of giftedness. Their research made meaningful contributions to raising awareness about gifted education including policy ordinances leading to improved outcomes for learners. Additionally, this study helped the scholars to determine the strengths and weaknesses of using the gifted standards to evaluate the offered gifted provisions and

how the ongoing revisions of the NAGC GEPS would be more supportive of future gifted program evaluations. As a result of their work, both experts were appointed to the NAGC committee to revise these standards.

- Gifted Education in the UAE (AlGhawi, 2017)

Within the UAE context, the study by AlGhawi (2017) discussed in Theme-1 also used the NAGC GEPS to investigate the gifted programs offered in the UAE context. This was a pilot study using the NAGC giftedness standards to evaluate the gifted programs in the government schools locally. AlGhawi (2017) described the huge gap in literature regarding gifted research and reported inconsistencies in the planning, propagation, and application of gifted provisions across schools despite progression noted in the last decade.

The current research aimed to fill this research gap by investigating the gifted programs across private school offering various curricula in the local context.

2.5.3 Theme 3: Studies based on Cognitive Domain:

- Effective Curriculum and Instructional Models for Talented Students (VanTassel-Baska 2021)

VanTassel-Baska described the progression of three effective instructional and curriculum models that catered to the students with gifts and talents comprehensively across numerous grades and contexts and could inform the current practices at schools. Some significant contributions made by other experts included the development of student profiles highlighting their strengths and weaknesses based on Guilford's Structure of the Intellect model, differentiated curriculum with enrichment opportunities offering

research-based projects involving problem-solving skills by Renzulli, modification of content across core subjects by Gallagher, acceleration model advocated by a few experts, an amalgamation of differentiated curriculum encompassing enrichment and acceleration promoted by others alongside the seven cardinal principles of curriculum backed by Passow. The three important models that have proven historically beneficial to gifted learners are explained below:

The Content Model: Academically gifted students can be supported to advance through the curriculum content at a faster pace based on the diagnostic-prescriptive ($D \rightarrow P$) instructional strategy. Learners can be pre-assessed to gauge their prior knowledge and presented with appropriate resources thereby offering an individualized approach that ensures continuous and consistent progress.

The Process/Product Model: As the name implies, this model emphasizes on broad investigations including social and scientific skills to create an innovative product while investigating specific problem under the guidance of an educator. This strategy involves the in-depth study of the selected problem and possible solutions in contrast to the rapid-paced approaches.

The Epistemological Model: This is a concept-based model that offers gifted students the opportunity to learn important themes, main ideas, and principles in a cross-curricular approach that supports internalizing the schema that can be applied for future situations. The teachers act as an enquirer providing key issues for further deliberation by the learners by means of reading, discussions, reflections, writing, and aesthetic appreciation leading to an advanced sense of self-perception. The epistemological model is very

empowering as it combines the affective and cognitive elements of learner growth by encouraging interdisciplinary considerations.

The tabular comparison of these three models is shown in figure 2.33.

Contrasting Curriculum/Instructional Models for the Gifted		
A (content) ↓	B (process/product) ↓	C (concept) ↓
fast-paced proficiency-based D → P approach organized by intellectual content teacher as facilitator	in-depth on selected topics product based resource-oriented organized around scientific process collaborative model	epistemological aesthetics-based discussion approach organized by themes and ideas Socratic method

Figure 2.33: Contrasting Curriculum/Instructional Models for the Gifted (VanTassel-Baska 2021, p.10)

VanTassel-Baska highlighted the significance of learner motivation while offering various curriculum models that expect sophisticated independent functioning from students. The importance of task commitment for the process-product model was explained by Renzulli while students with above-average verbal abilities and reading habits were essential for the success of the concept model. The curriculum differentiation model was explained as shown in figure 2.34.

<i>Model Type</i>	<i>Preferred Content Match</i>	<i>Salient Student Characteristics</i>
A Content	Mathematics (traditional) Foreign Language English Grammar Reading	Independent learner High achievement motivation
B Process/ Product	Science Mathematics (problem-solving orientation) Writing	High interest in single topic Task commitment
C Concept	Humanities Social studies (e.g. history, economics) Literature	High level verbal reasoning skills Broad-based interests and reading behavior

Figure 2.34: Curriculum Differentiation (VanTassel-Baska 2021, p.11)

Similarly, the curriculum-based models correlated to the skills developed by the gifted learners was represented as shown in figure 2.35 below:

<i>School-Based Curriculum Model Linkages on an Academic Year Cycle</i>		
<i>Modifications of Core Curriculum</i>	<i>Extended Core Curriculum</i>	<i>Curriculum Integration</i>
D → P Content Approach A	Process/Product Research Approach B	Epistemological Concept Approach C
Allows for speeded, compressed, economized version of regular curriculum	Allows for development of generic problem finding/problem solving skills in selected curriculum contexts	Allows for idea discussion/generation within and across disciplines

Figure 2.35: School-Based Curriculum Model Linkages on an Academic Year Cycle (VanTassel-Baska 2021, p.11)

To summarise, the efficacy of any instructional and curricular model proposed to students with gifts and talents depends on the orderly and systematic planning in correlation to learner preferences and profile, as described by VanTassel-Baska (2021).

- Effectiveness of the multidimensional curriculum model in developing higher-order thinking skills (Vidergor 2018)

The Twenty-first century skills including critical thinking are insufficient in contemporary education, which must encompass specific technical skills alongside individual cultural requisites and support current historical demands (Vidergor, 2018). The researcher examined the progression of learners' higher order thinking abilities using the Multidimensional Curriculum Model (MdCM) based on ternary interventions across creative problem-solving, futuristic thinking and scientific inquiry. The study outcomes reported huge success in advancement of thinking skills in the areas of creativity and futuristic thinking skills. Vidergor (2018) suggested the design implications of applying MdCM across various age groups and subjects for gifted learners alongside incorporating a range of strategies to enhance all possible think skills to enable the able students to contribute positively to society.

- What works in Gifted Education? (Callahan et al., 2015)

Synthesis of an appropriately challenging curriculum and advanced teaching strategies could lead to effective gifted programming for gifted learners and advance their learning outcomes. Callahan et al. carried out their study regarding the effectiveness of gifted programming across the language arts in primary schools in the US. The study reported positive outcomes for identified gifted learners provided with the advanced curriculum

and teaching practices in the pull-out resource room environment while recommending further studies across more diverse learner groups.

- REAPS Enrichment Model (Riley et al., 2017)

The New Zealand MoE implemented the REAPS enrichment model with Year 9 gifted students in the subject area of science as a case study and the findings reported positive evidence in favour of effective differentiation, meaningful engagement, tapping the learners' potential and affability in the development of culturally responsive classroom environment to suit the individual needs of all. Riley et al. (2017) also discussed the benefits of the REAPS model included the potential to increase the complexity of tasks, boost critical thinking, promote collaboration among peers, provide a variety of open-ended activities, enhance problem-solving skills, allow individual choices in product design based on real-life contexts and opportunity of expression in multiple formats to relevant audiences. These advantages in turn translated into increased learner engagement, keenness to create with the intention to serving the community and contributing meaningfully thereby serving the true purpose of education. Riley et al. evidenced the enhancements in the awareness levels of teachers regarding the high abilities of these learners in science thereby proving to be a win-win situation for all stakeholders in the process.

- Exploring the Spatial Ability of Undergraduate Students: Association With Gender, STEM Majors, and Gifted Program Membership (Yoon & Mann, 2017)

Although many scholars in education have stressed the significance of spatial ability as a pointer for success in the STEM field and a possible gifted identification factor, many

researchers have been sceptical about spatial skills being used for providing appropriate gifted services to relevant students. The importance of spatial abilities as an indicator of talent and valid assessment that helped in reducing the bias owing to cultural, linguistic, and diverse backgrounds has not been researched by many. Yoon and Moon report its significance in the STEM field and how it can be improved with practice for gifted learners. They recommended further research regarding the variance in processing spatial data, individual preferences to problem-solving strategies; and accuracy and speed compensations by increasing levels of spatially complex tasks on learner performances.

- Intelligence, Educational and Learning Capital, and Domain Impact Level of Activities as Predictors of School Achievement (Harder et al., 2018)

The authors explained how the cognitive aspect of learning could be supported by using intelligence as a predictor of academic achievement. They examined the prognostic capabilities of two concepts from Ziegler's Actiotope model of giftedness, namely the educational and learning capital (ELC) and domain impact level of activities (DILA). Their study findings indicated ELC and DILA had superior foretelling properties regarding German language acquisition among elementary students. However, ELC and intelligence demonstrated equal predictive prospects for mathematical progression. Harder et al. discussed the benefits of understanding gifted learner's actiotope and using the ELC and DILA to enhance their learning environment, provide appropriate interventions, and personalize their learning to a greater degree.

The current study focused on the efficacy of gifted provisions across the core subject areas of English, Mathematics and Sciences. Specific literature related to these three subject areas in the field of giftedness is discussed in the subsequent sections.

2.5.3.1 English-based Literature

- Curriculum Issues: The Importance of Selecting Literature for Gifted Learners (VanTassel-Baska, 2017)

In the current study, VanTassel-Baska described the standards for shortlisting relevant literature for gifted learners inclusive of multi-cultural backgrounds, advanced reading levels, enhanced vocabulary, progressive literary elements alongside analysis of emotional and social issues. She detailed the recommendations of other noted experts regarding the importance of reading text selection based on the intellectual content and high-quality bearing in mind the needs of the high ability students. Some of the recent ideas comprise of content with numerous readings with similar theme with the combination of fiction and non-fiction texts, capitalize on various literacy devices, greater focus on learner motivation, and involve students in creative Socratic debates. VanTassel-Baska (2017) made a detailed checklist to enable the appropriate selection of reading texts for every grade level that can be used by teachers for pull-out lessons or other reading programs.

- Reading engagement and reading literacy performance (Sui Chu Ho E. & Lau K., 2018)

The researchers investigated the effects of home and school literacy environments alongside the learner's reading commitment on their reading performance based on PISA 2009 data. Sui Chu Ho and Lau found that the students' engagement with reading was the most reliable success predictor followed by home-school collaboration and fostering regular reading practices within the classroom. These outcomes could be used to inform

the development of reading policies to ensure learner progress in reading skills. The reading engagement defined by the assessment framework of PISA was comparable to the conceptualization of intrinsic motivation of a reader based on Deci and Ryan's theory. Numerous studies have highlighted that increased reading commitment led to enhanced vocabulary and improved reading skills. Sui Chu Ho and Lau explained that the affective and cognitive objectives were equitably important factors for promoting lifelong learning. The authors highlighted that the aspects of reading commitment, engagement and efforts with online reading were noticeably more in students in Hongkong which led to their enhanced reading profile as compared to other students in PISA 2009. The emphasis on 'reading to learn' as one of the important components of curriculum reform in Hongkong since the last two decades was probably the reason for this progression as reported by the researchers.

- Talent, Ability, and Potential: TAPping into the Needs of Advanced and Gifted Literacy Learners (Beltchenko, 2019)

Advanced literacy traits include usage of complex sentences, extensive vocabulary, advanced comprehension and asking insightful questions. Some of the standardised assessments commonly used to identify learners with high literacy abilities were Iowa Test of Basic Skills, NWEA MAP assessment, and Cognitive Abilities Test (CogAT). The author recommends the NAGC resources to understand the attributes of high ability readers. Beltchenko (2019) made appropriate suggestions regarding the curriculum for literacy to include usage of enhanced vocabulary, books of diverse genres and opportunities given to learners to express themselves in a variety of ways. The researcher

also points out that it is our moral responsibility to offer novel learning opportunities to gifted learners, engage them meaningfully, and cater to their individual needs.

2.5.3.2 Mathematics-based literature

- Advancements in research on creativity and giftedness in mathematics education (Singer et al., 2018)

In recent years, giftedness and creative thinking in Mathematics have been widely researched. Creativity comprised of the components of flexibility, fluidity, elaboration, and originality as described by Guildford in 1950, which led to the thirteen assessments used to gauge mathematical creativity used till date. The Torrance test was also based on Guildford's model of creativity. The researchers describe the historical evolution of giftedness in the mathematics field beginning with the development in the US in 1954 with the establishment of NAGC, and with Stanley initiating his Study of Mathematically Precocious Youth (SMPY) and eventually implementing the Scholastic Aptitude Test - Math (SAT-M) in 1972. During the last decade, NCTM published *Providing Opportunities for the Mathematically Gifted K-12* and NAGC backed the formation of a STEM network. One notable research study regarding the change in perspective of inquiry-based mathematics, was conducted by Hershkowitz et al. in 2017, which explained the theory of Abstraction in Context (AiC) as a successful strategy that can be used in regular classrooms. Similarly, another study focused on utilizing complex problem-solving as a strategy to cater to the advanced ability of gifted learners within regular educational settings (Nolte & Pamperien, 2017). Other relevant research studies included identification of mathematical creative skills using individual cognitive style by

Singer et al. (2017) and significance of correlation between identification of high ability students and teachers' professional capability and knowledge by Hoth et al. (2017).

- Mathematics Teachers' Perceptions of Teaching Gifted and Talented Learners in General Education Classrooms in the UAE (Jarrah & AlMarashdi 2019)

Within the UAE context, this was a pilot study regarding gifted learners in the mathematics field. The researchers highlight the dangers of student underachievement owing to the lack of appropriately challenging curriculum and teachers' competency in meeting their individual needs. The findings of their study indicated the general progression of teachers' perceptions about gifted provisions but scepticism regarding the effectiveness of these services. Jarrah and AlMarashdi (2019) recommended the need for further investments in teacher training and more research on creative teaching strategies to promote mathematical engagement in gifted learners.

- Project-Based Learning and Design-Focused Projects to Motivate Secondary Mathematics Students (Remijan 2016)

This study discussed the importance of project-based learning (PjBL) with design-specific tasks to positively influence the learning of mathematically gifted students. Experts in the PjBL field have explained the essential components as setting the foundation, posing a challenging question, finding appropriate solutions, providing expert guidance, appropriate scaffolding, collaborative environment or group ethics, opportunities for self-reflection and transfer of learning to real-life contexts combined with student motivation. Remijan deliberated on the difference between PBL and PjBL, where the former begins with a query or problem to be solved by learners, the latter

focuses on the creation of an end-product or solution. The author emphasised that design-based projects concentrated on both the query and the solution and henceforth diverged into a hybrid model which is an amalgamation of PBL and PjBL.

Remijan further presented the MUSIC Model of Academic Motivation as a successful method of developing design-based projects for gifted mathematical students. This model comprises of five constituents, namely, learners feel increasingly eMpowered, believe that they are engaged in Useful work, perceive Success, topic is of their Interest, and other Care (MUSIC) about their task. The researcher describes that the said model can be utilized in any subject area or age group and the various steps in the design-specific projects are enclosed as an Appendix. These twelve steps can be utilized by teachers to develop projects that can meaningfully engage gifted learners and stay motivated. Their experiences can be further enhanced by collaborating with other subject teachers or providing opportunities to gain diverse perspectives. Remijan discussed how the design-based projects could support learners to connect with the larger community, develop innovative solutions to real-life problems, help them to perceive their possible careers, advance their motivation and make progression in their learning.

- The Value of the Math Circle for Gifted Middle School Students (Burns et al., 2017)

The authors explain the importance of Mathematics circle as an approach to enable gifted learners to problem solve or satisfy their curiosity with other scholarly peers. Their research findings recorded that the students and parents expressed this strategy to be a phenomenally successful one and felt that the challenges were very engaging alongside providing the highly able students an opportunity to bond with other like-minded

camaraderie. This innovative strategy was initiated by Bob Kaplan, the Harvard professor of mathematics in 1994. Burns et al. (2017) describe how this practice was hugely successful and there are over one hundred and eighty Math Circle–Mentorship and Partnerships Program (MC-MAP) functional with the US that provide training to numerous leaders on conducting Math Circles.

2.5.3.3 Science-based literature

- Using Technology to Facilitate Differentiated High School Science Instruction (Maeng 2017)

The important role played by technology to promote differentiated instruction within Science lessons formed the focus of this study. Maeng (2017) used Tomlinson's Differentiation Model as the conceptual framework for the research alongside teachers' proficiency gauged by the National Education Technology Standards for Teachers (NETST). Some successful teaching strategies reported were combining complex differentiated instructions with presentations or tasks from curriculum mixed with modified resources available online, using technology to assess and give prompt feedback to students, developing differentiated reading materials for learners, teacher training, and finally creating responsive individualized instructions to cater to learner diversity in the classroom.

- Teaching and Learning in STEM Enrichment Spaces (Mun & Hertzog, 2018)

This study reported the success of STEM-based enrichment programs in catering to the needs of gifted and motivated learners by providing them with intellectually challenging, enjoyable, and appropriately paced tasks. Mun & Hertzog explained the main ingredients

of the program success included the play-based discovery strategy, open-ended activities, students flourishing as mathematicians, and teachers maintaining a collaborative and supportive environment during these weekend sessions. Numerous studies discussed the combination of enrichment and acceleration led to progression of talent development in the STEM field during the last decade. Upon reflection some important revelations documented by the gifted students comprised of appropriate challenges, lively discussions, quicker pace, personalized approach to problem-solving and meaningful engagement during these enrichment lessons.

- Project-based learning in STEM (Edmunds et al., 2017)

The research by Edmunds et al. discussed the importance of implementing good quality and rigorous PjBL within schools, with the task content reflecting the main concepts of the subject but with higher complexity levels. There were good recommendations for educators regarding the PjBL to include higher order questioning, problem-based tasks; Bloom's higher order skills like synthesizing, analysing, evaluating, or creating; and multiple opportunities given to learners to express or defend their in-depth thinking to others. Edmunds et al. also highlight the significance of rigorous teaching instructions to ensure appropriate teacher involvement in the PjBL and collaboration while reviewing these projects. The researchers explain the fact further that effective collaboration between teachers for PjBL will ensure an increased number of educators being involved in this important strategy to cater to the needs of highly able learners alongside securing quality aspects of the activities. Edmunds et al. suggested that effective implementation of PjBL could be a successful strategy to keep our gifted students productively engaged in education while providing them with challenging opportunities to fulfil their potential.

2.5.4 Theme 4: Studies based on Affective Domain:

- An examination of social and psychological influence on academic learning (Phan & Ngu, 2018)

This research investigated secondary students' self-esteem in their global and domain scopes within mathematics (Phan & Ngu, 2018). This correlational study examined the degree to which academic progress of the gifted learners was affected by their individual interest in the learning activities alongside their social relations with their peers and teachers. Phan and Ngu wanted to evidence the significant effect of affective domain over cognitive domain and make appropriate recommendations for educators.

Factor 1: Importance of enactive learning experience

The present study highlighted that the everyday learning experiences by learners are paramount in developing their self-efficacy and previous educational achievements shaped the learners' global and domain specific self-esteem. This finding was in line with the numerous prior studies conducted between 1991 to 2007 regarding self-esteem evolution alongside additional quantitative research studies between 2008 to 2014 documenting the positive correlation between enactive educational experiences and examination scores. Phan and Ngu emphasised the importance of creating genuine learning experiences within classrooms, developing positive self-esteem among students, maintaining encouraging learning environments, engaging students with a responsive and enjoyable curriculum, and planning for progression in learning to mastery levels alongside personalized growth.

Factor 2: Importance of self-esteem

Another important finding of this study by Phan and Ngu was the unique influences of the global self-esteem and domain-specific self-esteem. Although both self-esteems affected the students' relationships with peers and teachers alongside their engagement in learning activities and academic progression; the domain specific self-esteem impacted the student-teacher relations only. The researchers recommended that the teachers focus on enhancing their students' self-esteem consistently while school leaders could plan to advance the learners' sense of belonging within the school community to improve their everyday learning experiences and in turn lead to a heightened self-esteem for all learners.

Factor 3: Adaptive outcomes

Phan and Ngu also explained the importance of developing student interest in subject-specific tasks to ensure their enjoyment in that domain and hopefully lead to their pursuit to enhance their academic performance.

- Maximizing the potential of gifted learners through a developmental framework of affective curriculum (Cavilla, 2019)

Numerous scholars highlighted the discrepancy between the socioemotional and cognitive development of gifted learners and Cavilla's Taxonomy of Affective Curriculum was designed to reduce this barrier and support their overall development. Another study conducted a meta-analysis of over two hundred school programs integrated with socioemotional learning into the curriculum across K-12 and reported enhanced academic performance in reading and mathematics assessments. Famous scholars like

Sternberg and Kaufman disclosed that giftedness being a dynamic concept, students would probably not reach their true potential if their affective development were ignored.

Cavilla (2019) discussed the socioemotional learning (SEL) framework established by the group of researchers that founded the Collaborative for Academic, Social, and Emotional Learning (CASEL), which served as a robust basis for promoting affective curriculum as part of regular learning at school for gifted students, as shown in figure 2.36.

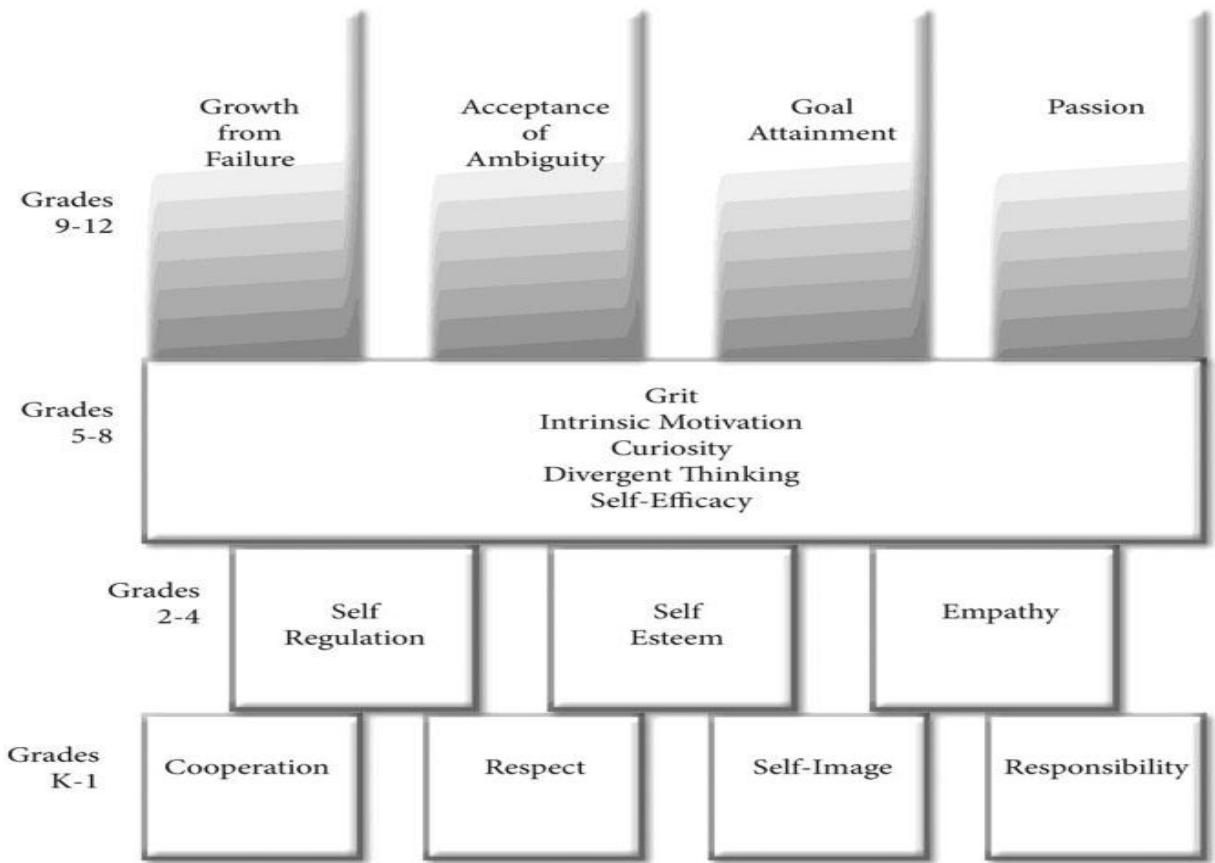


Figure 2.36: Taxonomy of affective curriculum for gifted learners CASEL (Cavilla 2019, p.140)

Since the present study focused on middle school learners, level-3 of the SEL was relevant and discussed briefly in the subsequent section.

Level 3: Grade 5 – 8

This taxonomy level prepares the middle school learners for mastery of complex skills required for advanced curriculum alongside social stress within one year. Experts explain this stage where learners need to develop grit, empathy, accurate self-esteem, understanding of one's strengths and weaknesses, curiosity and overall progress as they transit into adolescence from relations management to management and awareness of self. Gifted learners are expected to be self-reliant with teachers acting as their guide along their educational journey. The theoretical model of level-3 is shown in the figure 2.37 below.

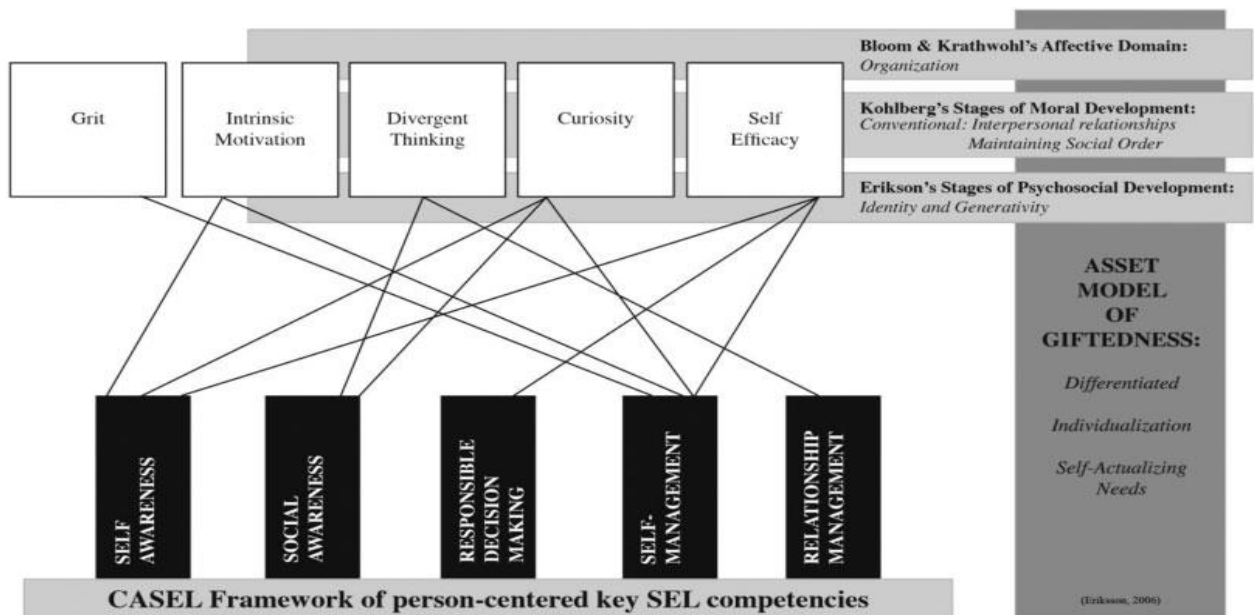


Figure 2.37: Theoretical connections from level 3 of the taxonomy of affective curriculum for gifted learners (Cavilla 2019, p. 143)

Contemporary studies have increasingly focused on the benefits of SEL for gifted learners demonstrating the powerful impact of affective education alongside the evolving concept

of giftedness encompassing the innate correlation between the cognitive and affective progressions.

- Middle School Students' beliefs about Intelligence and Giftedness (Tan et al., 2018)

Tan et al. investigated the students' perceptions regarding intelligence, the correlation between advancement in intelligence and age, understanding of giftedness and the interrelationship between intelligence and giftedness. Researchers alongside educators understand the phenomenal impact of learner motivation on achievement and how this can be affected by their self-perceptions about intelligence and giftedness. Tan et al. (2018) decided to narrow their study to middle school learners as they would have matured views and interpretations; some studies pointed out that motivation regressed during the middle school, and prior research demonstrated the impact of learner beliefs of giftedness and intelligence influenced their motivations.

The significant findings included those learners expected incremental progression in intelligence, believed in growth mindset, intelligence could be enhanced with consistent hard work and motivation could play a big part in their learning. Gifted learners also believed that knowledge could be viewed as a consolidation of motivation, smartness and learning whereas academic giftedness was specifically perceived as coalescence of high ability, motivation, intelligence, and school achievement.

- Motivation and Gifted Students (Clinkenbeard, 2012)

Clinkenbeard evaluated the modern motivational theories and their connotations for gifted learners in terms of value-expectancy schema, extrinsic and intrinsic motivation,

goal-valuation, self-perceptions, and competence. The researcher explained that learner beliefs regarding their chances of success in any activity were their expectancies whereas values could be interpreted as the student perceptions about why they would want to achieve success, and these could translate into motivated behaviours if learners perceived that they could succeed in the activity. Clinkenbeard (2012) described Deci & Ryan's intrinsic motivational theory and its implication for gifted education in terms of the significance of teacher feedback converging on student independence rather than their ability to support their learning progression. The researcher further discussed the goal theories in terms of performance or learning goals, with performance goals seen as aspects of demonstration of student achievement in relation to peers or ego-centric while learning goals as the desired path of achieving mastery in any area.

The author utilized the TARGET (task, authority, recognition, grouping, evaluation, and time) motivational model for the comprehensive evaluation and reported positive motivational outcome for gifted learners. Clinkenbeard (2012) recommended further research focusing on the correlations of learner motivation with educational strategies like inquiry-based learning, self-regulation, and neuroscience to support gifted learners performing to their optimal potential.

- Gifted Students' Perceptions of Gifted Programs (Kitsantas et al. 2017)

Kitsantas et al. conducted a qualitative study to investigate gifted elementary and middle school learners' perceptions about their gifted programs and their findings revealed multiple themes regarding the teachers' influence on the academic and socio-emotional experiences of students. The significance of learner self-perceptions regarding their socioemotional and academic skills enriched by their educational experiences to enhance

their learning was discussed by the researchers. Gifted students merited a consistently challenging environment within their talent areas coupled with opportunities to work independently. Some of the well-known models mentioned were the Parallel Curriculum Model by Tomlinson, Schoolwide Enrichment Model by Renzulli and Reis alongside the Autonomous Learner Model by Betts and Neihart. The authors suggested accelerated pacing, collaboration with like-minded peers, differentiated curriculum coupled with appropriate instructions, and concept-based teaching and learning. They further recommended teaching practices beyond differentiation to transformative individualization and more research to understand the correlation of learner motivation and gifted programming services.

- “Ask Me and I Will Tell You” Gifted Boys’ Perceptions of Self and School (Watts 2020)

Watts (2020) deliberated on academic self-perceptions in relation to their peers among elementary level male students. The author reviewed ethnographic research that analysed gifted male learners’ self-perceptions and their educators’ perceptions of them. The students’ self-perceptions showed strong correlations with their socioemotional health including the need for their teachers’ empathy regarding the academic and affective challenges faced by them despite their gifted identification, their behaviours being misinterpreted by teachers as insubordination, and their concern regarding lack of student voice in the curriculum leading to lack of meaningful engagement or active learning. Watts (2020) recommended the requirement of teachers to update themselves with gifted students’ self-perception appraisal as learners and support them accordingly to develop appropriate inclusive provisions in a holistic manner.

- Cognitive, Socioemotional, and Attitudinal Effects of a Triarchic Enrichment Program for Gifted Children (Gubbels et al., 2014)

Gifted students deserve enrichment programs to provide them with challenging opportunities that may not be available in the regular classrooms. Gubbels et al. (2014) studied the academic, socio-emotional, and attitudinal effects of the provision of enrichment opportunities on upper elementary age learners. The researchers explained that the regular curriculum lacked sufficient challenges for gifted students leading to regression in their motivation and possible underachievement. Gubbels et al. highlighted the importance of enrichment programs on the socioemotional level alongside cognitive gains. The researchers reported definitive good effects on the motivation, application of scientific knowledge gained, self-concept, well-being, and joy of learning the subject alongside recording strong cognitive and socioemotional benefits for students.

- Joanna Simpson and Megan Glover Adams: Understanding Gifted Adolescents (Doyle 2017)

Gifted adolescents need to come to terms with their unique identity and evolve with mature coping capabilities with their affective issues. This crucial need formed the focal point of the research by Doyle (2017), which elaborated on the disparity between the vulnerabilities and intelligence of gifted middle-aged learners. Some of the emotional hindrances highlighted by the author were comprised of the fear of failure and possible negative perceptions from others that could develop into social isolation, poor self-esteem, anxiety, stress, and other negative socioemotional connotations. Doyle (2017) explains that underachievement could possibly stem from self-imposed perfectionism by gifted students. Experts in the field recommended gifted provisions in terms of curricular

programs that are suited to challenge learners and provide appropriate educational opportunities for their success. The significance of differentiated instructions in terms of adapting the content process and product was reiterated in this study. Prior research had documented six categories of gifted learners: namely, autonomous learners, the successful ones, dropouts, twice exceptional ones, the challenging learners, and the underground ones. The importance of parents advocating for their gifted children was emphasised alongside asset-based avenues that focus on the character strengths and positives rather than the negative traits of learners. Other successful approaches evidenced were strong communication and collaboration between students and educators in transformative learning environments.

In the US, the TALENT Act (To Aid Gifted and High-Ability Learners by Empowering the Nation's Teachers) was proposed to enhance the knowledge and training received by teachers along with advantages to the gifted students (Doyle 2017). Some of the aspects of the TALENT Act formed a part of ESSA later. However, the situation reported was grim with only seventeen states mandating teachers with giftedness education licensing requirement. Finally, some suggestions and recommendations were made regarding the necessary steps to advance educational services to cater to the academic and affective needs of gifted learners (Doyle 2017).

- Creative engagement (Anderson, 2018)

The relevance of applying metaphors to correlate meaning with scientific words as a creative way of engaging learners was discussed by Anderson (2018). Another scholar distinguished between the dual facets of creativity in learning as innovative ways to learner engagement thereby leading to personalized meaningful assimilations whereas

learning in creativity is explained as perception contributes to understanding of others. Many relevant research studies have documented the importance of the learning environment for students' overall personal development. Anderson (2018) reported how PjBL based on the conventions of personalisation, collaboration, equity, and authenticity led to improved student engagement and task commitment through social and artistic themes. Some successful routines that emerged from this study were socioemotional statements, responsive and proactive circles, therapeutic discussions that furnished opportunities for students to connect emotionally, discuss their vulnerabilities and collaborate with like-minded peers to design unique solutions to social challenging tasks; enhance the learner abilities to use appropriate metaphors for abstract and complicated concepts using various artistic forms of visualization, drama, poems or kinesthetics; regular classrooms routines that integrated illustrative or enactments as common practices by students and elicited peer reflections and active participation from the intended audience; regular opportunities to reflect on affective factors during learning within classrooms; and analysing student perceptions about which learning experiences were emotionally gratifying and effective.

- Science vs. Sports: Motivation and Self-concepts of Participants (Höffler et al., 2017)

A popular strategy to motivate gifted learners is encouraging their participation in competitions and Höffler et al. (2017) analysed their self-beliefs regarding competence and objective orientation within science field. Their findings indicated gifted learners demonstrated increased goal conformance and decreased passive disposition towards work or performance owing to their participation in science competitions. Another

important outcome noted by the authors was the enhanced intrinsic motivation among gifted students to perform to a higher standard rather than the obsequious expectation of accolades. Höffler et al. reiterated the significance of fostering science competitions as a rewarding strategy to sustain learner interest in the STEM scope.

- Study examining self-concept in young gifted learners in the US and Ireland
(Cross et al., 2015)

Cross et al. conducted their study across both the above-mentioned countries to evaluate learner's self-perception and social coping skills upon being identified as gifted students. The additional difficulties faced by gifted students in forming social relationships owing to the mismatch in their cognitive abilities were explained by the researchers. They further discuss the evolving concept of self-perception, a broader construct comprising of social, academic, physical, and emotional components, which can be influenced by external factors like their classroom interactions and have important connotations for educational settings. The transition from elementary to middle school places additional emotional stress on the gifted learners. The meta-analysis by Cross et al. revealed positive outcomes of gifted identification procedures on learners and the importance of encouraging them in additional activities beyond the curriculum to help their peers.

- Epistemological Differences Between Gifted and Typically Developing Students
Gallagher (2019)

Student self-perceptions about the way of knowing and gaining knowledge have a tremendous effect on their learning, social and psychological parables, curriculum responses, and choices of strategies, according to Gallagher (2019). Any advancements

in their epistemological acumen would be in line with their relevant developmental schemes accompanied by reasonable progress in their worldviews. The scholar refers to studies reporting that gifted learners achieve higher zones of epistemological thinking at a faster pace as compared to their same age peers. Numerous research studies have analysed these developmental differences among gifted students and hence it is every educator's moral responsibility to provide appropriate learning environments that challenge and engage them at all stages of education.

Gallagher goes on to explain the necessity to develop long term plans with specific objectives individualized for gifted learners by educational leaders. These plans provide a good way of tracking their progress from simple to advanced or abstract reasoning levels. Some experts in the giftedness field have recommended meaningful research projects, inquiry-based learning, PBL, alternate curriculum models, differentiated instructions, and other opportunities to promote critical thinking skills. Every gifted student merit a unique learning plan based on their individual needs and background to support them progress to complex and abstract concepts and travel their own personalized educational journey.

- The Social and Emotional Development of Gifted Children (Neihart et al., 2016)

The socio-emotional needs of students with gifts and talents are unlike their neurotypical peers of the same age. Contemporary research provided the basis for the evolution from the conflicting and undeviating perspectives of giftedness to the recognition of the dynamic aspect and the interaction of the complex factors that are responsible for the identification of the unique needs of gifted learners. Some examples of such peculiar characteristics include self-esteem, heightened emotional needs, and perfectionism

among other individual perplexities associated with above average intelligence. Eminent theorists have explained some facets of these puzzlements with some notable ones comprising of Kohlberg's theory of moral development, and Erikson's proposition regarding identity growth, informing us about specific socio-emotional traits of gifted learners. The authors lead us to yet another interesting but under researched subject of twice-exceptionality within the area of giftedness.

Another multifarious and complicated area of need that warrants increased attention is the socio-emotional wants of twice-exceptional students, whose needs maybe very peculiar owing to the presence of giftedness alongside a co-occurring disability. Pfeiffer evidenced five reasons for underrepresentation of twice-exceptional students including the examination of sequence of giftedness or disability identification, contrasting views about giftedness placing students at an increased risk of emotional concerns, treatment of giftedness as a characteristic of the identified learner rather than the whole person being gifted, the fact that giftedness further complicates the learning of the student owing to the presence of a disability, and the possibility of the student having a misdiagnosis of a disability. Since the academic domain and the affective domain are correlated, it is imperative that the needs across both receive appropriate support from schools.

- Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions (Taylor et al., 2017)

Taylor et al. (2017) conducted a meta-analysis of twenty-five Positive Youth Development (PYD) programs that promoted opportunities for collaboration and support for young learners among all stakeholders while converging on progression of their strengths. Specific successful outcomes documented were improvement in self-

regulation, enhanced interpersonal skills, advancement in quality of peer and adult relations, improved academic task commitment in schools, better problem-solving abilities alongside reduction in substance usage, problem behaviours demonstrated and risk bearing capabilities. Taylor et al. (2017) reported consistent findings in follow-up studies including enhanced socioemotional skills, improved well-being pointers, and better attitudes irrespective of their backgrounds, race, or location.

To summarize this entire chapter, a robust theoretical framework guided the conceptual framework of the study which in turn led to appropriate study of available literature on gifted educational programming options across different countries over the past few decades. The next task was to explore the local scenario to understand the existing provisions and services and make recommendations for the near future to improve the educational process for the deserving students with gifts and talents.

Being informed by the frameworks, the current study involved investigation of the gifted programming options offered by private middle schools in the emirate of Dubai employing interviews with educators and qualitative data analysis in the first phase. The subsequent phases included the evaluation of the student ability and attainment information using quantitative data analysis. The third phase explored the effect of the gifted provisions offered at schools on student motivation to understand the efficacy of the offered gifted program options on one aspect of the affective domain followed by a quantitative evaluation to see if there were any notable differences on the student population data based on their demographics.

The research methodology that was deemed appropriate for the study design discussed above was the mixed methods approach and it can be defined as:

Mixed methods research is a research design (or methodology) in which the researcher collects, analyzes, and mixes (integrates or connects) both quantitative and qualitative data in a single study or a multiphase program of inquiry. (Creswell 2012, p. 119).

The subsequent chapter describes the research design and methodology used for the purposes of the study with the rationale, site and participants, data collection, data analysis, triangulation of data, limitations of the study, and the ethical considerations.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

Education is the most powerful weapon which you can use to change the world (Nelson Mandela in Martin 2018, p. 311).

3.1 Overview

An American philosopher and education reformer, John Dewey, explained research as a mode of inquiry that leads to experiences which could support the resolution of ambiguity or a problem query (Morgan 2014). This chapter explains and justifies the research design and methodology that was considered appropriate for the purposes of the current study to achieve the desired goals. Owing to the nature of the research problem, the mixed methods approach matched the desired objectives that endeavoured to answer the following research questions:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

The research paradigm, research design, study context, participant selection, instrumentation, data collection methods, triangulation and data analysis for the current

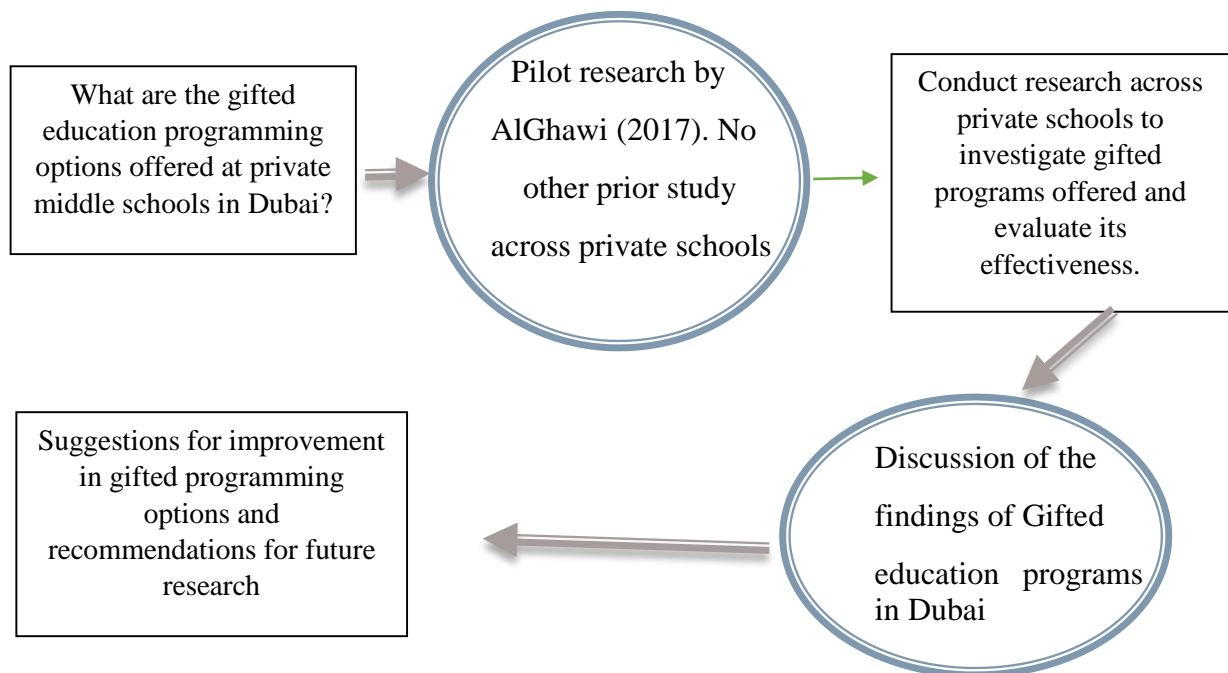
study are discussed in detail in the following subsections. Finally, the limitations of the present study and the ethical considerations are presented in this chapter.

3.2 Research Paradigm

Pragma mean ‘action’ in Greek signifying that knowledge is a result of action while learning is a consequence of outcomes or findings. Inquiry is the specific phrase applicable to research within the paradigm of **Pragmatism** where the researcher’s current views evolve as novel circumstances are encountered during the timeline of the study (Morgan 2014). This study attempted to investigate the gifted programming options offered at private schools in Dubai alongside evaluating their effectiveness. Regarding the epistemology, the pragmatic paradigm was considered apposite for the nature of this complex study.

The researcher attempted to use Dewey’s five-step model of Inquiry as applicable to the research to develop the research design appropriate for the purposes of the current study.

This process is represented as below:



Pragmatism as a paradigm was suitable to the mixed methods research owing to the complicated choices enmeshed in integrating the qualitative methods for the first research question with the quantitative methods necessitated by the questions regarding the effectiveness of the gifted programs (Morgan, 2014). The research design and methods are detailed systematically in the following subsections.

3.3 Research Design and methods

The main inquiry in the present study was to explore the gifted programming options offered across private middle schools in Dubai in the absence of any prior literature or research. The aim of the current research was to bridge the gap in literature regarding gifted education in the local context. Since this was a pilot study and required an inductive process of gathering comprehensive information and understanding while the researcher had to maintain a flexible approach and henceforth qualitative methods were deemed appropriate for this investigation (Morgan, 2014).

Qualitative Research	Quantitative Research
<i>Induction</i>	<i>Deduction</i>
Purposes <ul style="list-style-type: none"> Generates theory from observations. Oriented to discovery, explorations. Procedures <ul style="list-style-type: none"> Emergent designs. Merges data collection and analysis. 	Purposes <ul style="list-style-type: none"> Tests theory through observations. Oriented to cause and effect. Procedures <ul style="list-style-type: none"> Predetermined designs. Separates data collection and analysis.

<p><i>Subjectivity</i></p> <p>Purposes</p> <ul style="list-style-type: none"> • Emphasizes meaning, interpretation. • Tries to understand others' perspectives. <p>Procedures</p> <ul style="list-style-type: none"> • Researcher is involved, close to data. • Researcher is the research instrument. 	<p><i>Objectivity</i></p> <p>Purposes</p> <ul style="list-style-type: none"> • Emphasizes things that can be measured. • Results do not depend on beliefs. <p>Procedures</p> <ul style="list-style-type: none"> • Researcher is detached, distant from the data. • Relies on standardised protocols.
<p><i>Context</i></p> <p>Purposes</p> <ul style="list-style-type: none"> • Emphasizes specific depth and detail. • Analyses holistic systems. <p>Procedures</p> <ul style="list-style-type: none"> • Uses a naturalistic approach. • Relies on few purposefully chosen cases. 	<p><i>Generality</i></p> <p>Purposes</p> <ul style="list-style-type: none"> • Emphasizes generalization and replication. • Analyses variables. <p>Procedures</p> <ul style="list-style-type: none"> • Uses experimental and statistical controls. • Works across a large number of cases.

Table 3.1: Comparing Qualitative and Quantitative Research (Morgan 2014)

The next phase of this study involved analysing the effectiveness of the gifted programming options offered for students across their cognitive and affective domains and quantitative methods suited the purposes. The differences between both these methods as explained by Morgan (2014) are tabulated above.

To explain further, the sequential exploratory research design using qualitative methods to inquire and understand the existing gifted programming options initially followed by quantitative analysis of student data to extend or validate the qualitative findings were considered appropriate for the current study (Fraenkel et al., 2019). Although the investigation of the gifted education programs formed the main research problem of this study, it was also guided by the fact that if the existing programs were proven to be effective across the learners' cognitive and affective domains, the findings would provide stronger advocacy for gifted provisions and services in the region (Davis et al., 2011). Also, it was essential to decide the scope of the review, as gifted provisions offered can be broad and varied across different institutions. The purpose of the current study is to investigate the gifted programs offered to the identified middle school learners and gauge the effectiveness of this programming across the cognitive and affective domains for the academically gifted students only (Neumeister, Burney & NAGC 2012).

The NAGC Gifted Education Programming Standards were utilized as the rubric to evaluate the gifted programs offered in middle schools for the purposes of this study. As explained by Callahan (2004), any outcome-based approach must be considered against expected standards to gauge its effectiveness. The NAGC standards offered a framework with research-backed benchmarks across the areas of curriculum, learning and development, assessment, learning environment, programming and professional development that allowed the researcher to evaluate the provisions and services provided at schools in Dubai (NAGC 2019).

Similar studies conducted by AlGhawi (2017) used the NAGC standards for exploring the gifted education programming options offered across the primary public schools in

Dubai. The author also utilized sequential mixed methods for her study. Also, the study by Matthews and Shaunessy (2010) used the NAGC standards to evaluate the gifted identification, policy and gifted plans using qualitative methods in Florida. Their research made purposeful contributions in terms of documenting the strengths and weaknesses of the gifted programs offered with their local context. The intent of the current study agrees with both studies discussed above. Similarly, Alborn and Gaad (2014) used the tool designed by Booth and Ainscow to evaluate the inclusive provisions within the UAE and report meaningful findings and making future recommendations.

As explained previously, the initial part of the investigation involved exploration and in-depth understanding of the gifted programs offered across various schools in Dubai. The researcher gathered this information by interviewing the educators of gifted programs in schools following the popular curricula in Dubai, namely the IB, UK, Indian, and the US curriculum, while attempting to apprehend their perspectives. The qualitative data collected was scrutinized in combination with the KHDA school inspection reports and this process helped to validate the data collated from the educators.

The subsequent part of the investigation involved three subsections described below:

- a) The examination of the effectiveness of these gifted programs which comprised the quantitative data analysis of student ability data (CAT4) and various curriculum-based attainment data (PTE/PTM/PTS, MAP, IBT, ASSET) to analyse the efficacy across the cognitive domain in each of the participating school. All these assessments are standardised assessments mandated by the KHDA (KHDA, 2016).

- b) Analysing the self-perception of the identified gifted students using the Academic Motivation Scale (AMS) based on the Self-determination theory (SDT) to gauge the effectiveness of the gifted programming provided across their affective domain. The researcher decided to measure only one affective factor to narrow the scope of this study.
- c) The final subsection was to find any important implications of student demographic data on the findings in terms of their nationalities and gender.

The last part of the present research consisted of the detailed qualitative analysis of the gifted programs, gauging its effectiveness, descriptive reporting of all the findings and making possible suggestions for improvement based on NAGC standards. Additionally, the researcher hopes that the findings of this study would be used to advocate for broader causes of establishing a federal gifted policy and gifted education standards adapted for the local context to ensure consistency in the provisions and services offered by all educational institutions for our deserving gifted learners.

The assessment of the gifted provisions offered across the fifty-two states in the U.S. was conducted by Kaul and Davis (2018). Their study evidenced positive outcomes for gifted learners considering the need for compliance with the ESSA and made recommendations for further improvements in the gifted programs. Another exploratory study about gifted programs in Australia was conducted by Long et al. (2015). This research used qualitative methods for their investigation and explained their findings across ten public schools. Analogously, researchers explained the position of gifted programs and challenges faced by educators in India owing to the complex cultural, socio-economic, geographic conditions, and the diversity of affecting factors using qualitative methods (Kurup &

Maithreyi, 2012). Learning from the nature of research studies discussed in this section and reflecting on the need of the present study, the researcher designed the research methodology appropriate for the purposes of the current study. The research methodology for the current study can be diagrammatically represented as shown in figure 3.1 below:

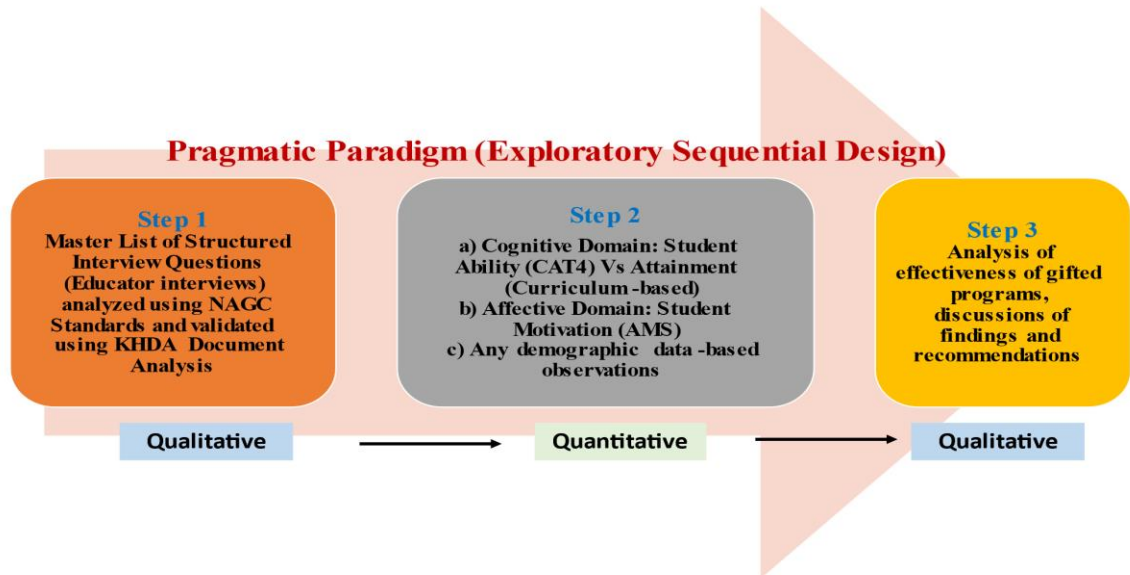


Figure 3.1: Research Methodology for this Study

Summarizing all the points highlighted, the current investigation followed the exploratory sequential mixed methodology using a pragmatic paradigm for representing the issues of equity in inclusive education for the underrepresented gifted learners (Creswell, 2012). The present study involved interviews, survey research, learner ability and attainment data analysis from standardised assessments and documentation reviews. The strengths of the sequential mixed-methods research included the in-depth exploration of the relationships between variables. The initial qualitative methods helped in seeking the important gifted provisions offered and the following quantitative data aided the triangulation of data presenting a holistic picture of the gifted education. Thus, the

rationale of the pragmatic approach was suitable for the current study that aimed to investigate the gifted programs and gauge its effectiveness in terms of student outcomes (Fraenkel, Wallen & Hyun, 2019). Another significant strength of this sequential design was the fact that meaningful contributions were made by both the supplementary parts to the key core part of the methodology (Morgan, 2014). The key methodology steps expected to answer the research questions has been tabulated below:

Research Questions	Approach	Tool	Sample	Analysis
RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?	STEP 1: Qual	Interview <i>Master List of Structured Interview Qs</i> , validated by KHDA report document analysis	6	Learning & Development, Assessment, Curriculum instruction and planning, Learning environment, Programming, Professional Learning
RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?	STEP 2: Quan	Statistical data analysis of CAT4 & curriculum-based English, Math and Science scores	105	Student attainment in correlation to their ability using standardised assessments

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?	Quan	Academic Motivation Scale (AMS) based on Self-determination Theory (SDT)	26	Student self-perception (motivation)
RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?	Quan	Statistical data analysis to study demographic data.	105	Any differences based on demographics

Table 3.2: Summary of Research Design and Methodology

The following subsections explain the selection of site, context, participants, instruments, data analysis and ethical considerations for the current study.

3.4 Research context and participants

A: Site/context

The emirate of Dubai is unique on the grounds that private schools offer 17 different curricula to cater to the needs of an international student population. Statistically, the most popular curricula to be offered in Dubai are the UK curriculum, the US curriculum, the Indian curriculum, and the International Baccalaureate (IB) program (KHDA 2018). The current study will be conducted across schools offering each of these curricula for the purposes of gifted program investigation.

TOTAL SCHOOLS IN DUBAI	296
UK Curriculum	88
US Curriculum	40
Indian Curriculum	35
IB Curriculum	35

Table 3.3: Private Schools in Dubai (Which School Advisor, 2021)

Although the researcher approached over 20 schools offering the popular curricula in Dubai, only few schools agreed to participate in the current study on a voluntary basis. Based on this finalized list of schools, 6 schools participated based on the purposive sampling method with the intent of having feedback from schools of each of the UK, IB, Indian and US curricula to provide a comprehensive scenario of gifted education offered in Dubai (Fraenkel, Wallen & Hyun 2019).

Total Schools selected for this study	6
UK Curriculum	1
US Curriculum	1
Indian Curriculum	2
IB Curriculum	2

Table 3.4: Participant Schools

B: Population sampling & participants

The sample selected for the current study was 6 private schools in Dubai that is representative of the popular curricula offered in Dubai, as explained above. The educators responsible for gifted programs in all 6 schools were interviewed during the first phase of this study. All the identified gifted learners in the middle school in each of these schools formed the student participants for this study (Fraenkel, Wallen & Hyun 2019). The researcher was expecting the minimum number of participating students to be over 30 (Creswell 2012). Since the current study focused only on the identified gifted learners across middle years of schooling, the researcher expected the participants over 30 in number based on the school population. However, the actual student participants were 105, well beyond the minimum expectations for the ability versus attainment data analysis. Disappointingly, only 26 students participated in the motivation survey.

3.5 Data Instrumentation and Collection

3.5.1 Qualitative methodology

The current study utilized qualitative approaches to explore the gifted programs offered across multiple private schools. A holistic view was required for a purposeful investigation, and this involved understanding the perceptions of the participants across schools offering the popular curricula in Dubai. This viewpoint was in line with the guidelines by Leech and Onwuegbuzie (2007), who discussed the positive contributions and richness of information added by qualitative research while studying a phenomenon in its natural settings in the educational context. They emphasised that qualitative records or notes that were collected in close concurrence of the situation had significant potential

to explain the complex situation in an all-inclusive way. Since the researcher examined the real-life experiences of all the participants to develop interpretive findings, which sparked further introspection, qualitative methods were deemed to be the highly appropriate methodology of generating the necessary in-depth data. Further details of this methodology approach were discussed in the following parts of this thesis.

Qualitative interviewing: The most evident strength that the open-ended interviewing brought to this initial inductive phase of research was the quest of information that surfaced with the progress of the conversation (Morgan 2014). This type of educational research required the researcher to comprehend each of the educator's perception through their life experiences. Relevant tools could be selected by the researcher through meaningful participant sampling strategy (Merriam 1998). Instrumentation: A total of 6 structured interviews were carried out using the minimally adapted version of the *Master List of Structured Interview Questions* (Neumeister, Burney & NAGC 2012), which is enclosed in the Appendices. The word 'district' was changed to 'School within Dubai Educational Zone' (UAE Information Guide 2019) to make it appropriate for the local context. Similarly, some questions regarding the giftedness law were deleted as these were not applicable to the local scenario. A total of 21 open-ended questions were maintained from the original questionnaire. The process of data analysis for the first step of the study is explained in the latter part of this section.

Process: These interviews were conducted either in person or via Zoom owing to the Covid-19 restrictions. All the explanations and feedback from the participants were recorded verbatim by the researcher. Once the notes to the interview questions were completed, they were shared with the participants to ensure the accuracy of the contents

(Fraenkel et al., 2019). The in-depth information gathered from these interviews were interpreted using each of the 6 Gifted Education Programming Standards (NAGC 2012) under the categories of Learning and development, Assessment, Curriculum instruction and planning, Learning environment, Programming and Professional Development. The strengths and weaknesses of the gifted programs offered by each school were discussed individually in correlation of the NAGC standards. The detailed information collected helped to develop a comprehensive picture of the gifted programs provided across schools offering different curricula.

In addition, the information collected by each educator was validated by document analysis of the most recent annual school inspection report for each of the participating schools (KHDA 2020). This process safeguarded the external validity of the information shared by the school educators. Each of the school inspection report by the KHDA were published annually, detailed in nature and available in the public domain on the KHDA website (KHDA 2020).

This entire qualitative process can be represented as shown in figure 3.2 below:

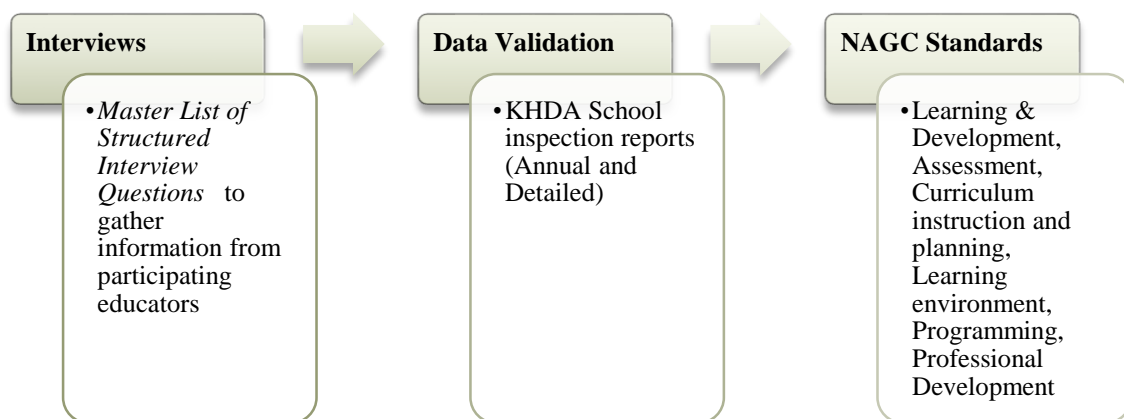


Figure 3.2: Qualitative Process Representation

In summary, the nature of qualitative research was appropriate for the study requirement of investigating the gifted programs offered in numerous schools, constructing multiple realities from the information collated from all educators, with generalizability of data not being the intent of this study (Lichtman 2010). Some of the findings were followed up by quantitative analysis of student data across their cognitive and affective domains and are discussed in the subsequent section of the research methodology.

3.5.2 Quantitative methodology

The quantitative methods were utilized to supplement the qualitative outcomes of the previous phase of the study. This second phase itself was split in three sub-phases. Each of these processes are described in detail in the following sections.

3.5.2.1 Statistical data analysis of Learner Cognitive Data

According to the KHDA, all private schools in Dubai are expected to administer the GL Assessments - Cognitive Ability Testing - version 4 (CAT4) for determining the individual abilities of their students across the verbal, non-verbal, quantitative, and spatial suites. All private schools are also mandated to conduct curriculum specific standardised assessments to gauge the student outcomes in correlation to their ability testing (KHDA 2016). Each of these standardised assessments are explained in brief as follows.

- Student Ability Tests (CAT4)

The CAT4 is a combination of four different assessments that test learner reasoning capabilities and predict their probable academic level of functionality. These cognitive assessments test the various types of mental processes that form a significant role of learners' thinking skills. Altogether, the data across the four batteries help in developing

an effective student profile of their basic capabilities, learner preferences, strengths, and weaknesses. The CAT4 suite of assessments comprise of the following constituents:

- Deduction with words (Verbal)
- Working with numbers (Quantitative)
- Thinking with designs and shapes (Nonverbal)
- Reasoning with detailed and accurate shapes in 3-Dimensions (Spatial)

The overall pattern of student thinking capabilities helps educators reach a better understanding of their unique learning needs and plan appropriately. The educational experts have accentuated the measurement of *relational thinking* or perception of the correlations between all the four aspects of cognition to understand the patterns of learning displayed by the students. The CAT4 tests can be as shown in figure 3.3 (GL Assessments, 2020).

What is in each battery?

CAT4 consists of four test batteries, each of which contains two tests. These are described below.

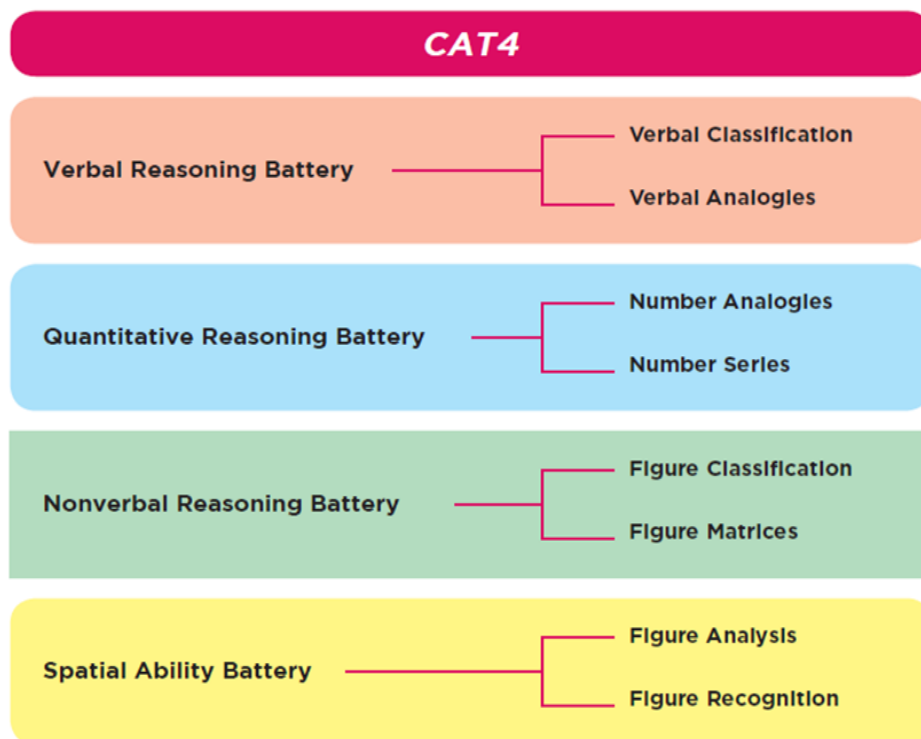


Figure 3.3: Cognitive Ability Testing-Version 4 Batteries (GL Assessments 2020)

While the verbal scores indicate the students' language abilities and the quantitative data measure their mathematical proficiency, the nonverbal scores reveal basic reasoning with shapes and problem-solving skills thereby supporting in the understanding of their general cognitive ability. The spatial battery was a recent addition to evaluate how learners can manipulate precise objects and shapes while recalling this information in their memory. This critical skill is indicative of their inclination towards specific careers like engineering, photography, mathematics, astronomy, architecture, graphic designing, or physical sciences (GL Assessments, 2018).

In continuation, the nonverbal score is indicative of the students' overall ability while their verbal or quantitative score may not be truly representative of their thinking. Any gaps in these scores may be helpful in identifying the possible reasons like specific learning difficulties, poor educational background, or English not being their first language of communication. As explained, the verbal data (inner voice) or the spatial processing (inner eye) combined with the nonverbal and quantitative scores correlating to how the student works with both the above extreme thinking skills supports the development of a comprehensive learner profile. The nonverbal and spatial scores are important predictors of academic attainment, help in identifying students with English as an additional language needs, influence of their cultural background, and their general ability as these are not dependent on their prior knowledge. (GL Assessments, 2018).

Schools can use the CAT4 data to identify gifted learners, make suitable differentiation in teaching and learning, track student progress, identify the individual barriers and promote improvement in student attainment with provision of appropriate challenges or interventions, as appropriate. Different levels of CAT4 assessments are administered according to the year groups of students. Student performance can be interpreted by the Standard Age Scores (SAS), or Stanines. (GL Assessments, 2018). The CAT4 data scores can be categorized as follows:

The stanline scale				
	Stanline	Percentage of cases	Corresponding percentiles	Corresponding SAS
Very high	9	4%	97 and above	127 and above
Above average	8	7%	90-96	119-126
	7	12%	78-89	112-118
Average	6	17%	59-77	104-111
	5	20%	41-58	97-103
	4	17%	23-40	89-96
Below average	3	12%	12-22	82-88
	2	7%	5-11	74-81
Very low	1	4%	4 and below	73 and below

Table 3.5: The Stanine Scale (GL Assessments 2018)

As seen the scores above 119 in any CAT4 battery indicate *High Ability* and scores of 127 and above indicate *Very High Ability*. The CAT4 data can be used with other standardised assessments like the Progress tests to measure student attainment in relation to their ability (GL Assessments, 2018). The present study used the Stanine scales to correlate the participating student ability data to their individual attainment data.

In addition to the CAT4, it is mandatory for schools to conduct standardised attainment assessments, depending on the curriculum followed at the end of each academic year. To be more specific, the Progress Tests in English, Mathematics and Science (PTE/PTM/PTS) are conducted by UK and some IB curriculum schools, IBT tests by few

IB Curriculum schools, NWEA MAP by US-curriculum schools and ASSET by Indian curriculum schools (DSIB 2017).

- Attainment Data used by UK/IB Curriculum Schools (PTE/PTM/PTS)

The participating UK Curriculum School and one IB Curriculum School used the GL Assessments- Progress Tests in English, Mathematics and Science (PTE/PTM/PTS) to measure the learner's attainment in terms of their understanding, knowledge, and application across the core subject areas.

The Progress tests help to determine the level of the following skills:

- English: reading comprehension, spelling and punctuations, and grammar across age-appropriate non-fiction and fiction passages.
- Mathematics: important mathematical skills and aspects including mental math.
- Science: student understanding of curriculum content in physics, chemistry, and biology alongside application of scientific skills.

These series of tests are used for benchmarking in the UK and approved by the KHDA to be used in Dubai. The Progress Tests (PT) are appropriate for middle school students across the three core subjects as explained above. The PT data mapped against the CAT4 data indicated if the student was performing in line with their academic ability, exceeding or underachieving. School leaders used this analysis to inform the teaching and learning practices to ensure students' academic progression (GL Assessments, 2018).

Relationship between scores

Description	Very Low		Below Average		Average			Above Average		Very High			
Stanine (ST)	1	2	3	4	5	6	7	8	9				
Standard Age Score (SAS)	70	80	90	100	110	120	130						
National Percentile Rank (NPR)	1	5	10	20	30	40	50	60	70	80	90	95	99

Figure 3.4: The Stanine Scale with descriptors (GL Assessments 2018)

Like the CAT4 scores, the researcher used the Progress Tests *Stanine scale* to understand the correlations between the scores and descriptors shown in figure 3.4 above to gauge if the student attainment matched, exceeded or was below the expected scores.

- Attainment Data used by IB Curriculum School (ACER)

One of the participating IB curriculum school used The International Benchmark Tests (IBT) by ACER to compare student's achievement scores over time and grades. These standardised assessments were utilized across the core subjects of English, Mathematics, and Science (ACER 2021).

The IBT Scores were available as Scaled scores and Achievement Bands. Since the achievement Bands were described in the range of 1-9 and matched the CAT4 Stanine scales, these were used to correlate the student attainment to their ability data. Like the process described above, if the student performed as expected, above expected or below expected, the attainment data were coded and used for further analysis.

An example of the student achievement bands in Mathematics and English with descriptors is included herewith for reference (ACER 2021).

Additional details about the ACER IBT Assessments are enclosed within the Appendices of this thesis.

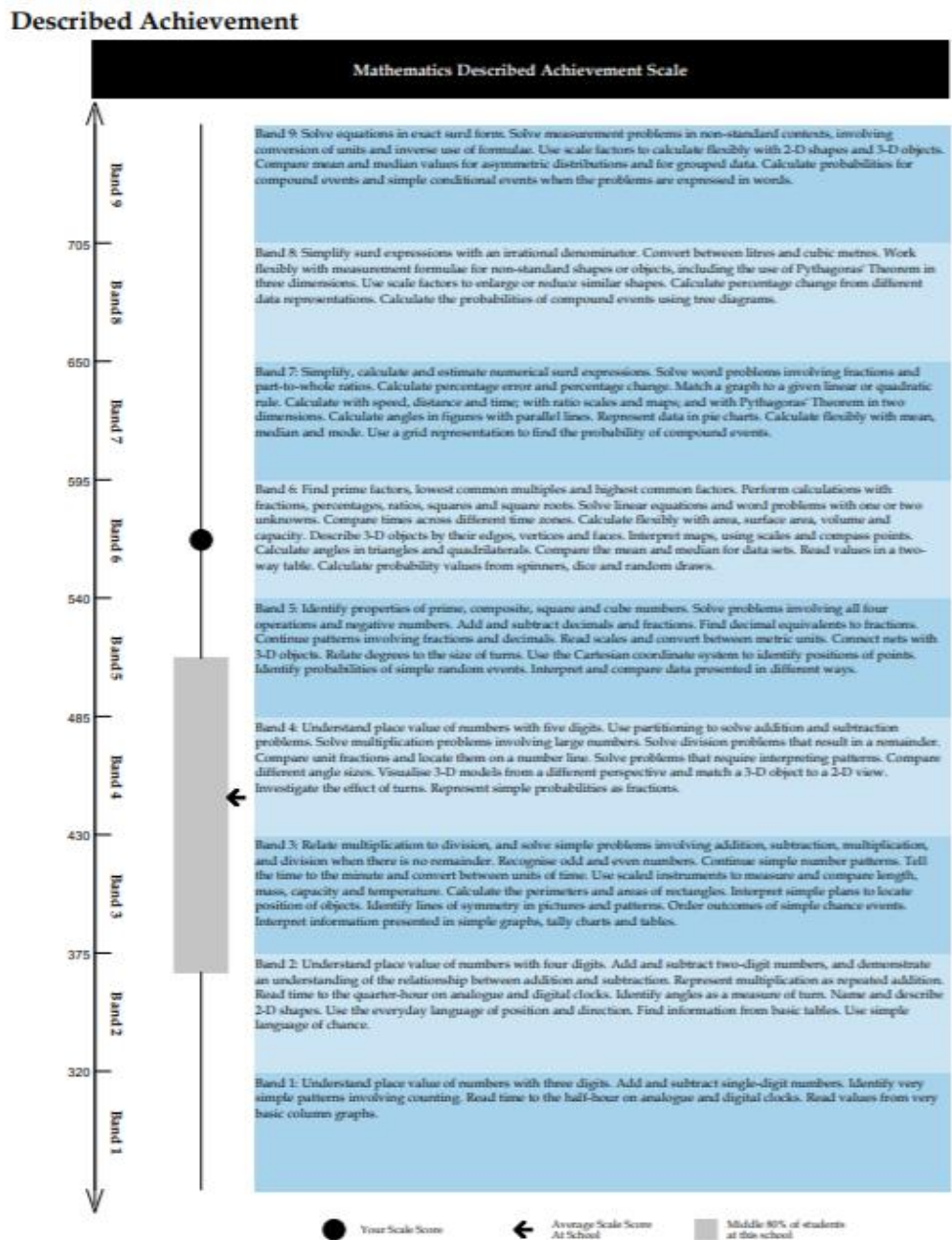


Figure 3.5: ACER Mathematics Achievement Scale (ACER 2021, p. 12)

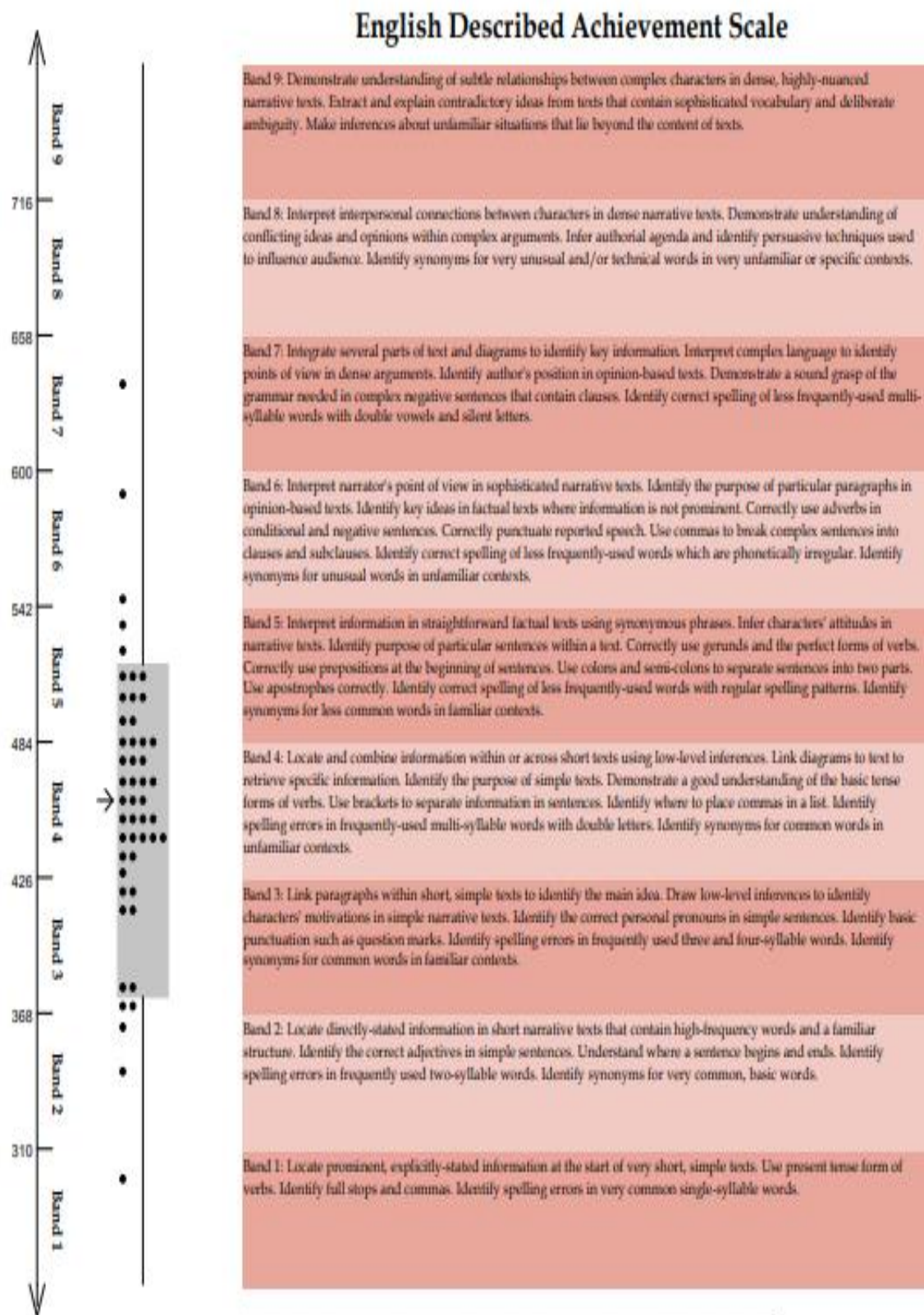


Figure 3.6: ACER English Achievement Scale (ACER 2021, p. 4)

- Attainment Data used by Indian Curriculum School (ASSET)

Assessment of Scholastic Skills through Educational Testing (ASSET) is a skill-based standardised test used by the Indian curriculum schools that participated in this present study. This assessment can be used for students from grades 3 to 10 across the core subjects of English, Mathematics, and Science. Each student receives feedback regarding their strengths and weaknesses to support their learning in a personalised manner while helping the school benchmark the student performance alongside providing insights to teachers on areas that need to be intervened (ASSET, 2021).

ASSET external Testing data:							
SCIENCE	Student Name	Class	Stanine	Strong Skill 1	Strong Skill 2	Weak skill 1	Weak Skill 2
			9	Definition or description of scientific terms, organisms or materials	Complex analysis, data interpretation, integrating different concepts	Hypothesis formulation or prediction of outcome	Classification/ comparison of organisms/ processes; giving examples

Figure 3.7: ASSET Data Sample (Adapted from ASSET 2021)

One example of an anonymised individualised student report received by a participating school is shown above. For the purposes of this study, the ASSET scores were also available in Stanines 1 to 9 and hence was easy to be mapped against the CAT4 Stanines to measure if the student's performance was as Expected, Above Expected or Below Expected. Additional details of ASSET assessments are enclosed as an Appendix.

- Attainment Data used by US Curriculum School (MAP)

The National Assessment of Educational Progress (NAEP) used by the US Curriculum School is the ongoing and internationally representative quantifiable measure of student

achievement across numerous subjects over time. The NAEP data could be used to identify the highly able and gifted learners. It was mandatory for schools to administer the NAEP every two years for evaluating reading and mathematics in Grades 4 and 8. Additionally, students could be assessed across various subject areas using the NAEP. The test outcomes are transferred in scaled scores between 0 to 300 in Science and Mathematics while the scaled scores for reading are between 0 to 500. The qualitative descriptors correlating to these scaled scores are in three levels: namely, *Basic*, or *Proficient* or *Advanced*. As an example, 346/500 is the boundary when the descriptor changes from *Proficient* to *Advanced* in reading. Scaled scores for groups of learners including their demographic data were available to educators (NAEP, 2021). Since the MAP Scores were not available in bands or Stanines of 1-9 but as percentile scores, the conversion chart of percentile to stanine scores was used to convert the MAP percentiles to stanines. This ensured consistency in data mapping procedures for the current study. The researcher used the MAP scores to gauge if the students in the US Curriculum School attained as expected, above or below expected scores. Additional information regarding the NAEP MAP Assessments and the Percentiles to Stanine charts are enclosed as Appendices. An example of MAP report is shown below for reference (NAEP, 2021).

Summary Growth Sample

Achievement Status				Growth							
Fall 2015		Winter 2016		Student						Comparative	
RIT Range (+/- SEM)	Percentile Range (+/- SE)	RIT Range (+/- SEM)	Percentile Range (+/- SE)	Projected RIT	Projected Growth	Observed			Met Projected Growth	Conditional Growth Index	Conditional Growth Percentile
						Observed Growth	Growth SE	Growth Index			
208-211-214	57-67-75	217-220-223	72-78-84	215	4	9	4.3	5	Yes	1.0	84
204-207-210	45-54-62	212-215-218	57-66-73	211	4	8	4.23	4	Yes ⁺	0.8	80
210-213-216	62-70-77	214-217-220	63-71-78	216	3	4	4.21	1	Yes ⁺	0.2	56
198-201-204	29-37-45	204-207-210	33-42-51	206	5	6	4.18	1	Yes ⁺	0.3	61
203-206-209	43-51-60	210-213-216	51-60-68	210	4	7	4.38	3	Yes ⁺	0.6	76
208-211-214	57-65-73	211-214-217	54-63-71	214	3	3	4.32	0	Yes ⁺	-0.1	46
207-210-213	54-62-70	209-212-215	48-57-66	214	4	2	4.28	-2	No ⁺	-0.3	38

Figure 3.8: MAP Summary Growth Sample (NAEP, 2021)

To summarize, if the individual student's PTE/PTM/PTS or IBT or ASSET or MAP scores were in the range matching to their CAT4 scores, it was an indication that students were performing as expected (**E**). Students could be performing above their ability if their attainment scores are above their CAT4 indication (**AE**). When a student was performing as per the indicated ability or above, the educators may be satisfied with the teaching and learning practices. In contrast, if learner attainment scores are below their CAT4 scores (**BE**), an underachievement is indicated. The results were compared for each of their English, Mathematics, and Science subject areas.

The percentage of students attaining as per their Expected, Above Expected or Below Expected was indicated in the data analysis section.

The student ability data mapped to their attainment data supported the evaluation of the effectiveness of the gifted educational programs offered by each school in their cognitive domain. The next subsection explains similar analysis in the learners' affective domain.

3.5.2.2 Statistical Analysis of learner Affective Data

Academic Motivation Scale (AMS)

Student motivation can be negatively impacted by a lack of challenge by the standard curriculum. The significance of the positive correlation between a challenging gifted program and learner motivation has been highlighted by numerous eminent scholars (Gubbels, Segers and Verhoeven, 2014). Understanding the affective domain of the students being offered special services would contribute truly meaningful insights into the holistic development of gifted educational provisions to educators (Greene & D’Oliveira, 2009). The current study utilized a questionnaire-based Academic Motivation Scale (AMS) tool for the assessing the various motivations of middle school gifted students.

The Academic Motivation Scale (AMS) tool used was originally developed by Vallerand et al. (1992). This questionnaire tool comprised of 28 items distributed across 7 subscales which consists of 3 categories of intrinsic motivation, 3 categories of extrinsic motivation and 1 category of amotivation.

Students rate their perceptions using a 7-point Likert Scale where ‘1’ indicates *Does not correspond at all*, ‘2-3’ indicates *Corresponds a little*, ‘4’ indicates *Corresponds moderately*, ‘5-6’ correlates to *Corresponds a lot*, and ‘7’ means *Corresponds exactly*.

All the subscales are comprehensively detailed in figure 3.9.

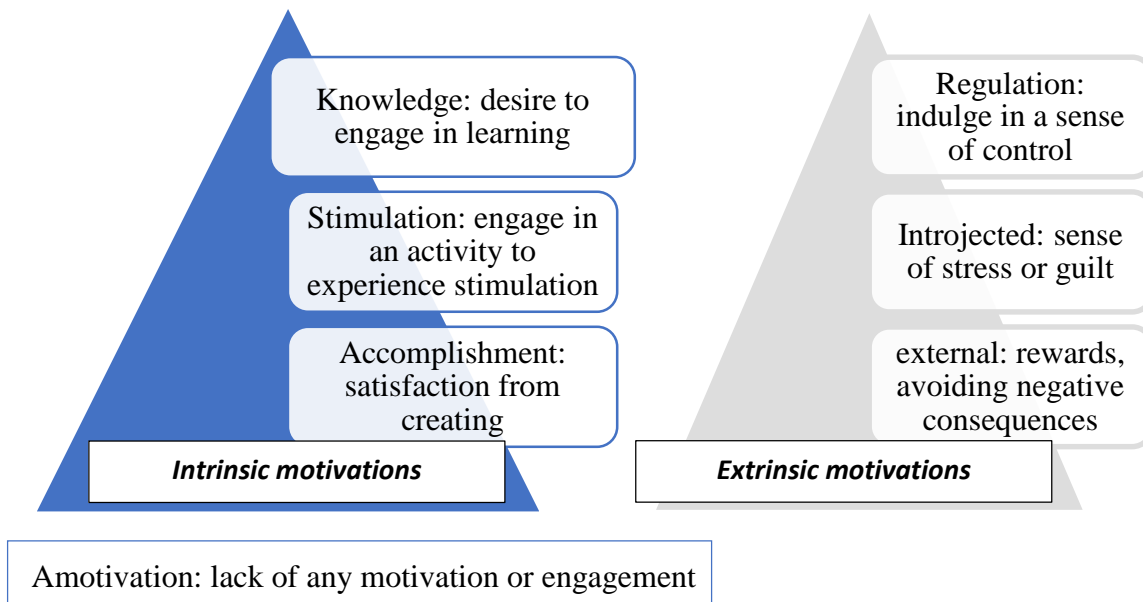


Figure 3.9: Academic Motivation Scale Continuum (illustrated from Brophy 2010, p.155)

Previous studies using the AMS tool have demonstrated good reliability and validity with reported alpha values in the range of 0.62-0.90 in the secondary learners (Utvær & Haugan, 2016). The questionnaires were sent to all the participating students liaised by the relevant educators responsible for gifted education of each of the schools. After allowing for an appropriate time frame to gather responses, reminders were sent on multiple occasions. This study did not offer any monetary incentives to elicit student responses. However, the Covid-19 circumstances proved detrimental and only 26 student responses could be obtained for the purposes of the current study.

3.5.2.3 Student Demographic Data

The student data collected for all the sub-sections explained previously was statistically analysed to see for any possible patterns that differ based on nationality, gender and age using the SPSS software. Any significant correlation was explained in detail in the discussion section of the report.

3.6 Triangulation of Data

GL Assessments explained that the holistic picture of a learner could be developed by the triangulating the data obtained by the CAT4 (ability testing), standardised attainment testing (e.g. PTE/PTM/PTS) and attitudinal data by using assessments like the Pupil's attitude to Self and School (PASS). All the test data together was useful in developing a holistic profile for learners (GL Assessments 2018).

For the purposes of the statistical part of the present study, triangulation of data could be achieved by using the Student Ability Data, Student Attainment Data, and Student Motivation Data can be illustrated as shown in figure 3.10 below:

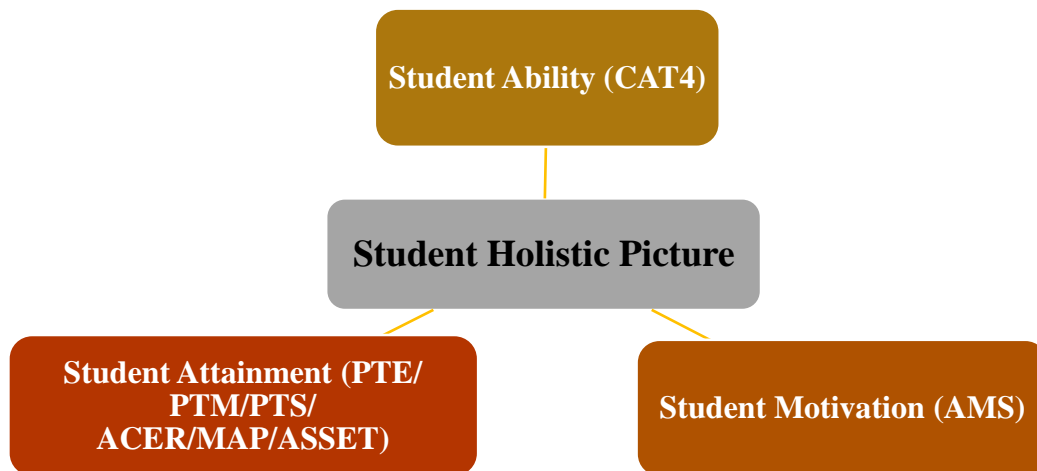


Figure 3.10: Student Data Triangulation (illustration)

Overall, the current study achieved the data triangulation by evaluating the qualitative data received in the initial phase, the KHDA documentation analysis, and the statistical data from the subsequent phases as illustrated in figure 3.11.

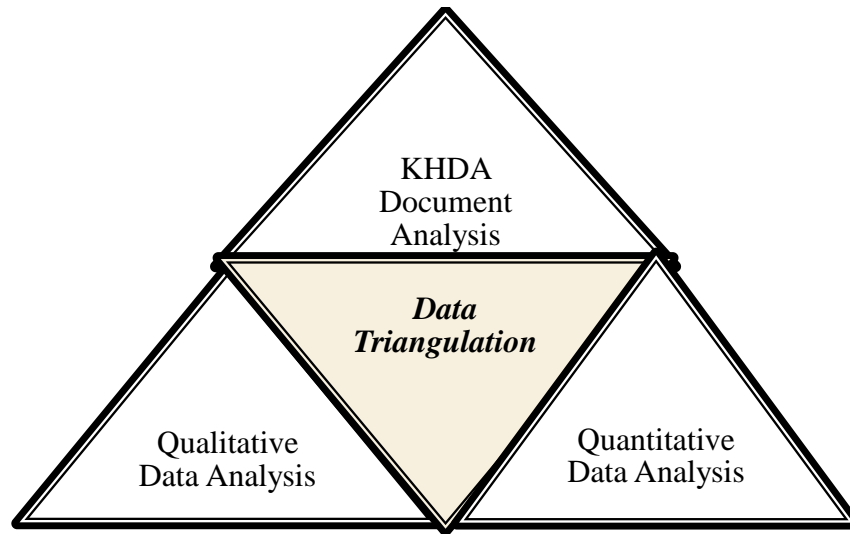


Figure 3.11: Research Data Triangulation (illustration)

Following the data collection and triangulation explained above, the data analysis procedures adhered to by the present study are described below.

3.7 Data Analysis

3.7.1 Qualitative Analysis: Interview Questions

A formal program investigation helps in identifying the strengths and weaknesses of the provisions offered, challenges along the course, and new possibilities that can be incorporated. It also helps prioritize the programming options and improve perceptions of program credibility amongst all the stakeholders of the school community (Newmeister, Burney & NAGC, 2012). This thought process formed the basic principle of the current research methodology. The *Master list of structured interview questions* was used as an interview tool and data was gathered by meeting each of the educators responsible for gifted education from the participating schools. All the open-ended responses from the interview questions were mapped onto the 6 themes of gifted program

evaluation standards by the NAGC. This qualitative data analysis across the 6 themes of learning and development, assessment, curriculum planning and instruction, learning environment, programming, and professional development areas, using etic methods provided significant initial but major information to guide the study.

As explained in Chapter-2 of this thesis, giftedness is a category of Inclusive education and is currently not evaluated separately (AlGhawi, 2017). However, the KHDA does evaluate gifted educational services to some extent during their annual inspection procedures for each private school in Dubai (KHDA, 2015). In addition to the above analysis, the researcher also used the most recent Annual Inspection Reports for each school that is published by the KHDA and available in the public domain. As part of data validation and triangulation, this KHDA annual inspection document analysis helped in understanding the provisions and services offered by each school further and verify the information by the school authorities. Only the US curriculum school participating in this study could not be inspected due to the Covid-19 circumstances and the KHDA report was unavailable.

The qualitative analysis was supplemented by quantitative analysis across the learners' cognitive and affective areas as explained in the following subsections.

3.7.2 Quantitative Data Analysis

3.7.2.1 Student attainment versus ability data analysis

A brief explanation about the use of Stanines was important as the statistical analysis of the student data in the cognitive area was completed using these scores.

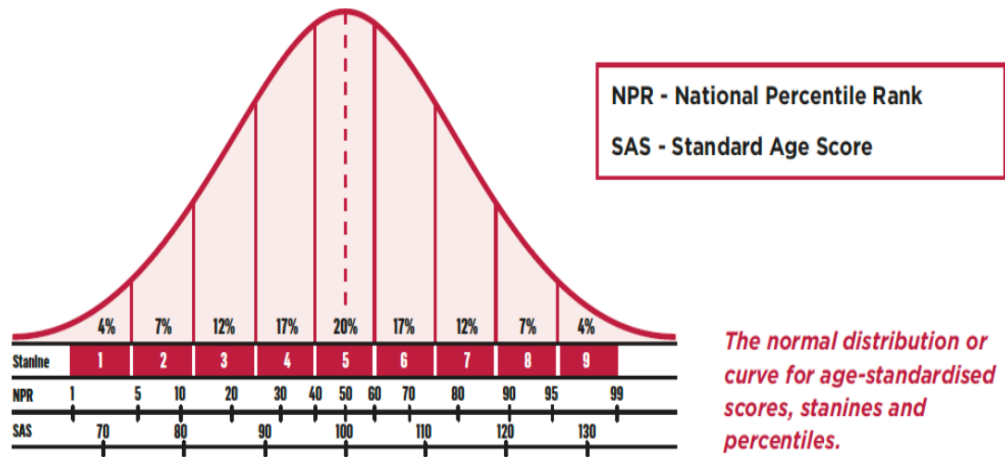


Figure 3.12: Use of Stanines (GL Assessments 2018)

As seen in the figure above, Stanines ranged from 1 to 9 for any standardised assessments and was helpful in comparing student's outcomes in the same peer age group. Stanines 1 to 3 are considered below average, 4 to 6 as average and 7 to 9 as above average (GL Assessments, 2018).

The following standardised assessments were used to collect student data:

- Student Ability used by all participating schools: CAT4.
- Student Attainment by the UK curriculum school: Progress Tests (PTE/PTM/PTS)
- Student Attainment by 1st IB curriculum school: Progress Tests (PTE/PTM/PTS)
- Student Attainment by 2nd IB curriculum school: ACER IBT
- Student Attainment by both the Indian curriculum schools: ASSET
- Student Attainment by the US curriculum school: NWEA MAP

The reliability of the test was estimated using the Cronbach's Alpha formula which produces values ranging from 0 to 1. Values above 0.80 are considered to be very good. The reliability values for the various CAT4 batteries are given in the table below, and all show that the tests are very reliable. These are based on students who took part in the UK standardisation.

CAT4 level	CAT4 reliability				
	Verbal Reasoning Battery	Quantitative Reasoning Battery	Nonverbal Reasoning Battery	Spatial Ability Battery	Overall CAT4
Level X	0.93	0.91	0.87	0.83	0.95
Pre-A	0.82	0.81	0.78	0.67	0.90
A	0.91	0.91	0.90	0.87	0.97
B	0.89	0.90	0.90	0.88	0.96
C	0.86	0.91	0.87	0.85	0.96
D	0.90	0.91	0.89	0.86	0.96
E	0.89	0.88	0.86	0.88	0.96
F	0.89	0.87	0.85	0.88	0.96
G	0.90	0.84	0.85	0.86	0.95
Average	0.89	0.88	0.87	0.84	0.95

Table 3.6: CAT4 Reliability Data (GL Assessments 2018)

Similarly, the reliability data of all the Progress Tests (PTE/PTM/PTS) as specified by GL Assessments (2019) are indicated below:

Across all levels:

- PTM c40,000, reliability 0.9+;
- PTE c37,000 , reliability 0.9+;
- PTSci c7000 (different method of standardisation), reliability 0.8+
- Numbers vary by level so for full info see online technical reports

Standardised tests are developed in a very structured way to ensure that they have validity (they test what they claim to test or the results predict future behaviour) and reliability (the test gives the same or similar results repeatedly over time).

Figure 3.13: Reliability Data of Progress Tests (GL Assessments, 2019)

As explained by GL Assessments, all the standardised assessments ensure the reliability and validity of the test data. The current study used student data only from standardised assessments and hence the reliability and validity of the data was secure (GL Assessments, 2019).

While the CAT4 data formed the Independent Variable (IV), the student attainment scores formed the Dependent Variables (DV). All the student scores were used in Stanine scores ranging from 1 to 9.

Correlations of CAT4 and GCSE grades

As already stated, the strength of the relationship between two variables can be measured by a statistic called the correlation coefficient. A value of zero indicates no relationship between the two measures, whereas a value of one indicates a perfect positive relationship. The table below shows the correlation coefficients between CAT4 standard age scores and pupils' subsequent GCSE outcomes.

	Mean CAT4 score	Verbal SAS	Quantitative SAS	Nonverbal SAS	Spatial SAS
Attainment 8*	0.72	0.67	0.64	0.61	0.57
Art and Design	0.48	0.44	0.38	0.41	0.42
Biology	0.62	0.57	0.53	0.49	0.47
Business Studies	0.56	0.45	0.52	0.49	0.40
Chemistry	0.57	0.50	0.50	0.45	0.43
Citizenship	0.51	0.52	0.45	0.41	0.35
Computer Studies	0.65	0.60	0.56	0.53	0.51
Design and Technology	0.55	0.47	0.51	0.45	0.46
Drama	0.55	0.55	0.45	0.47	0.42
English Language	0.62	0.62	0.53	0.51	0.46
English Literature	0.58	0.57	0.50	0.48	0.43
Food and Nutrition	0.61	0.59	0.53	0.51	0.47
French	0.53	0.54	0.45	0.43	0.38
Geography	0.68	0.65	0.59	0.56	0.52
German	0.53	0.54	0.45	0.42	0.38
History	0.60	0.59	0.52	0.48	0.43
ICT	0.52	0.43	0.49	0.46	0.38
Maths	0.78	0.66	0.72	0.66	0.63
Media Studies	0.50	0.41	0.48	0.42	0.38
Music	0.56	0.55	0.50	0.44	0.45
Physical Education	0.60	0.56	0.52	0.49	0.46
Physics	0.60	0.52	0.52	0.47	0.46
Religious Education	0.53	0.52	0.46	0.44	0.37
Science Combined	0.66	0.59	0.56	0.55	0.50
Sociology	0.48	0.39	0.48	0.40	0.34
Spanish	0.45	0.44	0.38	0.37	0.35
Statistics	0.72	0.60	0.60	0.67	0.57

Attainment 8 score is a summary score used in England.

Table 3.7: Correlation of CAT4 Mean and GCSE (GL Assessments, 2018)

As shown in the tabulated data, the best correlation between all the core subjects of English, Mathematics, and Science for middle school students was the CAT4 Mean and henceforth the CAT4 Mean Stanine scores were considered for this quantitative analysis (GL Assessments 2018). If the student attainment scores were of the same stanine as their CAT4 Mean stanine, the outcome was rated as **Expected** or **E**. Similarly, if student attainment stanine was above their CAT4 mean stanine, their performance was rated as **Above Expected** or **AE** whereas if the attainment was below the CAT4 Mean stanine, the outcome was rated as **Below Expected** or **BE**. This process was followed for all the core subjects of English, Mathematics, and Science. This is explained by the GL Assessments (2018) as indicated below:

Test Combination	CAT4 ability scores used for comparison	Attainment being compared
CAT4 + PTM	Quantitative Reasoning	Maths attainment
CAT4 + PTE	Verbal Reasoning	English attainment
CAT4 + NGRT	Verbal Reasoning	Reading attainment
CAT4 + PTM + PTE	Quantitative Reasoning Verbal Reasoning	Maths attainment English attainment
CAT4 + PTM + NGRT	Quantitative Reasoning Verbal Reasoning	Maths attainment English attainment

Table 3.8: CAT4 and PT Combination (GL Assessments, 2018)

Finally, the percentages of students having attained in the expected or above expected range were calculated to indicate the effectiveness of the gifted programming options offered by the school as a supplementary measure to the qualitative findings.

3.7.2.2 Student Academic Motivation Scale Data Analysis

For this part of the study, the nationality, gender, and age were the Independent Variables (IV). Each component of student motivations was the Dependent Variable (DV). The AMS tool uses a 7-point Likert scale measurement with “does not correspond at all” being 1, ‘correspond a little’ corresponding to 2, and so on with ‘corresponds exactly’ being 7. An amended copy of the AMS tool is enclosed in the Appendices. The only amendments envisaged are changing the ethnicity to include the seven categories (Emirati, European, American, Indian, Other Asian, and others) to make it relevant to the local student population alongside keeping the age selection relevant to the middle school learners. This study involves the cross-sectional survey design as it involves the collection of data at one point in time (Creswell, 2012).

In the current study, the data was analysed using the SPSS software version 23. Descriptive statistics developed a part of data analysis procedure. An explanation of the findings and typical values formed the essential role of descriptive statistics (Brace et al., 2009). Previous study using the AMS tool found alpha coefficients of 0.77 for ‘identified regulation’ and 0.9 for ‘amotivation’, which was sufficient to establish good internal consistency. Liu et al. explained that both internal consistency and confirmatory factor analysis extended strong evidence for the AMS and its interpretation (Liu et al., 2017).

3.7.2.3 Student Demographic Data Analysis

The demographic data items like the nationality and gender of all students were used to statistically analyse the student background based on the identification of giftedness. The intent of this analysis was to see if the gifted students identified across international schools was indicative of the Dubai population and any notable findings were reported in detail.

3.7.3 Qualitative analysis of the effectiveness of the gifted education programs

The information collected across the steps above for all the participating schools were utilized to analyse any specific improvement in student outcomes and the corresponding component in the gifted education programs. The qualitative data collected from the gifted administrators or other educators based on the NAGC GEPS would help the researcher to examine the gifted provisions across the learning and development, assessment, curriculum planning and instruction, learning environment, programming and professional development areas and what impact these had on the student outcomes in the cognitive and affective domains. The data collected from the administrators of gifted education, quantitative evaluations, and the KHDA reports will help in the triangulation process. This would be extremely helpful in making meaningful contributions to the field of gifted education within Dubai.

The limitations of the study and the ethical considerations are discussed in the following subsections.

3.8 Limitations of the study

The study intended to have a sample of participating schools in proportion to the existing private schools of different popular curricula in Dubai. The researcher aimed to have at least 3 schools offering UK curriculum as participants but only 1 school agreed to participate in the study. Although the total number of participating schools were in accordance with the envisaged sample, the breakup of participating schools based on curricula was not met. Some schools identified for participation based on their KHDA reports were apprehensive regarding their participation despite assurances from the researcher about maintaining their anonymity. This was the first limitation of the study.

The researcher planned to include schools which offered gifted provisions for at least the past 2 years to evaluate the effectiveness of its provisions (KHDA, 2020). However, one of the participating schools had its gifted programs in the initial phases and the researcher could not maintain the original plan. Since the main objective was to have schools of all the popular curricula represented in this study, the researcher included this US curriculum school as a participant. In addition, owing to the Covid-19 circumstances and the additional stress on students and educators during these difficult times, the number of students having completed the AMS surveys were well below the expected number and hence this data may not be truly representative of the gifted middle school students in Dubai.

One of the chief limitations of the current study was the limited number of participating schools and hence the findings could not be truly representative of the local context, but generalizability of data was not the purpose of this study (Fraenkel et al., 2019). In that

sense, this was not strictly a limitation. Another limitation of the study was the dearth of literature regarding gifted education in the UAE context with the only one study conducted across public schools by AlGhawi (2017) available for reference, the researcher could learn from previous studies from different cultural contexts. Also, the NAGC standards may need to be adapted to make it appropriate for the UAE context, though the 6 standards were comprehensive and applicable on most occasions.

The succeeding limitation of the study was the difficulty with avoiding researcher bias. Being a leader of gifted programs in a private school and public school, there may have been some prejudice from the researcher. Keeping the ethical considerations in mind, the researcher tried to be fair and interpret information with an open mind consistently during the study. This was especially true while conducting interviews with the participating educators when the researcher avoided sharing personal thoughts to influence the perceptions of others. Most of this bias could be overcome by validating the information received by the educators with the comments by the inspection authorities in the KHDA reports (KHDA 2020).

Some additional limitations arose from the fact that the study used mixed methods of research design that required persistence in terms of understanding both qualitative and quantitative methods, learning about the standardised assessments used by the UK, US, IB, and Indian curriculum schools and statistical analysis. The researcher attempted these requirements to the best of the abilities and sincerity.

Finally, the Covid-19 circumstances created limitations in access to some of the schools. The researcher managed to personally interview each educator either by physically meeting them or via Zoom. However, the number of student surveys received were

limited due to Covid-19 situations and number of follow-ups required from the researcher and the educators.

3.9 Ethical considerations

The researcher followed the ethical procedures expected in any educational research to ensure that none of the participants were exposed to any kind of discomfort or harm during this study. This research was a *low-risk* category as it involved direct interactions with the educators responsible for the gifted provisions only from each participating school. The letter from the British University in Dubai was presented to the relevant authorities to seek approval for access to educators of gifted programs with the detailed explanation of the purposes of the study. A copy of this letter is enclosed in the Appendices.

Free and informed consents were obtained by all school authorities clearly stating that their participation was voluntary and that their identity would be anonymous throughout the duration of the study. The individual educators managed the student surveys and remained the point of liaison for the researcher thus avoiding any direct contact with the gifted students in the process. The research methods involved interviews with educators, student standardised test data and student survey data. As part of data collection, any referencing between the respondents and their answers were made using a coding system or an ID system (Creswell, 2012).

The researcher reported all the findings and weaknesses in a fair manner, keeping in mind the ethical requirements of a good pragmatic study. The confidentiality of all the research data was maintained during the entire timeline of the study. Few recommendations for

future research were a part of the chapter for conclusions. The findings of the study guided the results, discussion, and the implications for practice and further research regarding the gifted programs across the middle years in the private schooling sector in Dubai (Creswell 2012).

The researcher respected the anonymity of the participants and data, followed the ethical conduct with full responsibility in accordance with subject-specific and University Research Policy (9.3 Policies and Procedures Manual), as well as any other condition laid down by the BUiD Ethics Committee; continuing with the study only after receiving the approval from the BUiD Ethics Committee.

The crucial purposes of the current study were to share best practices and present recommendations to support the implementation of the gifted education provisions and services across private schools, while advocating for Gifted Education Standards and a Federal Policy by the local authorities. The researcher truly applied the expected ethical principles to gather information, interpret, evaluate, and convey the findings; the researcher suggests that the local educational authorities believe the conclusions of the current study, and fulfil the recommendations in the near future.

CHAPTER FOUR: RESULTS

The teacher is of course an artist but being an artist does not mean that he or she can make the profile, can shape the students. What the educator does in teaching is to make it possible for the students to become themselves. (Paolo Freire in Martin 2018, p. 152).

4.1 Overview

The current study attempted to investigate the gifted programming options offered at private schools in Dubai alongside evaluating its effectiveness. The objective of this chapter was to present the information gathered for the purposes of answering all the research questions pertinent to this study as follows:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

As explained in the previous chapter, the current investigation followed the exploratory sequential mixed methodology using pragmatic paradigm for representing the issues of equity in inclusive education for the underrepresented gifted learners (Creswell, 2012). The preliminary and chief inquiry of the present study was to explore the gifted programming options offered using qualitative methods and the researcher conducted

individual interviews with the educators responsible for the gifted provisions at each of the participating schools.

4.2 Qualitative Results: Master List of Structured Interview Questions

A total of 6 interviews were conducted using the *Master List of Structured Interview Questions* that comprised of 21 open-ended questions. The responses of each educator are shown below as expressed by them. Each respondent was coded ‘**R**’ with the type of curriculum followed by the school, namely, **IBR1**, **IBR2**, **UKR**, **INDR1**, **INDR2**, and **USR**. The responses received provided evidence for Research Question1 and formed the Step 1 of this study. Although some of the questions cover multiple standards of NAGC, only the major standard is indicated in the table.

For the purposes of understanding the specialized services level, the current rating of the school by the KHDA is listed below:

IB Curriculum 1: KHDA 2018-19 rating Very Good (KHDA 2019)

IB Curriculum 2: KHDA 2018-19 rating Very Good (KHDA 2019)

UK Curriculum: KHDA 2019-20 rating Good for Inclusion (KHDA 2020)

Indian Curriculum 1: KHDA 2019-20 rating Very Good for Inclusion (KHDA 2020)

Indian Curriculum 2: KHDA 2019-20 rating Good (KHDA 2019)

US Curriculum: KHDA 2019-20 rating unavailable as school was not inspected due to Covid (KHDA, 2020)

Note: The US Curriculum school was due for its first inspections by the KHDA in the academic year 2019-20 but this was not possible due to Covid circumstances. Also, the gifted programming options were considered under the Inclusion category by the local authorities (KHDA, 2020).

The evidence gathered has been tabulated below with the information received by all educators below to answer the research question:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

Q1.	Describe the services and programs that are provided for the gifted students in your School within Dubai Educational zone?	NAGC Standard 1 and 5
IBR1:	Spell Bee, World Scholars Cup, internal competitions, and activities. Enrichment club, Science and Math exhibition, music talent contest and in school musical shows and concerts.	GIFTED SERVICES & PROGRAMS
IBR2:	There is a dedicated Gifted and Talented student enrichment program in our school which focuses on providing support to students who excel in a particular academic and/or extracurricular field.	GIFTED SERVICES & PROGRAMS
UKR:	The school is at an introductory phase when it comes to G&T services within the school. We have started with	

	<p>Advanced Learning Plans, Independent projects and Group projects for students, and extended tasks within the class.</p> <p>The students have been participating in various competitions and programs.</p>	<p>GIFTED SERVICES & PROGRAMS</p>
INDR1:	<p>Academic progress: Effective assessment for learning that informs the planning of challenging curricular targets and differentiated learning objectives.</p> <p>Additional stretch being provided through a combination of enrichment, extension, and acceleration.</p> <p>Opportunities for independent learning, Support in specific areas, Enrichment- competitions, Visits, Field trips, Visiting experts, Interest groups – art, drama, dance etc., Sports training, Language classes after school, and Events.</p> <p>Accelerated Learning plan for G&T students: Aimed at developing higher order thinking skills and encouraging independent thought on current global issues or area of their interest. ALPs are written within 3 weeks school days of a new identification. In secondary schools and primary, ALPs once in a term. Teachers, Parents and Students are invited to participate in creation of personal goals and achievement goals with support of the GT staff. Each goal will be reviewed at the end of the term to accommodate for the</p>	<p>GIFTED SERVICES & PROGRAMS</p>

	changing needs of students and changing schedules at each building. Students are asked to contribute to their plans. A copy of the ALP is placed in the student's portfolio file.	
INDR2:	<p>Pupil passport - one page summary document about the students falling in Tier1 and Tier2 gifted categories. It contains the personal details, learning styles, strengths as well as challenges from CAT 4 and strategies for teachers. The document is shared with all staff coming in contact with the child.</p> <p>ALP (Advanced Learning Plan): Students in Tier 1 have Advanced Learning Plans (ALP) that are matched to the identified need, age and developmental level of the individual student, it lays out areas of strength and challenges and individual targets that are mapped to every block, subject specific projects that is within the area of interest of the child and recommendation for teachers. The plans are reviewed every two blocks by their subject mentors (Subject teachers).</p>	<p>GIFTED SERVICES & PROGRAMS</p>
USR:	Extension and enrichment activities, clubs, extracurricular activities, STEM projects, PBL.	

Q2.	What are the current strengths of the services and programs provided for gifted students?	NAGC Standard 1 and 5
IBR1:	Individual teachers support the identified TAG students through TAG passport information put together by the Inclusion department's TAG Coordinator and Head of Inclusion. This information involves teachers providing TAG students with challenging lesson objectives, enrichment activities and/or accelerated programmes. Additional services include TAG students being assigned to individual projects or research studies, attending lectures, debates or educational seminars, participating in specialized educational tours or in competitions (such as 'The Quest', ASSET, Math and Science Olympiads, World Scholars' Cup, etc.), or increasing opportunities to use problem solving skills, programmes of leadership, communication and other enrichment opportunities involving sports, music, art and/or drama.	STRENGTHS OF THE GIFTED SERVICES & PROGRAMS
IBR2:	It is a longstanding programme, and the teaching staff is well aware of the nomination process, so this works very well in ensuring the process runs smoothly. It is	STRENGTHS OF GIFTED

	a programme that is well liked by the students and the parents and the gifted students are able to enhance many advanced skills such as their communication, research and collaboration.	SERVICES & PROGRAMS
UKR:	It is at a developing stage.	
INDR1:	Rigorous identification system, each student identified as Gifted and Talented has an up-to-date G&T Student Profile, all students identified as G & T have taken part in enrichment activity per year, all teaching staff have received information on how to support and challenge Gifted and Talented students in the classroom, and communication with parents.	STRENGTHS OF GIFTED SERVICES & PROGRAMS
INDR2:	Our current service model is based on the strength and challenges of each student. The individual academic targets are prepared for every block, subject specific projects that is within the area of interest of the child.	
USR:	Just started identifying gifted students.	

Q3.	In what ways might the services and programs for gifted students be improved?	NAGC Standard 1 and 5
IBR1:	More opportunities to develop their critical thinking and the ability to reach out to others without any inhibitions.	POSSIBLE IMPROVEMENTS
IBR2:	Students during this time in the pandemic have not been able to have the same access of opportunities so the focus for upcoming development in the program is creating a catalog of online events which they can participate in.	POSSIBLE IMPROVEMENTS
UKR:	Could have extra coaching classes for students within the school. Accelerated programs in their subject areas of giftedness.	POSSIBLE IMPROVEMENTS
INDR1:	Integrated learning in settings beyond the classroom.	POSSIBLE IMPROVEMENTS
INDR2:	We could improve in shaping the programmes and services unique to the strength and capacity of each student in the last couple of years.	POSSIBLE IMPROVEMENTS
USR:	Skill based activities.	POSSIBLE IMPROVEMENTS

Q4.	Gifted students can vary dramatically from one another in terms of their ability levels. Do you have a range of services and programs to meet the needs of gifted learners? If so, please describe.	NAGC Standard 1 and 5
IBR1:	Yes. Programs such as Mathletics, Enhancement club, Coding club, Book club, Drama club, debates, quiz, peer tutoring and extempore.	RANGE OF SERVICES
IBR2:	There is a very comprehensively developed strategies bank that teachers have access to act as a template for their plans. Additionally, they can always contact the coordinator to ensure we can address the needs of the students.	RANGE OF SERVICES
UKR:	The services within the school are projects, advanced learning plans, and extended tasks within the general classroom. It is yet to be embedded across the school.	RANGE OF SERVICES
INDR1:	Depending on the ability, students are provided either one or two or the combination of the following- Pull-out programs, advanced classes, varied grouping strategies, acceleration, differentiation of curriculum and instruction, Curriculum Compacting, Grouping, Tiered Assignments, and teacher training.	RANGE OF SERVICES

INDR2:	Our Advanced Learning Plans are designed to target the development of student in specific academic areas / areas of student's interest. It also ensures that the child is not pressurized in any of the areas that he/she is not interested.	RANGE OF SERVICES
USR:	Students needs are met according to their interest and their learning style.	RANGE OF SERVICES

Table 4.1: Master List of Structured Interview Questions 1-4 Findings

These interview findings were validated with each school's recent annual inspection report published by the KHDA available on their website (KHDA, 2020). Based on the detailed analysis of the information received, the KHDA findings and guidance from the relevant NAGC Standards; the strengths and weaknesses of the gifted programming options provided by each school are presented in the appropriate subsections.

4.2.1 Standard 1: Learning and Development

The NAGC Standard 1 acknowledges the unique developmental and learning needs of the students with gifts and talents and clearly states the research-based practices that advance the students' self-awareness, cognitive and affective progression with expected learner outcomes in educational settings. All the participating schools made the students with gifts and talents aware of their individual strengths, and interests. This information was available by the gifted educator from each school and validated by the KHDA school inspection reports.

IB Curriculum School 1:

Strengths:

Based on the educator's interview, the IB school developed student profiles with their unique strengths, weaknesses, interests while listing the gifted programming options of challenging learning objectives, individual projects assigned, academic acceleration, and enrichment opportunities inside and out of school. These profiles were designed collaboratively by the Gifted Coordinator, Head of Inclusion, teachers, students, and parents and were in accordance with the evidence-based practices for NAGC Standard 1.1, 1.2 and 1.3 of Self-understanding and Standard 1.4 of Awareness of needs and utilizing it within their lessons.

According to the KHDA annual inspection report 2018-19, the students demonstrated outstanding understanding of their own cultural background and world culture, the needs of gifted learners were met on most occasions, the inclusive ethos of the school was commended upon alongside the involvement of parents in the learning journey, students received praiseworthy career advice by the counsellors, and the collaboration between various stakeholders were noteworthy. These remarks by the annual inspection team shows that the school meets the Standard 1.6 of Cognitive Growth and Career Development in addition to those mentioned above.

Weaknesses:

The areas that the IB school could work upon within this standard would be to provide role models to the gifted students matching to their interests or abilities (NAGC Standard 1.4), develop interventions for underachieving gifted students to support them achieve

their learning, plan specific interventions for enhancing the learners' affective growth (NAGC Standard 1.5), and implement learning plans including their personal, social, and emotional progression for their gifted students (NAGC Standard 1.6).

IB Curriculum School 2:

Strengths:

Based on the educator's interview, the IB school provided appropriate enrichment opportunities to students with gifts and talents within the school and with external providers. These programs were designed collaboratively by the gifted coordinator, teachers, students, and parents and emphasised on the communication, collaboration, and research skills. These enrichment options were in accordance with their areas of interest and strengths and were appreciated by learners and their parents. The well-planned enrichment programs were evaluated annually by the teachers and gifted coordinator and next steps designed based on the feedback. These practices provided evidence for NAGC Standard 1.1, 1.2 and 1.3 of Self-understanding and Standard 1.4 of Awareness of needs and utilizing it within their lessons.

According to the KHDA annual inspection report 2018-19, most students' academic attainment was in the expected levels in correlation to their ability. Their personal and social development combined with robust understanding of the UAE culture and progress demonstrated in innovation skills were the strengths of the school alongside fostering an inclusive environment and maintaining positive relations among students, teachers, and parents. Learners were also provided with emotional support and career counselling by the school along with options to select from vocational courses. These remarks by the

annual inspection team shows that the school meets the Standard 1.8 in addition to those mentioned above.

Weaknesses:

The areas that the IB school could work upon within this standard would be developing consistency in teaching standards, provide role models to the gifted students matching to their interests or abilities (NAGC Standard 1.4), develop interventions for underachieving gifted students to support them achieve their learning, plan specific interventions for enhancing the learners' affective growth (NAGC Standard 1.5).

UK Curriculum School:

Strengths:

As explained by the educator, the provisions for the students with gifts and talents were in the initial stages and they had introduced ALPs, individual and group projects, extension tasks within lessons and participation in various competitions and programs. Learners became challenged within their specific domains with guidance by their subject mentor. The UK school reported a few evidence-backed practices within the NAGC Standard 1.1, 1.2, and 1.3 of Self-understanding, 1.4 of Awareness of needs, and 1.5 of Cognitive, Psychosocial and Affective growth.

According to the KHDA school inspection report, the students' displayed well developed personal and social skills and care for one another alongside healthy relations with staff members. Parental involvement in the learning of their children was reported to be satisfactory. The learners with gifts and talents were precisely identified and provided with suitable extension activities. Other comments included the numerous programming

options offered in accordance with student interests, career guidance and work experience. These findings were in line with a few of the expected practices within the NAGC Standard 1.1, 1.2, 1.3, 1.4, and 1.5 of Self-understanding, Awareness of Needs, and Cognitive, Psychosocial, and affective growth.

Weaknesses:

In general, this school reported basic services for gifted learners but improvement in most areas were required to cater to their unique needs. The students with gifts and talents did not seem to have any documentation that made them and teachers aware of their strengths, and weaknesses along with the teaching practices were noted to be weak and lacking in differentiation needed for the advanced students. These drawbacks led to the lack of self-understanding and awareness of needs by the students with gifts and talents and their parents. There were no noted interventions for underachieving gifted students or special support services for gifted students. Improvements across all areas described in NAGC Standard 1 were required at this stage.

Based on the KHDA report 2019-20, the teaching strategies did not adequately meet the needs of the different groups of learners, parental awareness of the individual needs of their children needed increased efforts to ensure progression of learning out-of-school, staff needed professional development in differentiation practices, enhanced support for gifted students was recommended across academic and non-academic areas, and further development was needed for improvement in the students' cultural knowledge (NAGC Standard 1- all sections).

Indian Curriculum School 1:

Strengths:

The educator reported that the Indian curriculum school had designed the individual student profiles and Advanced Learning Plans (ALPs) for the identified gifted students in collaboration with all stakeholders. The school also provided suitable enrichment opportunities, a variety of programming options like advanced classes, acceleration opportunities, flexible grouping strategies, pull-out programs and differentiated teaching within lessons and socio-emotional support by teachers and school counsellor thereby demonstrating the evidence-based practices for NAGC Standard 1.1, 1.2 and 1.3 of Self-understanding, Standard 1.4 of Awareness of needs, standard 1.5 of Cognitive, Psychosocial, and Affective growth and utilizing it within their lessons.

According to the KHDA annual inspection report 2019-20, the students were appreciative of their own and others' cultural background. The learners also received some career guidance from counsellors, but this remained an area for improvement (NAGC Standard 1.6)

Weaknesses:

The areas that the Indian school could work upon within this standard would be to provide role models to the gifted students matching to their interests or abilities (NAGC Standard 1.4), develop interventions for underachieving gifted students to support them achieve their expected educational objectives and implement learning plans including the personal, social, and emotional progression for their gifted students (NAGC Standard 1.5). According to the KHDA recommendations, the school needed to improve the self-

awareness of students regarding their strengths, and weaknesses; and career guidance by school counsellors (NAGC Standard 1.3 and, 1.6)

Indian Curriculum School 2:

Strengths:

The school coordinator explained the development of pupil profiles which detail their learning styles, strengths and weaknesses, helpful strategies for teachers based on the learner cognitive profile, and their interests. Students meriting ALPs were identified as Tier-1 and additional information with strategies matched to their needs and areas of interests, individual goals, subject-specific projects based on their cognitive strengths were designed collaboratively with mentors and progress tracked every term. Teachers appreciated the student work and provided positive feedback whereas the school counsellor was available for any socio-emotional support or career guidance. These practices provided the evidence for meeting some of the expectations of the NAGC Standard 1.1, 1.2, 1.3 of Self-understanding, 1.4 of Awareness of needs, and 1.5 of Cognitive, Psychosocial and Affective growth.

According to the KHDA inspection report, learners demonstrated independence and were filled with pride about their school. They were respectful towards others and appreciative of the local culture. The parent body expressed their gratitude towards the commitment shown by the school leaders and governors to advance the support provisions, the plentiful resources made available to students, and excellent everyday management by the school including the particularly good health and safeguarding practices in place.

Students were inclined to peer tutor younger ones alongside some good innovative initiatives being offered at school.

Weaknesses:

Learning from the detailed practices from this standard by the NAGC, some of the areas of improvement for the Indian curriculum school would be enhancing the teaching strategies by including flexible grouping, identify out-of-school opportunities to satisfy the students' interests, collaborate with their families to support their talent development, identify underachieving gifted learners and design interventions to ensure their progression, and develop an effective curriculum by the school counsellors comprising of personal and social awareness, educational planning with vocational and improved career guidance to meet the NAGC standard 1.

The KHDA report commended the improved prospects of innovation, social responsibilities, and creativity offered to learners especially in the secondary phase, consistency in the teaching and learning practices, better self-reflection by teachers, recognise the achievement gap based on the student's cognitive profile and plan necessary interventions to address these gaps, promote the progression in the higher-order skills of students, monitor the efficacy of differentiation offered to learners, enhanced reading materials to be made available, improved use of technology as an effective learning tool, the need for teachers to have high expectations of their pupils, advance the level of challenges provided to students, and consolidate the initiatives already in place.

US Curriculum School:

Strengths:

The US curriculum educator elaborated that the school provided some enrichment opportunities, extension tasks, STEM projects, project-based learning, and extracurricular activities. and socio-emotional support by the school counsellor thereby indicating a few evidence-based practices for NAGC Standard 1.1, 1.2 and 1.3 of Self-understanding, Standard 1.4 of Awareness of needs, and standard 1.5 of Cognitive, Psychosocial, and Affective growth. This school initiated the process of identification and making provisions for gifted learners in the current academic year and was still in the beginning stages of developing appropriate learning experiences.

Weaknesses:

Since the participating US curriculum school was still in the initial stages of designing the gifted educational provisions, there are many recommendations like improving students' self-understanding in terms of strengths and weaknesses, culture-centered learning needs, creating research-founded strategies like flexible grouping, teachers catering to diverse needs of gifted learners (NAGC Standard 1.1, 1.2, 1.3); enhancing the gifted students' awareness by providing role models or mentors, improved collaboration with the families in their education (NAGC Standard 1.4); advancing the students' cognitive, psychosocial, and affective growth by advancing the socio-economic support, identifying and developing specific interventions for underachieving gifted students, making teachers aware of the learners' preferred approaches to education (NAGC

Standard 1.5); along with improved career advice and learning plans with personal, social, and emotional progressions (NAGC Standard 1.6).

The information collected for the subsequent couple of questions provided evidence of the NAGC Standard 3 of Curriculum Planning and Instruction in addition to the Standards 1 and 5.

Q5.	Research shows that gifted students may be identified and served in the general intellectual domain or in specific academic domains (e.g., math but not language arts and vice versa). Are students being served in your school who may qualify in only one area such as math or language arts?	NAGC Standard 1, 3 and 5
IBR1:	Both areas are supported.	SPECIFIC SERVICES
IBR2:	Absolutely, a large number of students in the programme are focusing on one area whether this be a subject in school, sports, creativity or leadership etc.	SPECIFIC SERVICES
UKR:	Students are challenged within their specific domains. A student who is gifted in Math/Science will do an independent project on a topic of his interest, under the guidance of his/her mentor.	SPECIFIC SERVICES
INDR1:	Yes- Visual Arts, Performing Arts, Music, sports, and Dance.	SPECIFIC SERVICES

INDR2:	Yes. We do support such students through setting academic tasks and giving challenging targets in specific subjects according to their area of giftedness.	SPECIFIC SERVICES
USR:	Yes.	SPECIFIC SERVICES
Q6.	Do you have any additional comments regarding how students are served?	NAGC Standard 1, 3 and 5
IBR1:	Challenges are being provided in the form of advanced work with open ended questions, research, extended work, peer tutoring, self- marking, and projects.	ADDITIONAL COMMENTS
IBR2:	I believe the process is smooth and there is a strong culture of feedback and collaboration between each stakeholder in this process.	ADDITIONAL COMMENTS
UKR:	No.	ADDITIONAL COMMENTS
INDR1:	No.	
INDR2:	No.	
USR:	No.	

Table 4.2: Master List of Structured Interview Questions 5-6 Findings

Questions 7 through 12 required the educators to respond to the significant procedures of gifted identification within the NAGC Standard 2 of Assessment.

Q7.	Please describe your identification process (at each building level).	NAGC Standard 2
IBR1:	A student is identified as TAG either through a referral by the homeroom or subject teacher, parents, or based on the scores of standardised testings (CAT4, PTE, PTM, PTS, etc.) carried out over the course of the school year. This is further validated by triangulating these across against the student's progress test scores and through teacher information on the student, collected through the Renzulli Scale form. The register for TAG students is maintained by the Head of Inclusion and the school's TAG Coordinator and reviewed by the Heads of School to determine whether the student being considered merits inclusion into the TAG programme on offer at XXX.	IDENTIFICATION
IBR2:	Normally at the first level, the relevant teaching staff or coordinator will observe the student for characteristics that show they have a exceptional ability in the subject. Proceeding this, there are	IDENTIFICATION

	<p>evaluation forms for each department which once the parent of the child has consented to, are completed, and sent to the coordinator.</p> <p>At this stage, the coordinator assesses the previous work and grades of the student in the subject and compares this against standardised test results, previous references etc. Following this, if the student is accepted onto the program, they are asked to complete a learning and progress plan with their teacher/mentor and then this is regularly followed up on by the coordinator.</p> <p>This process is also similar to the one used for students who are part of the program in non-academic fields as well. This includes creativity/sport/leadership through which the relevant coach/mentor will be involved.</p>	
UKR:	<p>Identification is through CAT4, GL PTs, Parent referrals, Teacher referrals and observations in class. Renzulli's checklist. Data gathered from the external and internal assessments are triangulated with the teacher's observations and feedbacks. If there are any</p>	IDENTIFICATION

	discrepancies, we use the Renzulli's checklist to further confirm.	
INDR1:	<p>Quantitative data including available test data and results of teacher assessment (ASSET and CAT4 scores). Qualitative information, including teacher assessment, and examples of students' work.</p> <p>Rate of progress, reference to prior attainment and/or achievement (as recorded formative and summative).</p> <p>Teacher Nomination</p> <p>Parental nomination -This information will be collated by the G & T Co-coordinator and will be made available to all staff via email. The Gifted and Talented register will be reviewed and updated annually.</p>	IDENTIFICATION
INDR2:	<p>We identify gifted children through their pre- school records, discussions with parents and carers and assessments that give us information about their developing skills and aptitudes across the various areas of learning. We assess the student regularly to ensure the progress we expect of them. We do consider the assessments like CAT4 and ASSET for</p>	IDENTIFICATION

	identification. Teacher observation and nomination, teacher assessments and pupil's works are also considered for the same.	
USR:	We identify students on the basis of their MAP scores and CAT4 data.	IDENTIFICATION
Q8.	What are the strengths of the school's identification process?	NAGC Standard 2
IBR1:	Clear identification in all domains. (According to Renzulli Scale the three domains are Above Average ability, above average Creativity and Task commitment).	STRENGTHS OF IDENTIFICATION
IBR2:	The current identification process has worked well in ensuring that students are able to be nominated by their teachers and then are creating plans with the teacher as well and this has helped create excellent long-term working relationships between the students, parents, teachers, and the coordinator.	STRENGTHS OF IDENTIFICATION
UKR:	As we are in the introductory phase, I would say that one key factor is that we do not just rely on assessments, instead we look into the teachers and	STRENGTHS OF IDENTIFICATION

	parents' feedback along with an interview of the students to have a confirmation on the identification.	
INDR1:	CPD's are provided to educators to Identify and address for personal growth for teaching students.	STRENGTHS OF IDENTIFICATION
INDR2:	We consider assessments like CAT4 and ASSET scores in identification and to ensure that the student shows improvements in the specific areas of giftedness as he moves to higher grades.	STRENGTHS OF IDENTIFICATION
USR:	Students are screened using CAT4 data, teachers and parents' recommendations and their needs are met according to their interest.	STRENGTHS OF IDENTIFICATION
Q9.	What are the weaknesses of the school's identification process?	NAGC Standard 2
IBR1:	Due to it being computerized assessments, there is an element of guess work.	WEAKNESSES IN IDENTIFICATION
IBR2:	Due to the subjective nature of the nomination process, there may be some concern regarding the students who are not nominated by the teachers. There may also be less coordination between departments and due to this, students in multiple programs may not receive coordinated support.	WEAKNESSES IN IDENTIFICATION

UKR:	At the present, having the teachers to understand and triangulate the data is a task. Often there is reluctance from teachers' side, as they feel an identified student be it SEND/GT will always end up in more work.	WEAKNESSES IN IDENTIFICATION
INDR1:	Sometimes teachers think its extra work for them and therefore do not refer students on time. Turnover of the teachers leads to disturbance in the identification process.	WEAKNESSES IN IDENTIFICATION
INDR2:	It is noted that there is a mismatch between the actual performance and the scores which some of the students gets from assessments like CAT4/ASSET.	WEAKNESSES IN IDENTIFICATION
USR:	We have other screening tools too.	WEAKNESSES IN IDENTIFICATION
Q10.	Do you have any suggestions for improving the identification process?	NAGC Standard 2
IBR1:	Providing children with an advanced level compared to their current level.	IDENTIFICATION SUGGESTIONS
IBR2:	I think that there needs to be an increased level of coordination between departments and there needs to be a more regular evaluation of compliance with the procedures. This is because there are certain	IDENTIFICATION SUGGESTIONS

	departments that are more engaged with the program and perhaps some who still have questions and concerns with how they can integrate this into their subject/field.	
UKR:	Have centralized data system in schools, that can evaluate both external and internal data's for identifying students. This can further be clarified by teachers; this would save a lot of time.	IDENTIFICATION SUGGESTIONS
INDR1:	CPD's are provided to educators to Identify and address for personal growth for teaching students.	IDENTIFICATION SUGGESTIONS
INDR2:	Those teachers participate in professional development should sustain in school. Teachers need to be prompt in regular follow-ups and seek evidence of impact on teacher practice and on student learning.	IDENTIFICATION SUGGESTIONS
USR:	Renzulli scale is very good and can be used.	IDENTIFICATION SUGGESTIONS
Q11.	Please describe the school's exit procedure for students who are not successful in the program.	NAGC Standard 2
IBR1:	The teacher will keep a record and/or portfolio of student work that reflects the student's performance and progress in the program with respect to class	EXIT PROCEDURE

	<p>expectations. If a teacher observes a student to be having difficulty meeting learning targets, prompt and regular communication with parents is expected, there by informing parents of student's removal from the TAG program me. Parental request for Withdrawal. Students written request for withdrawal with parents' permission. Teacher's recommendation based on observation of student's behaviour, performance, products, and the submission of data to support the recommendation.</p>	
IBR2:	<p>Every year there is a survey which is sent to each mentor/teacher who has been appointed to support the students and they are asked whether or not they wish to re-nominate the students into the program for their particular field once again. If they do not believe that the student has been successful in the program, then they will be asked to justify this and substantiate this claim through evidence and examples. In this case, the student will also be asked to meet with the coordinator to evaluated whether or not a different type of support or re-assessment is needed for them to continue in the program.</p>	<p>EXIT PROCEDURE</p>

UKR:	There is nothing in place yet, would probably look into a slow back off procedure, rather than exiting them totally from the list.	EXIT PROCEDURE
INDR1:	If a student fails to comply in the Gifted and Talented Program with behavioural expectations listed in The Student Code of Conduct (in school). He or she is explained about it and moved out of the program. Parents and teachers are informed. Portfolio is updated.	EXIT PROCEDURE
INDR2:	We do not have an exit procedure/plan for gifted students.	EXIT PROCEDURE
USR:	This is the first year of the program so no such experience.	
Q12.	Do you have any suggestions for improving the exit procedure?	NAGC Standard 2
IBR1:	If a student exits the program, he/she may be required to do a re-test in order to be placed in the program during a future school year.	SUGGESTIONS: EXIT PROCESS
IBR2:	There have not been many instances where the students are not re-nominated into the program and the success rates of this are very high. The current exit process	SUGGESTIONS: EXIT PROCESS

	works well to ensure that no student is arbitrarily removed from the program and there are many provisions that exist to ensure that we try as much as we can to retain students and motivate them to explore their interests.	
UKR:	No.	SUGGESTIONS: EXIT PROCESS
INDR1:	Specific Counselling sessions for the parents and students. (Transition Process)	
INDR2:	Not Applicable.	
USR:	No.	

Table 4.3: Master List of Structured Interview Questions 7-12 Findings

4.2.2 Standard 2: Assessment

This standard imparts significant understanding and information regarding assessments including identification of students with gifts and talents. The learning progression of students with the expected outcomes, and appraisal of the gifted provisions across the cognitive and affective domains are described clearly. All the participating schools identified learners with gifts and talents although the process of identification varied from one to another. The common standardised test used by all the private schools was the Cognitive Ability Test (CAT4) by GL Assessments that provided individual scores in the Verbal, Non-Verbal, Quantitative, Spatial and the overall Mean for each student. This

assessment was mandated by the KHDA since the past 5 years (KHDA, 2016) and ensured consistency in the identification procedures across all private schools. Other assessments and practices used by the participating schools are discussed in the subsequent sections.

IB Curriculum School 1:

Strengths:

According to the information received by the relevant school authority, the IB school had comprehensive identification procedures that included nominations from the teachers, parents, or students; Renzulli Scale forms and a further reference from the standardised attainment assessments called the Progress Tests in English, Mathematics and Science from GL Assessments for the academically inclined advanced learners. The identification data was shared with all teachers to allow effective differentiation within lessons including instructional and environmental adaptations suited to most learners. The identified students with gifts and talents were from diverse cultural backgrounds, some needing English language support services, with a few being twice exceptional in their abilities and needs. Parents were made aware of the individual needs and contributed meaningfully to their child's learning on most occasions. Each student's progress was effectively monitored using formative and summative assessments. The school had appropriate entry and exit procedures for students with gifts and talents, committee review by the Head of Inclusion, the Gifted Coordinator, and the Senior Leaders. The teaching staff managed individual student portfolios and when any student struggles to meet their goals, parents were informed before exiting the learner from the program.

The latest KHDA report commended the inclusive practices of this school including the accurate identification of individual needs of learners and the collaborative efforts by all stakeholders to ensure the continuous learning progression for all students.

The above information gathered illustrates that the IB school had effective strategies in place and met many of the evidence-based indicators of NAGC Standard 2.1, 2.2, 2.3 of Identification along with 2.4 of Learning Progress.

Weaknesses:

The areas that the IB school needed improvement within this standard were the evaluation of its programming for students with gifts and talents with specialized action plan for annual evaluation using established standards like the NAGC GEPS for continuous improvement alongside identification procedures in the students' native language and self-assessment by learners to set personalised goals and tracking their individual progression according to the NAGC Standard 2.4 (NAGC 2019).

IB Curriculum School 2:

Strengths:

Initially, the educators observe the learner for relevant characteristics that show they have an exceptional ability in specific areas. These observations were followed by evaluation forms completed by the teacher and forwarded to the gifted coordinator after receiving parental consent. The coordinator would validate data with student performances, anecdotal records, or other appropriate sources and the student would get access to specialized enrichment programs based on their merits. An individual learning plan with progress tracking would be meticulously planned in collaboration with the teacher,

coordinator, and parent. The same procedure applied for learners with non-academic talents including creativity, sports, or leadership. The gifted coordinator explained the well-developed exit procedures for learners from gifted programs. The information by the gifted coordinator gave evidence of meeting the NAGC standard 2.1, 2.2, 2.3 of Identification, and 2.4 of Learning Progress.

The latest KHDA report commended the inclusive practices of this school including the accurate identification of individual needs of learners and the collaborative efforts by all stakeholders to ensure the continuous learning progression for all students. Also, special mention was made for the outstanding learner performance in international assessments and meeting the UAE National Agenda Parameters. The progression of the innovation skills of the students were noted to be systematic alongside excellent personal and social skills. The above information gathered illustrated that the IB school had effective strategies in place and met many of the evidence-based indicators of NAGC Standard 2.

Weaknesses:

The areas that the IB school needed improvement within this standard were comprehensive identification procedures including utilization of the CAT4 or other assessment data for identification of gifted students. This concern was highlighted by the gifted coordinator in addition to voicing the inconsistencies in support received from numerous departments due to varied level of engagement in the gifted programming options. Similarly, the KHDA report also highlighted that the use of assessments was not consistent in tracking progress or providing appropriate challenges to the students with gifts and talents (KHDA 2019).

UK Curriculum School:

Strengths:

The Head of Inclusion described their identification procedures included use of quantitative data through CAT4, Progress tests in English, Mathematics, and Science by GL Assessments, other school-based testing, and use of Renzulli's checklists. In addition, qualitative data was collated from teachers' observations and feedback. The latest KHDA report also discussed the good identification practices of individual needs of learners. These inputs showed that presence of some research-based practices listed in the NAGC Standard 2.1, 2.2, and 2.3 regarding Identification.

Weaknesses:

The areas that the UK curriculum school needed improvement within this standard were the development of comprehensive identification of students with gifts and talents, student reassessments, formation of a suitable committee of educators to review the gifted and talented provisions, entry and exit processes, improved involvement of parents with the learning of their children, effective monitoring of the student learning progression over time, and timely evaluation of gifted education programming options. The UK curriculum school needs to put efforts to develop most of the strands of the NAGC Standard 2. The Head of Inclusion identified many of these improvements needed and expressed her dissatisfaction regarding the attitude of the teachers that were reluctant while giving their inputs about learners with gifts and talents as this expectation increased their work at school. The school would also need to invest in effective teaching differentiation practices to cater to the unique needs of the students with gifts and talents

alongside evaluation of programming which would only follow at later stage post development of good programming options for the deserving learners to meet the NAGC Standards of 2.4, 2.5, and 2.6.

Indian Curriculum School 1:

Strengths:

The detailed information received by the coordinator revealed that the school used quantitative data from standardised assessments like the CAT4 and the skill-based testing named ASSET alongside qualitative data in the form of teacher assessments, student work samples, teacher, and parent nominations to identify students with gifts and talents. Thus, the school demonstrated research-based practices as per the NAGC Standard 2.1 and 2.2. Being an Indian curriculum school, the student population was not diverse from a cultural backdrop but diverse in terms of needs, and henceforth Standard 2.3 was not relevant for this school. Additionally, the school reported regular monitoring of progress of student learning and achievement using both formative and summative methods and met a few of the indicators of NAGC Standard 2.4.

The latest KHDA report commended the inclusive practices of this school including the accurate identification of individual needs of learners and the collaborative efforts by all stakeholders to ensure the continuous learning progression for all students. The above information gathered illustrates that the IB school had effective strategies in place and met many of the evidence-based indicators of NAGC Standard 2.1, 2.2, 2.3 of Identification along with 2.4 of Learning Progress and Outcomes.

Weaknesses:

Some of the areas that the Indian school needed development within this standard were the evaluation of its gifted programming with specific action plan that would be reviewed annually utilizing rigorous standards like the NAGC GEPS for continuous improvement ensuring that every identified student achieves expertise in the relevant areas (NAGC Standard 2.5 and 2.6). The KHDA school inspection report discussed the need for teachers to use the standardised data effectively to cater to the needs of individual students, making students aware of their next steps in learning, improved feedback on research homework, enhanced support for student with gifts and talents in their cognitive and affective areas to meet the expectations of NAGC Standard 2 (KHDA, 2020).

Indian Curriculum School 2:

Strengths:

The school had put comprehensive identification processes in place which encompassed the anecdotal records, parental discussions, numerous assessments linked to the learners' skills and aptitudes, standardised assessments like the CAT4 and ASSET, teacher observations, tests and nominations, and student body of work. The KHDA report explained that the school used the assessment data including the use of standardised data effectively to track student progress. There was also special mention of the accurate identification of individual and group-based learner needs. These provided for the evidence of some of the research-backed practices as per the NAGC Standard 2.1, 2.2, 2.3 of Identification, and 2.4 of learner progress and outcomes.

Weaknesses:

The coordinator expressed the confusion created by the mismatch between the standardised cognitive and attainment assessments that demonstrated the lack of awareness regarding underachievement in gifted learners. No reflection regarding the improvement in the identification procedures was done. The school did not have an exit procedure in place.

The annual inspection report reiterated the academic achievement gaps between the learners' cognitive abilities and the attainment, particularly in science. It made clear remarks regarding the inconsistent use of student self-assessment and peer assessment to improve their learning. One recommendation by the inspection body was to use the assessment data to plan effective differentiation to cater to the individual needs of students. Another advice included improvement in the identification and support provisions of students with gifts and talents alongside development plans to close the achievement gaps in English. This discussion indicated huge improvements were required by the Indian curriculum school in terms of NAGC Standard 2 and especially in 2.5 and 2.6 of Evaluation of Programming.

US Curriculum School:

Strengths:

Based on the information received by the TAG coordinator, the school used quantitative data from standardised assessments like the CAT4 and MAP to identify students with gifts and talents. The MAP assessments are adaptive in nature, norm referenced tests that assess students' reading abilities and Mathematics skills. Additionally, the TAG

coordinator collated qualitative data from teachers and parents to add to the breadth of the identification processes. These findings showed that the US curriculum school demonstrated some evidence-backed practices of identification as per the NAGC Standard 2.1, 2.2 and 2.3.

Weaknesses:

The TAG coordinator explained that the identification process and provision of extension tasks are in the initial stages of development and hence many of the NAGC Standard 2.1, 2.2, 2.3 and 2.4 along with the other practices specified in the NAGC Standard 2.5, 2.5 and 2.6 would probably only be established later.

The data congregated for questions 13 and 14 offered the necessary evidence specifically for the NAGC Standard 3 of Curriculum Planning and Instruction.

Q13.	Is it your perception that the curriculum and instruction are at a more advanced level than a class for other students at the same grade level?	NAGC Standard 3
IBR1:	Yes. They are provided with extended work, research work, ability to mentor other students in the class.	CURRICULUM DIFFERENTIATION
IBR2:	The approach that students take with their teacher in the program does not necessarily mean that they will be attempting exclusively to learn advanced level content. They are often high-performing	CURRICULUM DIFFERENTIATION

	<p>students in the subject, but they are encouraged to find their niche interests in the subject and explore these through independent research and projects that nurture this. A good relationship between the student, teacher and coordinator allows for us to find opportunities for students to creatively explore these interests but this does not always mean they will be attempting advanced level content for their grade level. This is made very clear to teachers who are supporting these students that they should not just be using their gifted students as an ‘aide’ in class or direct them to find advanced level question banks.</p>	
UKR:	<p>The curriculum and the instruction level are the same as for other students of the same year group, it is the expected outcome that is differentiated for Gifted students. It will be good if curriculum is accelerated for Gifted students.</p>	<p>CURRICULUM DIFFERENTIATION</p>
INDR1:	<p>Yes.</p>	
INDR2:	<p>We consider the NCERT curriculum expectations while setting the targets for gifted students. This</p>	

	ensures that the curriculum and instruction are in advanced level.	CURRICULUM DIFFERENTIATION
USR:	Yes, most of the times.	
Q14.	If yes, in what ways are the curriculum and instruction different for the identified students than for other students in the same grade level?	NAGC Standard 3
IBR1:	Provision of extensive abstract work and high quality of research work.	CURRICULUM DIFFERENTIATION
IBR2:	Students in the program complete and work on an Advanced Learning Plan which involves many different methods of exploring the field or subject they are focusing on. This involves both classroom-level strategy, independent research, and projects as well as opportunities outside of the school environment which can be competitions, seminars etc.	CURRICULUM DIFFERENTIATION
UKR:	-	CURRICULUM
INDR1:	Modifying Content, Process- Bloom's taxonomy of educational objectives, Environment, Product Expectation and Student Responses.	DIFFERENTIATION

INDR2:	-	
USR:	Gifted students need to be given more enriched learning experience and given issues to solve in which they can be part of the solution. GNT students like to work at their pace and interest rather than stick to the curriculum.	

Table 4.4: Master List of Structured Interview Questions 13-14 Findings

The questions 15 through 18 necessitated relevant information regarding the NAGC Standards 3 and 4 from the educators of all the participating schools.

Q15.	Can you give examples of how the curriculum and instruction for gifted students includes the development of communication, research, collaboration, and critical and creative thinking skills?	NAGC Standard 3 and 4
IBR1:	Collaborative research work involving critical and creative thinking skills (for example during activities such as exhibitions, Wellness Wednesday) Science exhibitions, extempore and peer tutoring to enhance communication and socialization. Enhancement club to develop creative and critical thinking.	ADVANCING SKILLS

IBR2:	<p>The plan is developed through the coordination of the students, teachers and coordinator requires a strong collaborative effort to ensure it reflects the ability and interests of the students and challenges them adequately.</p> <p>It will always involve a combination of strategies to ensure that every stage of the learning process the student is given support. This includes extensions to classroom work, independent research projects and extracurricular events which thoroughly allows the students to explore each aspect of these approaches to learning.</p>	ADVANCING SKILLS
UKR:	<p>The general curriculum and lessons are planned, keeping in mind all the above factors., again, there is no consistency in this.</p>	ADVANCING SKILLS
INDR1:	<p>Communication, research, critical thinking, and collaboration taught effectively across the curriculum to transform learning opportunities for students to participate in lively conversations, express their opinions, build upon other ideas, present information, and evaluate another speaker's point of view. Creativity and innovation include both thinking creatively and working creatively with others to tie in adaptability,</p>	ADVANCING SKILLS

	leadership, and teamwork. Communication is enhanced by using technology.	
INDR2:	Students are assigned with individual projects/research topics. Students do opportunities to share ideas and to present their work in front of their peers.	ADVANCING SKILLS
USR:	Students can choose to work on an issue of their choice and conduct their own research and findings. They come up with an issue or work on innovations and create their own gadget or program. They explore websites, obtain info for their project, brainstorm for ideas, maintain a log.	ADVANCING SKILLS
Q16.	In what ways is the curriculum enriched for gifted learners?	NAGC Standard 3 and 4
IBR1:	The curriculum is based on blooms taxonomy. This allows the child to choose the level he/ she feels comfortable with.	CURRICULUM ENRICHMMENT
IBR2:	As discussed earlier the plan is developed through the coordination of the students, teachers and coordinator requires a strong collaborative effort to ensure it reflects the ability and interests of the students and challenges them adequately.	CURRICULUM ENRICHMMENT

UKR:	There is more rigor added, gifted students often given the lead role in group research works, asked to do independent research work and cross curricular integrated projects. They are often challenged in their domain.	CURRICULUM ENRICHMENT
INDR1:	Different work is provided to the students to include more elaborate, complex, and in-depth study of major ideas, problems, and themes that integrate knowledge within and across systems of thought.	CURRICULUM ENRICHMENT
INDR2:	Our curriculum has detailed medium term plans for each subject across all grades. Each department heads ensure that the Medium-Term Plans are prepared with different targets/activities considering the student capacity ranging from low achievers to higher achievers.	CURRICULUM ENRICHMENT
USR:	A parallel curriculum is created for the students which is enriched for the gifted learners.	CURRICULUM ENRICHMENT
Q17.	What are the overall strengths of the curriculum and instruction for gifted learners?	NAGC Standard 3 and 4
IBR1:	Overall curriculum allows the student to carry out independent work, challenging and thought-provoking	CURRICULUM / INSTRUCTION

	activities. It also enhances social interaction and communication skills through peer mentoring.	
IBR2:	The curriculum created allows for students to explore the field they have been nominated in through a multi-faceted lens. By creating targets and strategies to further their interest both in the classroom and beyond we are able to ensure that our students develop a holistic understanding.	CURRICULUM / INSTRUCTION
UKR:	Since it is an introductory phase, we are waiting to see the impact.	CURRICULUM / INSTRUCTION
INDR1:	Very good.	
INDR2:	Curriculum and lesson plans ensure that the learning is enough challenging and achievable for the student. Teachers/teacher mentors are there to support and guide student whenever required.	CURRICULUM / INSTRUCTION
USR:	Spark interest that is measurable and timebound.	
Q18.	Are there areas within curriculum and instruction for the gifted that could be strengthened? If so, describe what they are. Do you have any suggestions for how the school could improve in these areas?	NAGC Standard 3 and 4

IBR1:	Allowing students to demonstrate and take on the role of a teacher to develop leadership skills, socialization skills as well as building their confidence.	SUGGESTIONS CURRICULUM/ INSTRUCTION
IBR2:	The program can be redeveloped to better suit the times of online and distance learning. This was not necessary before; however, the current academic year has acted as the tipping point for optimizing our online systems.	SUGGESTIONS CURRICULUM/ INSTRUCTION
UKR:	Enrichment activities is something that is often seen in school, what could be considered is different accelerated learning models.	SUGGESTIONS CURRICULUM/ INSTRUCTION
INDR1:	Specialized training for subject teachers to ensure the ability to meet the needs of the G&T.	SUGGESTIONS CURRICULUM/ INSTRUCTION
INDR2:	As gifted students learn at a faster pace; they understand new concepts more easily and with fewer repetitions. Consequently, certain teachers find it difficult to provide appropriate challenge to sustain the students' attention and desire to learn.	
USR:	Not yet.	

Table 4.5: Master List of Structured Interview Questions 15-18 Findings

4.2.3 Standard 3: Curriculum planning and instruction

The NAGC Standard 3 expresses the specific student outcomes and the appropriate research-based prototypes of curriculum and teaching practices responsive to the unique needs of students with gifts and talents. This standard comprises of all stages including planning or developing, selecting, modifying, and designing suitable curriculum with cultural context and developing a gamut of instructional or teaching strategies leading to learner progression (NAGC, 2012). Unfortunately, the UAE does not have any gifted education standards established in the local context or any guidance from the KHDA and each school is left on its own to make appropriate curriculum modifications to cater to the needs of advanced learners. However, it was heartening to see that all the participating schools provided the learners with gifts and talents extension tasks, enrichment opportunities, project-based learning, out-of-school activities matching to the students' interests, special clubs and met some of the evidence-backed practices according to NAGC Standard 3.2, 3.3, and 3.4. The curriculum planning and instructional strategies provision varied from one school to another and is discussed in detail below.

IB Curriculum School 1:

Strengths:

According to the facts detailed by the TAG Coordinator, the IB school had a repertoire of advanced curriculum plans and instructions including extension opportunities, high quality research tasks, peer mentoring options, extensive abstract work, collaboration opportunities with their high ability peers, activities to boost critical thinking and creativity, use of Bloom's taxonomy, participation in external competitions and field trips

thereby demonstrating research-based practices as per NAGC Standard 3.1 of curriculum planning, 3.2 and 3.3 of Talent Development, 3.4 of Instructional strategies, and 3.6 of Resources.

The recent KHDA reported positive practices of this school regarding curriculum and instructional adaptations like teaching strategies of differentiation to cater to individual needs of students and encouragement provided to develop them into ambitious learners, real-world relevant scenarios and problem-solving being embedded in everyday lessons, students displaying awareness of their local context, extra-curricular options to advance their learning skills and numerous options to enhance their leadership abilities. These findings validated that the IB school met the NAGC Standard 3.1, 3.2, 3.3, 3.4 and 3.6 (KHDA, 2019).

Weaknesses:

The areas that the IB school needed improvement within this standard was the development of culturally relevant curriculum and opportunities to engage in deep thought-provoking tasks related to culture, language and social issues, provide culturally responsive curriculum adaptations, and integrate study of biographies (NAGC Standard 3.5). One specific recommendation by the KHDA was to embed the evaluation of the positive curricular options provided to the students with gifts and talents (KHDA, 2019).

IB Curriculum School 2:

Strengths:

The gifted coordinator detailed the process whereby the student with gifts and talents were encouraged to find their niche interests within a subject and conduct independent

research. Good collaboration between the student, teacher, and coordinator was helpful in ensuring the meaningful engagement of gifted learners in appropriate research tasks. ALPs were collectively designed by teachers, students, and the gifted coordinator with various teaching and learning strategies for regular classrooms, projects, independent research alongside opportunities outside of school environment like seminars or competitions to ensure the holistic development of the gifted learner. These findings supported evidence-based practices for NAGC Standards 3.1, 3.2, 3.3, 3.4, and 3.6.

The 2018-19 KHDA report rated curriculum adaptations of the school as *Outstanding*. The outcomes of the inspection reported valuable curriculum adaptations catering to the learning needs of the diverse group of learners. Positive engagement in the learning process with student progression in innovation, creativity, enterprise, and research was documented. Strong cultural understanding alongside application of real-life problem-solving were also reported. These findings validated the claims of the gifted coordinator regarding the IB school meeting the NAGC Standard 3.1, 3.2, 3.3, 3.4 and 3.6 (KHDA, 2019).

Weaknesses:

According to the inputs of the gifted coordinator, the area that the IB school needed improvement within this standard was the provision of advanced curriculum content within specific subject areas. Additionally, differentiated guidance and counseling plan for students with gifts and talents was not developed. This feedback showed the NAGC Standard 3.1 of Curriculum Planning and 3.4 of Talent Development needed to be enhanced for the deserving students. The KHDA recommended acceleration in learning process for students meriting these services, increased consistency in differentiation by

teachers, and training for staff based on identification of their gaps. Many areas of NAGC Standard 3 needed improvement and due consideration by the school authorities would ensure the provision of appropriate services (KHDA, 2019).

UK Curriculum School:

Strengths:

As explained by the Head of Inclusion, the school was in the beginning stages of planning for the identified students with gifts and talents, the curriculum was not differentiated but the expected outcomes for lessons were adapted in some cases. Due to lack of consistency reported by the educator, the school failed to show any research-backed practices for the NAGC Standard 3. The recent KHDA report conveyed the presence of curriculum modifications that met the individual needs of most learners, but these were inconsistent. The report specifically commended the modifications in Science in the middle school alongside some activities observed in few lessons that encouraged innovation, enterprise, and creativity. In summary, the KHDA report validated the claims of the school educator in the context of the NAGC Standard 3 related to Curriculum planning and instruction.

Weaknesses:

After due consideration to the inputs from the school Head of Inclusion and validation by the KHDA inspection report, the UK curriculum school needed to develop evidence-based practices for all the student outcomes within this standard including effective curriculum modifications to cater to the cognitive and affective growth, instructional planning, strategies to develop the talents of deserving learners, advancing culturally relevant curriculum, and effective use of available resources in the community. Some

specific recommendations from the KHDA included promotion of reading literacy programs and consistency in curriculum adaptations across the school, whereas the school educator listed the development of enrichment tasks, acceleration in learning, assigning mentors, enhancing the role of school counsellor, and consistency in curriculum planning by teachers as some of the necessary developments in the future.

Indian Curriculum School 1:

Strengths:

According to the details gathered by the Head of Inclusion, the Indian curriculum school had a gamut of curriculum adaptations and instructional strategies including opportunities to advance communication and collaboration skills, research activities, critical thinking, innovation and creativity, leadership, teamwork, effective use of technology, and evaluation of others' point of view. These strategies indicated the use of evidence-based practices as per NAGC Standard 3.1 of curriculum planning, 3.2 and 3.3 of Talent Development, 3.4 of Instructional strategies, and 3.6 of Resources.

The recent KHDA reported a few curriculum practices with generic modifications, but positive enhancements in terms of fostering innovation, enterprise, creativity, social engagements like charitable projects making meaningful contributions to society, awareness of local culture, and relevant extra-curricular activities being offered to learners thereby meeting the NAGC expected practices in Standard 3.2, 3.3, 3.4, 3.5 and 3.6 (KHDA 2020).

Weaknesses:

The areas that the IB school needed improvement within this standard was the development of culturally relevant curriculum and opportunities to engage in deep thought-provoking tasks related to culture, language and social issues, provide culturally responsive curriculum adaptations, and integrate study of biographies (NAGC Standard 3.5).

The KHDA school inspection report made important recommendations of improving the subject-specific skills within the curriculum scope, promoting enhanced cross-curricular links, and encouraging specific curriculum modifications to cater to the needs of the students with gifts and talents (KHDA, 2020).

Indian Curriculum School 2:

Strengths:

The school coordinator explained that their planning was in line with the NCERT curriculum expectations while setting the targets for gifted students. This ensured that the curriculum and instruction were at an advanced level commensurate with the needs of the identified gifted learners. The Heads of Departments of various subjects planned differentiated curriculum and instructional strategies for the students with gifts and talents. In addition, numerous options like project-based learning, individual research opportunities, and presenting their work in front of their peers were offered to the deserving students. Teachers act as mentors and guide them at regular times.

The inspection report stated that the school successfully modified the curriculum to meet the needs of most learners. Some innovation opportunities like the school magazine

publication and out-of-school options like the hydroponic garden were offered to students. The information provided by the school authority and the KHDA report evidenced good practices in line with some of the expectations of the NAGC standard 3.

Weaknesses:

Although the school planned for differentiated curriculum, comprehensive planning and ensuring continuation in the scope and sequence needed to be developed. The teachers would need to get appropriately trained to use pre-assessments, effective differentiation, and post assessments to determine student progress. Consistent use of differentiation across the phases including knowledge of student pace, complexity of concepts, in-depth study, and suitable leadership opportunities in line with comprehensive identification of individual needs of students with gifts and talents was yet to be developed. Teaching and learning practices to enhance critical thinking, problem-solving, creativity and innovation were still not well established. The school coordinator expressed how gifted students learn at a faster pace without many repetitions and consequently teachers fail to sustain student interest or engage them meaningfully in their learning journey.

The KHDA reported inconsistent innovation opportunities provided to the students with gifts and talents. Also, it recommended consolidation of the existing creative options by teachers. There was a strong and clear advice for meticulous curriculum planning and effective integration of innovation opportunities across all the year groups to make it meaningful to the learners. In summary, the school had a lot of scope of further improving their provisions for students with gifts and talents regarding the NAGC Standard 3.

US Curriculum School:

Strengths:

According to the qualitative data collected from the TAG coordinator, students with gifts and talents are provided with problem-solving tasks of self-interest, conduct research, and find innovative solutions while maintaining suitable records. This school reported the design of a parallel curriculum for the deserving learners that ignited their interests, was measurable and timebound. She explained that the teachers were mindful of the gifted behaviours like students working at their own pace and on topics of their choice rather than towing along the standard curriculum demands and the school provided advanced curriculum options, as required. These strategies showed the use of evidence-based practices as per NAGC Standard 3.1 of curriculum planning, 3.2 and 3.3 of Talent Development, 3.4 of Instructional strategies, and 3.6 of Resources.

Weaknesses:

The areas that the US curriculum school needed improvement within this standard was the development of a repertoire of instructional strategies and opportunities to engage in deep thought-provoking tasks related to culture, language and social issues, provide culturally responsive curriculum adaptations, and integrate study of biographies (NAGC Standard 3.3, 3.4, 3.5).

The questions 19 and 20 elicited evidence for the socio-emotional support and guidance for career counselling offered to the students with gifts and talents, included in NAGC Standards 4, 5 and 6.

Q19.	In what ways does the school address the social and emotional needs of gifted students?	NAGC Standard 4 and 6
IBR1:	The school ensures counselling services to parents, students, and teachers alike. The teachers provide constructive and positive feedback to encourage students. Forming groups of varied levels to encourage socialization and communication is also carried out.	SOCIAL EMOTIONAL NEEDS
IBR2:	There is a very strong community between the gifted students, and they are very well aware of the open-door policy of the coordinator if they have any concerns, they feel they cannot discuss with the teachers. There are annual networking events between the gifted students where they can meet other students who are passionate about their subjects and interests.	SOCIAL EMOTIONAL NEEDS
UKR:	Gifted students have subject mentor who they can always contact. The counsellor is also approachable. Above all, it is the teachers who could be the first point of contact, as they would know the students better than anyone.	SOCIAL EMOTIONAL NEEDS
INDR1:	Educators participate in ongoing professional development to support the social and emotional needs of students with	SOCIAL EMOTIONAL NEEDS

	gifts and talents. Students also approach the school counsellor if in need.	
INDR2:	Teachers motivate students through appreciating them for achievements, providing opportunities to showcase their skills. The school counsellor is available to students for counselling sessions when required.	SOCIAL EMOTIONAL NEEDS
USR:	We have a school counsellor.	

Table 4.6: Master List of Structured Interview Questions 19 Findings

4.2.4 Standard 4: Learning environments

The significance of an encouraging, safe, and caring learning environment for the students with gifts and talents cannot be overemphasised. This standard encompasses learning environment that promotes self-dependence, motivation, socio-emotional wellbeing, leadership skills that nurture social change, effective development of learners from diverse backgrounds, communication abilities, growth mindset, and the feeling of valuable identity of the community (NAGC, 2012).

The learning environments offered by each participating school were wide-ranging and is described in this section.

IB Curriculum School 1:

Strengths:

The TAG Coordinator expressed the school increasingly presented an environment that advanced the personal and social competence of students with gifts and talents. They were

exposed to problem-solving scenarios, leadership programs, enrichment opportunities advancing their artistic talents like music, sports, art, drama alongside the linguistic abilities and collaboration with peers. Students were provided with invaluable options of attending informative seminars and debates, competitions, educational tours, lectures by experts, mentoring options, and involvement in suitable projects. These services evidence the provision of practices in accordance with NAGC Standard 4.1 and 4.2 of Personal and social competence respectively, 4.3 of Leadership, 4.4 Cultural competence and 4.5 Communication competence.

The 2018-19 KHDA reported outstanding practices of students demonstrating high quality of social accountability, making meaningful contributions to society like raising awareness about inclusion and bullying, high levels of environmental responsibility awareness, innovative skills, being proactive, and promoting ethical values like academic honesty. These findings validated that the IB school met most of the student outcomes enlisted in NAGC Standard 4 (KHDA, 2019).

Weaknesses:

The areas that the IB school needed improvement within this standard were the development of positive coping skills with avenues for students to apply them, assessment and instructions on social skills, and access to assistive technology to enhance learner expression of advanced level of thinking and creativity (NAGC Standard 4.1, 4.2, and 4.5). One important recommendation by the KHDA was to empower students to lead meaningful initiatives that could make positive contributions to the wider community (KHDA, 2019).

IB Curriculum School 2:

Strengths:

The gifted coordinator explained the collaborative nature of the stakeholders in the school as their specific strength in enhancing the personal and social competence of students with gifts and talents. The learners were offered enrichment opportunities commensurate with their abilities, areas of interests, and talents including the academic and non-academic fields. Students shared particularly good relationships with their teachers based on mutual respect. They received prompt and meaningful feedback on their efforts which ensured appropriate progress. This school valued student-led initiatives supporting the enhancement of their leadership skills. These services evidence the provision of practices in agreement with NAGC Standard 4.1 and 4.2 of Personal and social competence respectively, 4.3 of Leadership, 4.4 Cultural competence and 4.5 Communication competence.

The 2018-19 KHDA reported outstanding practices of student care and safeguarding along with exemplary commitment to learner health and wellbeing. The students were motivated, respectful, resilient, sensitive to the needs of their peers, persevered in their activities, and shared remarkably constructive relations with their teachers. These findings validated that the IB school met most of the student outcomes enlisted in NAGC Standard 4 (KHDA, 2019).

Weaknesses:

The areas that the IB school needed improvement within this standard were the provisions of consistent differentiated curriculum offered by teachers, understanding of the needs of

students with gifts and talents to work in a group or isolation, and provision of advanced curriculum in their second language (NAGC Standard 4.1, 4.2, and 4.5). (KHDA, 2019).

UK Curriculum School:

Strengths:

The interview with the Head of Inclusion revealed that since the gifted programming options were in the preliminary stages, some extension tasks were provided to the students with gifts and talents but were inconsistent. Although a few generic projects were available to enhance students' leadership, communication, and social skills, these were not tailored to meet the individual needs or interests of students with gifts and talents. Due to lack of specific gifted programs reported by the educator, the school met some of the practices for the NAGC Standard 4. The recent KHDA inspection reported that learners engaged in socially responsible tasks and displayed good leadership abilities. Some instances of creativity were noted, and learners made meaningful contributions like programs related to environmental conservation and sustainability projects. A few student outcomes from NAGC Standard 4 were evidenced by the local inspection authority.

Weaknesses:

The UK curriculum school needed to develop most of the evidence-based practices for all the student outcomes within this standard including teachers having high expectations of students, designing specific gifted programming options for them, creating supportive and developmental learning environment, progressing the students' artistic skills and leadership abilities, structure options for collaboration with similar minded peers, enhancing the use of assistive technology. Some specific recommendations from the

KHDA included encouraging innovation, enterprise and social accountability opportunities provided to students.

Indian Curriculum School 1:

Strengths:

The Head of Inclusion communicated the various programs offered by the school to enhance the higher order thinking skills, promoting independence, raising level of awareness on global issues, along with good collaboration with teachers and parents. Students with gifts and talents were provided with options of advanced placements, pull-out sessions with experts, flexible grouping, tiered assignments, research projects based on their choice and interests. They were given choices of pursuing visual arts, music, performing arts, drama, or sports. Learners were encouraged to participate in active discussions, express their opinions, evaluate others point of view, make innovative presentations, work creatively, collaboratively and in teams, demonstrate their leadership skills, and use technology effectively. These provisions provided the evidence of practices in accordance with NAGC Standard 4.1 and 4.2 of Personal and social competence respectively, 4.3 of Leadership, 4.4 Cultural competence and 4.5 Communication competence.

The 2019-20 KHDA reported how the students displayed positive attitudes towards building relationships, good awareness of their cultural competence, involvement in wider community based enterprising initiatives, along with good levels of personal and social competence. The school had effective policies and procedures for students' welfare, offered an array of languages to learners, positive learning culture, strong sense

of community, advanced students' self-initiative and leadership skills, wide range of innovative projects, and importance to good behaviour. These outcomes validated that the Indian school met most of the student outcomes enlisted in NAGC Standard 4 (KHDA, 2020).

Weaknesses:

The areas that the Indian school needed improvement were placing high expectations of students with gifts and talents, offer examples of positive coping strategies and their applications in real life scenarios, specific opportunities to collaborate with peers from diverse cultural backgrounds (NAGC Standard 4.1, 4.2, and 4.4). Some important recommendations by the KHDA were to improve consistency in student engagement alongside embedding critical thinking opportunities during lessons, access to technology by all students, inquiry-based objectives to be offered to students with gifts and talents and aligning assessments to curriculum standards (KHDA, 2020).

Indian Curriculum School 2:

Strengths:

The coordinator discussed how teachers motivate students by providing positive reinforcements commensurate with their achievements while offering opportunities to showcase their skills. The school counsellor was available to students for counselling sessions as required. Students displayed respectful behaviour towards their teachers and peers in addition to showing positive behaviour and good discipline during their school day.

According to the KHDA inspection report, the governors and school leaders were determined and dedicated to providing good learning environment to all students. The school offered generous learning resources to teachers and students and maintained excellent health and safety environment. Learners demonstrated pride for their school, positive attitudes towards learning, and independence. The report findings indicated that majority of learners developed higher order thinking skills like problem-solving and critical thinking. The pupils demonstrated excellent tolerance, sincere care for others, and took critical feedback constructively. They were well aware of their health priorities, were physically fit, knowledgeable of internet perils, and maintained good attendance at school. The feedback from the school coordinator validated by the KHDA report indicated many evidence-based practices for the NAGC Standard 4.

Weaknesses:

During the interview, the TAG coordinator expressed that although the school followed structured planning in giving academic support and guidance, it did not provide regular counselling sessions for gifted students and there was a lack of support for meeting their socio-emotional needs. The teachers' awareness of the student needs and appropriate differentiation was inconsistent across the school. Although some good innovation-based initiatives were put in place, these were not used judiciously by staff.

Some recommendations from the Inspection body included the need for teachers to be self-aware of their teaching practices, evaluate them, and improve these based on research-based practices to engage students meaningfully. Another suggestion documented was for teachers to assess, record, and track the impact of their teaching interventions for students with gifts and talents. The insufficient and ineffective use of

technology was highlighted by the inspection authorities which is an important strategy to cater to the needs of gifted students. Innovation was not consistently promoted by all teachers as stated in the report. Also, the lack of problem-solving skills development in mathematics subject was specifically mentioned in the report. Strategies to enhance learners' independence needed further development with suitable opportunities, challenges, and high expectations from teachers.

In conclusion, the school had to enhance the learning environment on multiple counts for the students with gifts and talents to meet the expectations in accordance with the NAGC Standard 4.

US Curriculum School:

Strengths:

The TAG coordinator from this school explained that the identification of students with gifts and talents was in the beginning stages and some programming options were offered relevant to their learning styles and interests. She was not aware of any socio-emotional support offered to students. This scenario showed that most of the evidence-based practices as per NAGC Standard 4 would need to be put in place soon.

Weaknesses:

The areas that the US curriculum school needed improvement within this standard was the development of expected standards within the personal, cultural, and social competence, the leadership opportunities and enhancement of communication abilities of students with gifts and talents (NAGC Standard 4).

Q20.	Is there a differentiated guidance and counseling plan in place for gifted students? If so, please describe.	NAGC Standard 4, 5 & 6
IBR1:	Guidance and counselling services to meet the social-emotional needs of gifted students is an ongoing process. Gifted children are aware that they are not like their age peers and may struggle with social adjustment.	GUIDANCE & COUNSELING
IBR2:	No, the emotional guidance and counseling plan is not differentiated.	
UKR:	None.	
INDR1:	Counselling is provided to the students focusing on social, emotional aspect.	
INDR2:	Though the school is following a structured plan in giving academic support and guidance, school is not providing regular counselling sessions for gifted students.	
USR:	I am not aware of it as I am not involved in it.	

Table 4.7: Master List of Structured Interview Questions 20 Findings

4.2.5 Standard 5: Programming

The gamut of provisions and services extended to the students with gifts and talents are referred to as programming by the NAGC. This continuum of educational programming options includes the TAG policies and procedures, identification processes,

differentiation, curriculum modifications, enrichment, extension tasks, and any other services offered to the deserving learners. The concept of special schools for advanced learners is yet to be established within the emirate of Dubai for private schools and hence this aspect of Standard 5.1.3 was not used for the current evaluation (NAGC, 2012).

The programming options proffered by the participating schools were widespread and are detailed below.

IB Curriculum School 1:

Strengths:

The educator from the IB curriculum school explained the extensive programming options available to the TAG students comprised of differentiated teaching strategies, challenging learning objectives, extension tasks, accelerated programs, and enrichment lessons matched to their interests. In addition, students were offered individual projects and research activities, participation in various debates or seminars or educational tours, options to attend appropriate and informative lectures by experts. The comprehensive services also included student participation in numerous internal competitions like the Mathematics and Science exhibitions and musical shows, leadership opportunities, communication advancement options, Mathletics, Book clubs, Coding clubs, Quizzes, peer tutoring, while external competitions like the Spell Bee, Quest, ASSET, World Scholars Cup, Math and Science Olympiads, music talent contests and sports events. These services evidenced the provision of programming options in agreement with NAGC Standard 5.1 of Variety of programming, 5.2 of Coordinated services, and 5.3 of Collaboration. During the interview, the TAG coordinator described the Gifted and

talented policy of the school which encompassed the identification processes, programming options and services offered by the school and was in accord of the NAGC Standard 5.6.

The 2018-19 KHDA commended the inclusive ethos of the school, the variety of programs offered to all students, the counselling services available to cater to the socio-emotional needs, the parental involvement in their children's learning, and the outstanding career advice presented to all learners. These outcomes validated that the IB school also met the student outcomes enlisted in NAGC 5.7 of Career pathways in addition to 5.1, 5.3 and 5.3 (KHDA, 2019).

Weaknesses:

The areas that the IB school needed improvement within this standard were the planning of special budget allocations for the programming options to further enhance the programming options offered to the students with gifts and talents (NAGC Standard 5.4). Another important enhancement the school could consider was the planning of multi-year programs for the uniquely gifted and talented students to meet the outcomes of NAGC Standard 5.5 of Comprehensiveness.

Some important recommendations by the KHDA were to assess students' progression and utilize this assessment data to plan their next steps in their learning, improve the articulation of research skills across the school, enhance the reading programs, exercise the learning skills of learners aptly within lessons, encourage student-led enterprises in the wider community (KHDA, 2019).

IB Curriculum School 2:

Strengths:

The coordinator from the IB curriculum school discussed the enrichment programming options available to the students with gifts and talents that included academic and non-academic options matched to their interests and abilities. Learners were offered individual or group projects and research activities, participation in various debates or seminars, opportunities to do peer-tutoring, and encouragement for student-led initiatives. All relevant programs were collaboratively planned by teachers, students, and the coordinator alongside close involvement by the families. These services evidenced the provision of programming options in agreement with NAGC Standard 5.1 of Variety of programming, 5.2 of Coordinated services, and 5.3 of Collaboration.

The 2018-19 KHDA commended the inclusive ethos of the school, the variety of programs offered to all students, the emotional guidance and career counseling services offered by school counsellors, and the excellent parental involvement in their children's learning. These outcomes validated that the IB school also met some of the student outcomes enlisted in NAGC 5 (KHDA, 2019).

Weaknesses:

The areas that the IB school needed improvement within this standard were the planning of special budget allocations for the programming options to further enhance the programming options offered to the students with gifts and talents (NAGC Standard 5.4). Another important enhancement the school could consider was the planning of multi-year

programs for the uniquely gifted and talented students to meet the outcomes of NAGC Standard 5.5 of Comprehensiveness.

Some important recommendations by the KHDA were to use the assessment data consistently to plan the students' next steps in their learning, enhance the reading programs for boys, and offer advanced curriculum objectives to the deserving learners (KHDA, 2019).

UK Curriculum School:

Strengths:

The interview with the Head of Inclusion informed the introductory stages of the provision of gifted programs the school presented to the students with gifts and talents. The ALPs, independent or group projects, extension tasks and participation in competitions were some of the options offered to the meriting learners. In addition, students were challenged and guided by subject experts, as appropriate. Although the curriculum was generic in nature the lesson objectives were advanced for the TAG students. These practices provided evidence for a few student outcomes from NAGC Standard 5.

The recent KHDA report made several recommendations like improving the teaching strategies throughout the school, enhancing the use of assessment data to inform curriculum planning, employing strategies to develop critical thinking, problem-solving, researching, and creativity within the core subjects of English, Mathematics, and Science; implementing better reading practices for learners, utilizing technology in appropriate ways, offering suitable challenges to TAG students, making the learners self-reliant,

further developing their leadership and enterprising skills with social accountability, teachers having high expectations of students and improving consistency of teaching and learning practices, and advancing the engagement of all the stakeholders (KHDA 2020).

Weaknesses:

The UK curriculum school needed to develop almost all of the evidence-based practices for the learner outcomes within Standard 5 including teachers having high expectations of students, designing varied programming options for them, executing well-coordinated services from all educational stakeholders, meaningful collaboration, effecting good use of resources to create meaningful programs, developing robust policies and procedures, and boosting counselling services for the students with gifts and talents.

Indian Curriculum School 1:

Strengths:

Based on the information received by the Head of Inclusion, the school used assessment data effectively to inform the planning of differentiated curriculum and learning objectives for the identified students with gifts and talents with added-on programs like the enrichment, extension and acceleration options, independent learning opportunities, support in specific areas, ALPs, a gamut of programming options like the advanced classes, pull-outs, flexible grouping, curriculum compacting, and tiered assignments alongside field trips, sports clubs, language clubs, extracurricular activities to boost the artistic skills, events and informative sessions with the visiting experts. The continuum of provisions presented were in accord with NAGC Standard 5.1 of Variety of programming, 5.2 of Coordinated services, and 5.3 of Collaboration. During the initial

interview, the Head of Inclusion also described the TAG policy of the school which described the identification processes, programming options and services offered by the school and was in accord of the NAGC Standard 5.6.

The KHDA school inspection report 2019-20 commended the strong community feel, student-led initiatives, improving career advice presented to all learners. These outcomes validated that the IB school also met the student outcomes enlisted in NAGC 5.7 of Career pathways in addition to 5.1, 5.3 and 5.3 (KHDA, 2019).

Weaknesses:

The areas that the IB school needed improvement within this standard were the planning of special budget allocations for the programming options to further enhance the programming options offered to the students with gifts and talents (NAGC Standard 5.4). Another important enhancement the school could consider was the planning of multi-year programs for the uniquely gifted and talented students to meet the outcomes of NAGC Standard 5.5 of Comprehensiveness.

Some important recommendations by the KHDA were to enhance the student self-awareness regarding their strengths and their future areas of development confirming that they heed the advice, further developing effective differentiation strategies, teachers use better questioning to support the in-depth learning of advanced learners, provide appropriate challenges to students with gifts and talents, review the library books available, access to technology, advance the opportunities for student innovation and creativity, develop independent scientific enquirers, and improve the quality of first teaching (KHDA, 2020).

Indian Curriculum School 2:

Strengths:

The school used the NCERT curriculum to cater to the needs of the students with gifts and talents by providing challenging objectives, independent project opportunities, enrichment opportunities within the school and external options based on their area of interests. The ALPs were collaboratively planned by the TAG Coordinator and subject teachers and reviewed every term. The KHDA inspection team reported some innovative projects like the hydroponic garden, school magazine publication, and community farming were put in place displaying good practices. Parents seemed to be happy with the efforts taken by the school to cater to the learning needs of their children.

According to the KHDA findings, the school invested in plentiful learning resources and this was appreciated by the students and parents alike. The school was moving in the right direction with an ambitious leadership ready to improve support and provisions. The descriptions by the school authority and the KHDA findings indicated that the Indian curriculum school met some of the evidence-backed practices of the NAGC Standard 5.

Weaknesses:

The school needed to enhance the practices for the programming standard across multiple levels. Teachers were not prepared in terms of abilities to meaningfully engage the advanced learners based on their faster pace of learning with few repetitions. Enrichment opportunities offered were too few. The inspection authorities reported that teachers did not demonstrate consistent differentiation, effective use of assessments to develop teaching and learning plans or consolidate the innovative initiatives established by the

school. Technology was not used judiciously while strategies like flexible grouping, acceleration, in-depth learning opportunities, developing carefully planned multi-year programs, creation of policies and procedures, providing career guidance, internships or vocational programming were not observed at school. In summary, there were numerous support provisions and programs that the school could put in place to enhance their services and provisions for gifted learners.

US Curriculum School:

Strengths:

As described in the previous chapters, the TAG coordinator from this school briefed that since the identification of students with gifts and talents had commenced recently and only a few programming options like extension tasks, enrichment clubs, STEM projects, project-based learning options, parallel curriculum, and limited extracurricular activities were accessible to the students with gifts and talents. Consequently, most of the student outcomes enlisted by the NAGC Standard 5 would need to be developed soon.

Weaknesses:

The capacities that the US curriculum school needed progression within this standard were the elaboration of a gamut of programming options, collaboration among all the stakeholders, creation and tracking of appropriate resources, robust policies and procedures, and relevant career advice for gifted students (NAGC Standard 5).

The last question pertained to another important factor that could influence the gifted programming at schools, namely the Professional Development, which formed the NAGC Standard 6.

Q21.	Describe the professional development experiences you have participated in related to meeting the needs of gifted students.	NAGC Standard 6
IBR1:	Completed the CCET Course to do the assessment and to identify the giftedness. Identification of specific learning needs is a concept that is ingrained in assessment techniques used with students. Attended few webinars related to TAG, in house meetings with TAG coordinators and exchanging good practices.	PROFESSIONAL DEVELOPMENT
IBR2:	During my Masters in Inclusion and Learner Support, I did a module on the Wellbeing of Gifted Students which was insightful in understanding the approaches to wellbeing should differ for gifted students.	PROFESSIONAL DEVELOPMENT
UKR:	Have attended couple of webinars.	PROFESSIONAL DEVELOPMENT
INDR1:	KHDA-approved course, “Identifying Gifted and Talented” offered by Sunshine Learning Difficulties Center.	
INDR2:	Though the school is following a structured plan in giving academic support and guidance, school is not providing regular counselling sessions for gifted students.	

USR:	Still in the learning phase.	
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Table 4.8: Master List of Structured Interview Questions 21 Findings

4.2.6 Standard 6: Professional Development

The NAGC Standard 6 elucidates the teachers’ professional development standards for Gifted and Talented education can be used as a reference checklist within the US. In the local context, there is a lack of identified teacher training standards specifically for gifted education and the researcher has utilized the NAGC Standard 6 to evaluate the current levels of professional development within private schools in Dubai (NAGC, 2012).

IB Curriculum School 1:

Strengths:

The TAG Coordinator from the IB curriculum school clarified that she had completed the Certificate of Competence in Educational testing (CCET) from Real Training UK recently. This qualification empowered her to assess, interpret psychometric testing, and identify students with gifts and talents in an improved manner. The coordinator also attended relevant webinars alongside sharing of good practices with other TAG coordinators within the group of schools. These details demonstrated that the school met with a few evidence-backed indicators of NAGC Standard 6.1 of Talent development, and 6.3 of lifelong learners. The school also provided counselling services by dedicated school counsellors to cater to the socio-emotional needs of the TAG students, and these counsellors regularly engaged in professional development thereby meeting the indicated Standard 6.2 of Socio-emotional development with this NAGC Standard.

The 2018-19 KHDA report had positive remarks about the high-quality staffing deployed by this school, availability of good resources to the school community and in particular added resources for learner guidance (KHDA, 2019).

Weaknesses:

Using the NAGC standard as a reference point, the IB school needed regular participation from all teachers in on-going evidence-backed professional development to provide meaningful gifted education, enhance their ability to manage the socio-emotional needs of learners instead of always depending on the school counsellors, advance their instructional practices to cater to the individual needs of gifted learners, establish and comply with the ethical standards of practices.

A few recommendations by the KHDA were to concentrate on short term goals to accomplish the long-term purposes in the school action plan, focus on building teaching strategies to extract remarkable learner behaviours within lessons, and share good practices within the wider community (KHDA, 2019).

IB Curriculum School 2:

Strengths:

The TAG Coordinator from the IB curriculum school completed her Masters in Inclusion and Learner Support and the module on the Wellbeing of Gifted Students was a part of the qualification which was insightful in understanding the way approaches to wellbeing should differ for gifted students. School counsellors also engaged in ongoing professional development. This information provided that the school met with a few evidence-backed indicators of NAGC Standard 6.1 of Talent development, 6.2 of Socio-emotional

Development, and 6.3 of lifelong learners. The school staff were sensitive to the cultural and personal background of individual students and this was evident from the KHDA comment that students shared exceptionally positive relations with their teachers alongside providing outstanding care and safeguarding standards, thereby meeting the indicated Standard 6.4 of Ethics with this NAGC Standard (KHDA, 2019).

Weaknesses:

Using the NAGC standard as a reference point, the IB school needed regular and consistent participation from all teachers in on-going evidence-backed professional development to provide meaningful gifted education, enhance their ability to manage the socio-emotional needs of learners instead of always depending on the school counsellors, advance their instructional practices to cater to the individual needs of gifted learners by effective differentiation practices. A few recommendations by the KHDA included establishing a meaningful self-evaluation rather than a plan to satisfy the parent body or inspection authorities along with ensuring all teachers participate in ongoing professional development (KHDA, 2019).

UK Curriculum School:

Strengths:

Based on the clarifications from the Head of Inclusion during the interview, she had attended some professional development in gifted education by means of webinars lately and indicated that the school met few evidence-based expectations of the NAGC Standard 6.1 and 6.3.

Weaknesses:

The latest KHDA report made clear recommendations that specialists and teachers need to engage in ongoing professional development to enable themselves to cater to the learning needs of TAG students and this remained an area that needed huge improvements on an immediate basis (KHDA 2020). The UK curriculum school needed to develop almost all the evidence-based practices for the learner outcomes within Standard 6 including ongoing professional development of specialists and teachers leading to the expected provisions for the students with gifts and talents.

Indian Curriculum School 1:

Strengths:

The Head of Inclusion from the Indian curriculum school mentioned that that she had recently completed the KHDA approved course on *Identifying Gifted and Talented*, which supported her role in good identification procedures. She also discussed ongoing professional development teachers had managed that enabled them to support the socio-emotional needs of gifted learners in addition to those provided by the school counsellor. These details demonstrated that the school met with a few evidence-backed indicators of NAGC Standard 6.1, 6.2, and 6.3. The 2019-20 KHDA inspection report commented on the good quality teaching staff deployed by the school and generally the teachers engaged in good professional development over time. The school management made particularly good resources available to all staff (KHDA, 2020).

Weaknesses:

Using the NAGC standard as a benchmark, the Indian curriculum school educators needed consistent on-going research-based professional development around gifted education to provide high-quality gifted programs and services, develop their awareness regarding good instructional practices to cater to the individual needs of TAG students, teachers identify the required areas of their individual growth, establish, and comply with the ethical standards of practices.

Indian Curriculum School 2:

Strengths:

There were no notable strengths as reported by the school coordinator or the KHDA inspection report.

Weaknesses:

It was dismal to note that the TAG Coordinator received no professional development in gifted education as self-reported. The KHDA report also made a strong recommendation that there was an urgent need to review the training opportunities presented to staff to enhance their skills, reflect on any professional development received, and share best practices with peers. The school would have to put in place robust planning for professional development of teachers to meet the NAGC Standard 6.

US Curriculum School:

Strengths:

Based on the explanations by the TAG Coordinator during the interview, she had not attended any specific professional development in gifted education and indicated that the

school did not meet any of the professional development expectations of the NAGC Standard 6 as the school was only commencing the provisions for their gifted learners.

Weaknesses:

The US curriculum school needed to develop all the evidence-based practices for the learner outcomes within Standard 6 including ongoing professional development of specialists and teachers leading to the expected provisions for the students with gifts and talents.

As revealed in the tables above, the first phase of this study involved qualitative methods of gathering in-depth information from the relevant educators of each of the participating schools. The KHDA detailed reports supported the explanation of the findings in relation to the NAGC Standards. These outcomes were supplemented by the subsequent steps of this study described in the next subsection.

4.3 Quantitative Results

4.3.1 Student Attainment versus Cognitive Ability Data

The evidence collected regarding the gifted programming education were supplemented by the quantitative analysis of student data using standardised assessments in their cognitive domain to answer the second research question, as indicated below:

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

All the private schools in Dubai are mandated to use the GL Assessments based Cognitive Ability Testing – Version 4 (CAT4) to understand the student's cognitive abilities.

Depending on the curriculum offered by each school, student attainment was analysed using numerous appropriate standardised assessments.

For each participating school, the student attainment data was evaluated in correlation to their ability data. If the student performed as expected- the data was coded as **E**, if the performance was Above Expected- the data was coded as **AE**, and if the student's performance was Below Expected- the data was coded as **BE**.

The data analysed for each school is included herewith for further deliberation.

- IB Curriculum School 1

This school used the GL Assessments Progress Tests including Progress Test in English (PTE), Progress Test in Math (PTM), and Progress Test in Science (PTS) to measure student attainment.

IB Curriculum School 1 Gifted and Talented Register																		
No	Student Code	Gender	Ethnic group	Verbal SAS	Quantitative SAS	Non-verbal SAS	Spatial SAS	Mean SAS	Mean SAS Stanine	PTE SAS	PTE Stanine	PTM SAS	PTM Stanine	PTS SAS	PTS Stanine	PTE Attainment Vs Ability (AE, E, BE)	PTM Attainment Vs Ability (AE, E, BE)	PTS Attainment Vs Ability (AE, E, BE)
1	IB1 Student 7-1	Male	Spanish	113	112	116	130	118	7	112	7	110	6	114	7	E	E	E
2	IB1 Student 7-2	Male	Belgian	126	116	135	131	127	9			108	6	114	7		BE	BE
3	IB1 Student 7-3	Male	French	111	121	129	139	125	8	117	8	119	8	128	9	E	E	AE
4	IB1 Student 7-4	Female	American	108	104	128	121	115	7	108	6	104	6	118	7	E	E	E
5	IB1 Student 7-5	Female	Indian	129	119	135	122	126	8	135	9	116	8	111	6	AE	E	BE
6	IB1 Student 7-6	Male	Indian	107	108	136	118	117	7	111	6	113	7	105	7	BE	E	E
7	IB1 Student 7-7	Male	French	121	131	119	118	122	8	129	9	135	9	120	8	AE	AE	E
8	IB1 Student 8-1	Male	Indian	133	119	120	130	126	8	119	8	112	7			E	BE	
9	IB1 Student 8-2	Female	Japanese	89	126	120	130	116	7	81	2	110	6			BE	BE	
10	IB1 Student 8-3	Male	Spanish	99	118	105	133	114	7	89	4	108	6			BE	BE	
11	IB1 Student 8-4	Female	Hungarian	118	141	113	128	125	8	120	8	134	9			E	AE	
12	IB1 Student 8-5	Male	Pakistani	121	140	120	133	129	9	128	9	125	8			AE	BE	
13	IB1 Student 8-6	Female	Indian	118	111	127	128	121	8	106	7	136	9			BE	AE	
14	IB1 Student 8-7	Female	Indian	121	126	114	102	116	7									
15	IB1 Student 8-8	Female	French	105	113	120	130	117	7	108	6	114	7			BE	E	
16	IB1 Student 8-9	Female	French	110	137	119	135	125	8	115	7	121	8			BE	E	
17	IB1 Student 8-10	Male	French	95	132	123	113	116	7	101	5	122	8			BE	AE	
18	IB1 Student 8-11	Male	Canadian	118	128	117	109	118	7	120	8	119	8			AE	AE	
19	IB1 Student 9-1	Male	Jordanian	110	119	131	113	118	7	101	5	114	7	98	5	BE	E	BE
20	IB1 Student 9-2	Male	Indian	117	128	136	118	125	8	118	8	110	7	103	5	E	BE	BE
21	IB1 Student 9-3	Female	Indian	116	111	122	128	119	8									
22	IB1 Student 9-4	Female	Thai	113	101	127	113	114	7	131	9	115	7	101	5	AE	E	BE

Tables 4.9: IB School 1 Student Data Analysis in the Cognitive Domain

Outcomes:

Percentage of students that attained as Expected or Above Expected levels in English:

61%

Percentage of students that attained as Expected or Above Expected levels in

Mathematics: 70%

Percentage of students that attained as Expected or Above Expected levels in Science:
50%

- IB Curriculum School 2

The second IB Curriculum school used the ACER IBT assessments to measure student attainment.

IB Curriculum School 2 Gifted and Talented Register																		
No	Student Code	Gender	Ethnic group	Verbal SAS	Quantitative SAS	Non-verbal SAS	Spatial SAS	Mean SAS	CAT4 Mean Stanine	IA Reading Scaled Score	IA English Achievement Band	IA Math Scaled Score	IA Math Achievement Band	IA Science Scaled Score	IA Science Achievement Band	Reading Attainment Vs Ability (AE, E, BE)	Math Attainment Vs Ability (AE, E, BE)	Science Attainment Vs Ability (AE, E, BE)
1	IB2 Student 7-1	Female	Columbian	140	112	137	125	123	8	442	3	495	5	591	7	BE	BE	BE
2	IB2 Student 7-2	Female	Swedish	121	124	133	132	128	9	544	6	495	5	457	4	BE	BE	BE
3	IB2 Student 7-3	Male	Egyptian	104	116	124	126	117	7	443	4	515	5	621	8	BE	BE	AE
4	IB2 Student 7-4	Male	Emirati	121	123	132	128	126	8	463	4	539	5	561	7	BE	BE	BE
5	IB2 Student 8-1	Male	Greek	108	89	104	70	93	4	381	3	440	4	471	5	BE	E	AE
6	IB2 Student 9-1	Male	Romanian	105	121	100	120	111	6	479	4	573	6	610	8	BE	E	AE

Tables 4.10: IB School 2 Student Data Analysis in the Cognitive Domain

Outcomes:

Percentage of students that attained as Expected or Above Expected levels in English:
0%

Percentage of students that attained as Expected or Above Expected levels in Mathematics: 33%

Percentage of students that attained as Expected or Above Expected levels in Science: 50%

- UK Curriculum School

This school used the GL Assessments Progress Tests including Progress Test in English (PTE), Progress Test in Math (PTM), and Progress Test in Science (PTS) to measure student attainment.

UK Curriculum School Gifted and Talented Register

No	Student Code	Gender	Ethnic group	Verbal SAS	Quantitative SAS	Non-verbal SAS	Spatial SAS	Mean SAS	CAT4 Mean Stanine	PTE SAS	PTE Stanine	PTM SAS	PTM Stanine	PTS SAS	PTS Stanine	PTE Attainment Vs Ability (AE, E, BE)	PTM Attainment Vs Ability (AE, E, BE)	PTS Attainment Vs Ability (AE, E, BE)
1	UK STUDENT 7-1	Male	Pakistan	102	123	116	134	119	8	118	7	115	7	111	6	BE	BE	BE
2	UK STUDENT 7-2	Male	Pakistan	106	135	107	133	120	8	112	7	105	6	111	6	BE	BE	BE
3	UK STUDENT 7-3	Male	Pakistan	110	130	112	113	116	7	126	8	132	9	128	9	AE	AE	AE
4	UK STUDENT 7-4	Male	India	77	109	137	111	109	6	125	8	141	9	131	9	AE	AE	AE
5	UK STUDENT 7-5	Male	Pakistan	93	114	130	84	105	6	116	7	132	9	113	7	AE	AE	AE
6	UK STUDENT 7-6	Female	Pakistan	102	111	109	95	104	6	110	5	112	7	98	5	BE	AE	BE
7	UK STUDENT 7-7	Female	Pakistan	105	135	116	110	117	7									
8	UK STUDENT 7-8	Female	Pakistan	109	119	129	121	120	8	114	7	118	7	101	5	BE	E	BE
9	UK STUDENT 7-9	Female	Pakistan	94	105	126	121	112	7	119	8	125	8	113	7	AE	AE	E
10	UK STUDENT 7-10	Female	Pakistan	131	134	120	118	126	8	136	9	131	9	114	7	AE	AE	BE
11	UK STUDENT 7-11	Female	India	116	134	107	127	121	8									
12	UK STUDENT 7-12	Female	India	122	130	103	131	118	7	119	8	135	9	113	7	AE	AE	E
13	UK STUDENT 7-13	Female	Pakistan	119	111	130	109	117	7	128	9	124	8	107	6	AE	AE	BE
14	UK STUDENT 8-1	Female	Turkey	135	121	109	118	121	8	139	9			127	9	AE		AE
15	UK STUDENT 8-2	Female	Bangladesh	136	120	112	125	123	8	130	9			127	9	AE		AE
16	UK STUDENT 8-3	Female	Pakistan	127	126	113	130	124	8	92	4			103	5	BE		BE
17	UK STUDENT 8-4	Female	Pakistan	135	118	141	109	126	8									
18	UK STUDENT 8-5	Female	Pakistan	128	120	104	120	118	7									
19	UK STUDENT 8-6	Male	Pakistan	117	135	114	128	124	8	110	5			110	6	BE		BE
20	UK STUDENT 8-7	Male	Pakistan	115	139	122	118	124	8	129	9			113	7	AE		BE
21	UK STUDENT 8-8	Male	Sri Lanka	119	127	122	120	122	8	129	9			120	8	AE		E
22	UK STUDENT 8-9	Male	Pakistan	115	126	106	128	119	8	108	5			100	5	BE		BE
23	UK STUDENT 8-10	Male	India	106	111	116	130	116	7									
24	UK STUDENT 8-11	Male	Bangladesh	95	115	104	135	112	7	108	7			100	5	E		BE
25	UK STUDENT 8-12	Male	Bangladesh	102	118	113	128	115	7	117	7			117	7	E		E
26	UK STUDENT 8-13	Female	Pakistan	114	122	107	133	119	8	112	7			112	7	BE		BE
27	UK STUDENT 9-1	Female	Bangladesh	98	128	104	124	114	7	125	8	101	5	103	5	AE	BE	BE
28	UK STUDENT 9-2	Female	Bangladesh	100	108	100	128	109	6	114	7	105	6	109	6	AE	E	E
29	UK STUDENT 9-3	Female	Pakistan	117	141	105	124	122	8	141	9	105	6	115	7	AE	BE	BE
30	UK STUDENT 9-4	Female	India	111	128	120	124	114	7									

Tables 4.11: UK School Student Data Analysis in the Cognitive Domain

Outcomes:

Percentage of students that attained as Expected or Above Expected levels in English:

75%

Percentage of students that attained as Expected or Above Expected levels in

Mathematics: 71%

Percentage of students that attained as Expected or Above Expected levels in Science:
42%

- Indian Curriculum School 1:

This school used the ASSET assessments to measure student attainment.

Indian Curriculum School 1 Gifted and Talented Register																		
No	Student Code	Gender	Ethnic group	Verbal SAS	Quantitative SAS	Non-verbal SAS	Spatial SAS	Mean SAS	CAT4 Mean Stanine	ASSET English	ASSET English Stanine	ASSET Maths	ASSET Maths Stanine	ASSET Science	ASSET Science Stanine	English Attainment Vs Ability (AE, E, BE)	Attainment Vs Ability (AE, E, BE)	PTS Attainment Vs Ability (AE, E, BE)
1	IND 1 Student 7-1	Female	Indian	136	111	112	131	123	8	718	9	603	7	583	7	AE	BE	BE
2	IND 1 Student 7-2	Male	Indian	136	135	99	124	124	8	726	9	748	9	641	8	AE	AE	E
3	IND 1 Student 7-3	Female	Indian	141		122		132	9	718	9	672	8	711	9	E	BE	E
4	IND 1 Student 7-4	Female	Indian	131	103	123	107	116	7	638	7	615	7	666	8	E	E	AE
5	IND 1 Student 7-5	Female	Indian	136	93	105	87	105	6	708	9	563	7	698	9	AE	AE	AE
6	IND 1 Student 7-6	Male	Indian	127	96	127	112	116	7	596	7	585	7	580	7	E	E	E
7	IND 1 Student 7-7	Female	Indian	134		129		132	9	611	7	750	9	636	8	BE	E	BE
8	IND 1 Student 7-8	Male	Indian	141		120		131	9	686	8	653	8	720	9	BE	BE	E
9	IND 1 Student 7-9	Female	Indian	134	131	134	128	132	9	716	9	705	9	573	7	E	E	BE
10	IND 1 Student 7-10	Male	Indian	141	138	120	125	131	9	738	9	737	9	777	9	E	E	E
11	IND 1 Student 7-11	Female	Indian	126	125	138	141	133	9	710	9	795	9	763	9	E	E	E
12	IND 1 Student 7-12	Male	Indian	141	128	133	141	136	9	769	9	751	9	794	9	E	E	E
13	IND 1 Student 7-13	Female	Indian	134	104	113	131	121	8	631	7	604	7	552	6	BE	BE	BE
14	IND 1 Student 7-14	Male	Indian	132	135	119	124	128	9	713	9	729	9	648	8	E	E	BE
15	IND 1 Student 7-15	Female	Indian	127	125	123	129	126	9	683	8	698	9	705	9	BE	E	E
16	IND 1 Student 7-16	Male	Indian	130	110	101	97	110	6	744	9	676	8	647	8	AE	AE	AE
17	IND 1 Student 7-17	Male	Indian	136	138	139	131	136	9	766	9	736	9	700	9	E	E	E
18	IND 1 Student 8-1	Male	Indian	130	114	94	94	108	6	723	9	701	9	648	8	AE	AE	AE
19	IND 1 Student 8-2	Female	Indian	134	129	109	88	115	7	710	9	704	9	743	9	AE	AE	AE
20	IND 1 Student 8-3	Male	Indian	108	133	127	108	119	8	672	8	750	9	702	9	E	AE	AE
21	IND 1 Student 8-4	Female	Indian	141	116	130	141	132	9	704	9	773	9	662	8	E	E	BE
22	IND 1 Student 8-5	Female	Indian	141	101	120	125	122	8	627	7	618	8	710	9	BE	E	BE
23	IND 1 Student 8-6	Male	Indian	118	125	128	118	122	8	689	8	774	9	704	9	E	AE	AE
24	IND 1 Student 8-7	Female	Indian	125	131	105	110	118	7	734	9	618	8	665	8	AE	AE	AE
25	IND 1 Student 8-8	Male	Indian	122	119	114	123	120	8	722	9	664	8	615	7	AE	E	BE
26	IND 1 Student 8-9	Female	Indian	140	129	124	139	133	9	751	9	698	9	740	9	E	E	E
27	IND 1 Student 8-10	Male	Indian	141	119	128	134	131	9	675	8	642	8	719	9	BE	BE	E
28	IND 1 Student 8-11	Female	Indian	127	111	115	113	117	7	719	9	697	8	685	9	AE	AE	AE
29	IND 1 Student 8-12	Male	Indian	126	138	103	125	123	8	530	6	663	8	659	8	BE	E	E
30	IND 1 Student 8-13	Male	Indian	115	126	107	108	114	7	694	9	621	8	692	9	AE	AE	AE
31	IND 1 Student 8-14	Male	Indian	91	131	113	88	106	6	494	5	630	8	575	7	BE	AE	AE
32	IND 1 Student 8-15	Female	Indian	117	131	119	134	125	8	667	8	658	8	660	8	E	E	E
33	IND 1 Student 9-1	Male	Indian	130	128	126	132	129	9	618	7	659	8	637	8	BE	BE	BE
34	IND 1 Student 9-2	Male	Indian	128	116	108	100	113	7	659	8	552	6	481	5	AE	BE	BE
35	IND 1 Student 9-3	Female	Indian	127	88	103	107	106	6	672	8	614	7	606	7	AE	AE	AE
36	IND 1 Student 9-4	Male	Indian	130	96	107	100	108	6	701	9	564	7	563	7	AE	AE	AE
37	IND 1 Student 9-5	Male	Indian	127	115	103	106	113	7	668	8	615	7	636	8	AE	E	AE

Tables 4.12: Indian School 1 Student Data Analysis in the Cognitive Domain

Outcomes:

Percentage of students that attained as Expected or Above Expected levels in English:

76%

Percentage of students that attained as Expected or Above Expected levels in

Mathematics: 81%

Percentage of students that attained as Expected or Above Expected levels in Science:

73%

- Indian Curriculum School 2:

Like the previous school, this school too used the ASSET assessments to measure student attainment.

Indian Curriculum School 2 Gifted and Talented Register																			
No	Student Code	Gender	Ethnic group	Verbal SAS	Quantitative SAS	Non-verbal SAS	Spatial SAS	Mean SAS	CAT4 Mean Stanine		ASSET English	ASSET English Stanine	ASSET Maths	ASSET Maths Stanine	ASSET Science	ASSET Science Stanine	English Attainment Vs Ability (AE, E, BE)	Attainment Vs Ability (AE, E, BE)	PTS Attainment Vs Ability (AE, E, BE)
1	IND 2 Student 7-1	Male	Indian	115	117	110	132	119	8										
2	IND 2 Student 7-2	Male	Indian	127	108	98	106	110	6	655	8	800	9	674	8		AE	AE	AE
3	IND 2 Student 7-3	Female	Indian	117	98	119	131	116	7	609	7	669	8	675	8		E	AE	AE
4	IND 2 Student 7-4	Male	Indian							626	7	700	9	668	8				
5	IND 2 Student 8-1	Male	Indian	126	141	119	141	132	9	620	7	745	9	664	8		BE	E	BE
6	IND 2 Student 8-2	Male	Indian	113	129	127	134	124	8	578	7	682	8	630	8		BE	E	E
7	IND 2 Student 9-1	Male	Indian	105	95	119	127	112	6	514	6	508	5	570	7		E	BE	AE
8	IND 2 Student 9-2	Female	Indian	141	99	114	118	118	7										

Tables 4.13: Indian School 2 Student Data Analysis in the Cognitive Domain

Outcomes:

Percentage of students that attained as Expected or Above Expected levels in English:

60%

Percentage of students that attained as Expected or Above Expected levels in

Mathematics: 80%

Percentage of students that attained as Expected or Above Expected levels in Science:

80%

- US Curriculum School:

This school used the NWEA MAP assessments to measure student attainment.

US Curriculum School Gifted and Talented Register																
No	Student Code	Gender	Ethnic group	Verbal SAS	Quantitative SAS	Non-verbal SAS	Spatial SAS	Mean SAS	CAT4 Mean Stanine	MAP English Score	MAP English Stanine	MAP Math Score	MAP Math Stanine	MAP Science Score	MAP Science Stanine	English Attainment Vs Ability (AE, E, BE)
1	US Student 7-1	Male	Pakistan	118	119	125	133	124	8	229	8	241	8	230	8	E
2	US Student 7-2	Male	Palestine	96	125	128	128	119	8	226	7	194	3	218	8	BE

Tables 4.14: American School Student Data Analysis in the Cognitive Domain

Outcomes:

Percentage of students that attained as Expected or Above Expected levels in English:

50%

Percentage of students that attained as Expected or Above Expected levels in

Mathematics: 50%

Percentage of students that attained as Expected or Above Expected levels in Science:
100%

The detailed explanation of the above student outcomes in their academics across the core subjects of English, Mathematics, and Science will be presented in the next section of this thesis. Following up on the student data analysis in their cognitive domain, the current study attempted to analyse student data across their affective domain to paint a holistic picture of the effectiveness of the gifted programs offered by the private schools.

The data analysis for the student's affective domain follows in the next subsection.

4.3.2 Student Academic Motivation Scale Findings

The need to focus on the affective factors or socio-emotional needs of students with gifts and talents cannot be overemphasised. These learners may have unique or heightened emotional needs that may get easily overlooked and lead to underachievement and lack of engagement with their education among other possible outcomes (Neihart et al., 2016).

The current study used the minimally adapted version of the Academic Motivation Scale (AMS) by Vallerand et al. (1992)-High School version based on Deci and Ryan's Self Determination Theory (SDT) to gauge student motivation across various schools and tried to find evidence for the following research question:

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

The educators of the participating schools requested the identified students with gifts and talents to complete the AMS surveys. One of the Indian Schools (Indian School 1) and

the US Curriculum School could not manage to get any surveys from students. A total of 26 AMS surveys were received from the other 4 participating schools. This survey tool comprised of 28 items distributed across 7 subscales which consists of 3 categories of intrinsic motivation, 3 categories of extrinsic motivation and 1 category of amotivation. Students rate their perceptions using a 7-point Likert Scale where ‘1’ indicates *Does not correspond at all*, ‘2-3’ indicates *Corresponds a little*, ‘4’ indicates *Corresponds moderately*, ‘5-6’ correlates to *Corresponds a lot*, and ‘7’ means *Corresponds exactly*.

The findings across all the 7 subscales and 3 categories of motivation are presented below using the descriptive statistics feature of the SPSS software as Tables 4.15 to 4.21 below. Tables 4.15, 4.16 and 4.17 display the findings across the intrinsic motivation of students, tables 4.18, 8.19 and 4.20 document the extrinsic motivational findings of students, and table 4.21 shows the amotivational results of the gifted students. **Descriptive Statistics:**

Intrinsic Motivation – to Know

	N	Minimum	Maximum	Mean	Std. Deviation
Pleasure and satisfaction learning new things	26	4	7	5.23	1.070
Pleasure of discovering new things	26	3	7	5.38	1.359
Pleasure in broadening knowledge	26	3	7	5.58	1.474
Learn things of interest	26	3	7	5.54	1.208
Valid N (listwise)	26				

Overall Mean = 5 (Corresponds a Lot)

Table 4.15: Student Intrinsic Motivation – To Know

Descriptive Statistics: Intrinsic Motivation – Toward Accomplishment

	N	Minimum	Maximum	Mean	Std. Deviation
Pleasure while surpassing myself in studies	26	3	7	5.15	1.190
Pleasure while surpassing myself in studies	26	2	7	5.27	1.373
Satisfaction experiencing difficult academics	26	3	7	4.58	1.528
Satisfaction in my quest for excellence	26	2	7	4.92	1.383
Valid N (listwise)	26				

Overall Mean = 5 (Corresponds a Lot)

Table 4.16: Student Intrinsic Motivation – Towards Accomplishment

Descriptive Statistics: Intrinsic Motivation- To Experience Stimulation

	N	Minimum	Maximum	Mean	Std. Deviation
Like going to school	26	3	7	5.19	1.201
School is fun	26	3	7	5.31	1.258
Pleasure by discussion with interesting teachers	26	2	7	4.73	1.779
High feeling while reading interesting subjects	26	2	7	5.19	1.497
Valid N (listwise)	26				

Overall Mean = 5 (Corresponds a Lot)

Table 4.17: Student Intrinsic Motivation – To Experience Stimulation

Findings: The mean of all the data received showed that the students with gifts and talents were intrinsically motivated across all the subcategories of learning new concepts, demonstrate progress for self-advancement and experience stimulation. These results were very encouraging for the purposes of this study.

Descriptive Statistics: Extrinsic Motivation- Identified

	N	Minimum	Maximum	Mean	Std. Deviation
Help me prepare for career	26	3	7	5.77	1.243
Get a job of my choice	26	2	7	5.15	1.377
Better choice regarding career	26	3	7	5.58	1.065
Improve competence as a worker	26	3	7	5.31	1.011
Valid N (listwise)	26				

Overall Mean = 5 (Corresponds a Lot)

Table 4.18: Student Extrinsic Motivation – Identified

Descriptive Statistics: Extrinsic Motivation- Introjected

	N	Minimum	Maximum	Mean	Std. Deviation
Prove to myself	26	2	7	4.96	1.216
Succeed at school and feel important	26	1	7	4.88	1.583
Show myself I am intelligent	26	2	7	4.31	1.490
Show myself I can succeed in studies	26	2	7	5.38	1.899
Valid N (listwise)	26				

Overall Mean = 5 (Corresponds a Lot)

Table 4.19: Student Extrinsic Motivation – Introjected

Descriptive Statistics: Extrinsic Motivation- External regulation

	N	Minimum	Maximum	Mean	Std. Deviation
High paying job	26	2	7	5.27	1.151
More prestigious job	26	4	7	5.88	.766
Have good life later	26	4	7	5.77	1.070
Have a better salary later	26	3	7	5.00	1.200
Valid N (listwise)	26				

Overall Mean = 5 (Corresponds a Lot)

Table 4.20: Student Extrinsic Motivation – External Regulation

Findings: The mean of all the student data received showed that the students with gifts and talents were also extrinsically motivated across all the subcategories of preparing for their future career, feeling important at school, and learning to gain high paying job prospects. Although, the students would ideally be totally intrinsically motivated, these results were encouraging to some extent as these are adolescent learners who are becoming mature emotionally and the results were reassuring for the purposes of this study.

The last subscale was equally important to gauge if the special students were discouraged and the results are shown in the table 4.21.

Descriptive Statistics: Amotivation

	N	Minimum	Maximum	Mean	Std. Deviation
Wasting my time in school	26	1	6	2.23	1.531
Wonder if I should continue school	26	1	6	2.38	1.551
Do not care about going to school	26	1	3	1.69	.736
Do not know what I am doing at school	26	1	3	1.46	.647
Valid N (listwise)	26				

Overall Mean = 2 (Corresponds a Little)

Table 4.21: Student Amotivation

Findings:

The students demonstrated strong correspondence to both intrinsic and extrinsic motivation. They displayed very weak correspondence to amotivation. The detailed discussion regarding these outcomes will be covered in Chapter- 5 of this report. Overall, the affective data give evidence for positive consequences for students with gifts and talents because of the special programs provided to them by their schools.

The final part of the quantitative analysis involved highlighting the demographic differences noted in the learner data and find the answer to the last research question that is discussed in the next section.

4.3.3 Student Demographic data

This part of the quantitative analysis was to respond to the last research question regarding any differences based on student demographic data.

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

The data for 105 students was analysed using the SPSS software using the descriptive statistics feature to understand the breakup of data based on student ethnicity, gender, year-wise percentages owing to the identification among the various schools. Cumulative percentages of student attainment data correlated to their ability data were of interest to supplement the efficacy of the gifted provisions and services offered by the private schools in Dubai. The outcomes are tabulated in this subsection.

Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IB1 School	22	21.0	21.0	21.0
	IB2 School	6	5.7	5.7	26.7
	Ind1 School	37	35.2	35.2	61.9
	Ind2 School	8	7.6	7.6	69.5
	UK School	30	28.6	28.6	98.1
	US School	2	1.9	1.9	100.0
	Total	105	100.0	100.0	

Tables 4.22: Student Demographic Data (Curriculum)

Findings: The two IB Curriculum Schools together contributed to 26.7% of student data, the UK Curriculum School provided 28.6%, the two Indian Curriculum Schools together contributed to 42.8% while the US Curriculum School provided 1.9% of data.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Year 7	47	44.8	44.8	44.8
Year 8	42	40.0	40.0	84.8
Year 9	16	15.2	15.2	100.0
Total	105	100.0	100.0	

Tables 4.23: Student Demographic Data (Year)

Findings: The students in Year 7 formed 44.8% of the participation, students in Year 8 populated 40% and the balance 15.2% students were from Year 9.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Female	49	46.7	46.7	46.7
Male	56	53.3	53.3	100.0
Total	105	100.0	100.0	

Tables 4.24: Student Demographic Data (Gender)

Findings: The female population formed 46.7% and male populated 53.3% of the identified gifted students participating in this study. Since this demonstrated almost equal split, the current study reported no gender bias in gifted identification within Dubai.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid American or Canadian	2	1.9	1.9	1.9
Emirati	1	1.0	1.0	2.9
European	13	12.4	12.4	15.2
Indian	57	54.3	54.3	69.5
Other Asian	32	30.5	30.5	100.0
Total	105	100.0	100.0	

Tables 4.25: Student Demographic Data (Ethnicity)

Findings: 12.4% of the students were of European origin, 1.9% students were American or Canadian, 54.3% students were Indian nationality, 30.5% students were Other Asian category, and only 1% were Emirati students.

Following the general demographic data breakup discussed above, the student data was also analysed for their overall performance across the core subjects of English, Mathematics, and Science as indicated in the following subsection.

English Results

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Above Expected	34	32.4	32.4	32.4
Below Expected	34	32.4	32.4	64.8
Expected	25	23.8	23.8	88.6
Not Available	12	11.4	11.4	100.0
Total	105	100.0	100.0	

Tables 4.26: Student Overall Data (English)

Findings: Regarding the English Attainment- 56.2% students performed at expected or above expected levels in correlation to their ability, 32.4% underachieved while data for 11.4% students was not available.

Mathematics Results

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Above Expected	28	26.7	26.7	26.7
Below Expected	23	21.9	21.9	48.6
Expected	33	31.4	31.4	80.0
Not Available	21	20.0	20.0	100.0
Total	105	100.0	100.0	

Tables 4.27: Student Overall Data (Mathematics)

Findings: Regarding the Mathematics Attainment- 58.1% students performed at expected or above expected levels in correlation to their ability, 21.9% underachieved while data for 20% students was not available.

Science Results

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Above Expected	26	24.8	24.8	24.8
Below Expected	33	31.4	31.4	56.2
Expected	25	23.8	23.8	80.0
Not Available	21	20.0	20.0	100.0
Total	105	100.0	100.0	

Tables 4.28: Student Overall Data (Science)

Findings: Regarding the Science Attainment- 48.6% students performed at expected or above expected levels in correlation to their ability, 31.4% underachieved while data for 20% students was not available.

To summarize, the present study involved interviews, survey research, learner ability and attainment data analysis from standardised assessments and documentation reviews to collect evidence for the research questions and explore the gifted programming options offered at private middle schools in Dubai and investigate its effectiveness. The detailed discussions for each of the qualitative and quantitative findings with references to relevant literature are included in the next chapter.

CHAPTER FIVE: ANALYSIS AND DISCUSSION OF RESULTS

Culture is not the most important thing, it's the only thing. (Jim Sinegal in Martin 2018, p. 68).

5.1 Overview

The purposes of the present research were to investigate the gifted educational programs offered by the private middle schools in the emirate of Dubai and evaluate its effectiveness in a holistic manner. The study was guided by the following research questions:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

The current study was conducted across the popular curriculums offered at private schools in Dubai including the UK curriculum, the IB curriculum, the Indian curriculum and the US curriculum schools. As explained previously, this study focused on the middle school gifted educational programming options offered and its effectiveness across the affective and cognitive domains of learners. The research consisted of three distinct

sections and the findings along with the discussion for each research question are presented in the subsequent sections.

Similar research was carried out by Chen and Chen (2020), who explained the evolution of the gifted educational programs in Taiwan over the past four decades with the *White Book of Gifted Education* being publicized by the Ministry of Education in the year 2008. This was followed up with a six-year plan with one component emphasizing the curriculum differentiation and socio-emotional counselling for the student with gifts and talents alongside another part focusing on program evaluation and realization of a long-term strategic plan for continuous gifted program appraisal. The authors discussed that 2019 Yearbook of Special Education data by their MoE specified that of the 5.67% of learners receiving special educational programs, 20% population were identified as students with gifts and talents. Chen and Chen (2020) used the adapted model of the New South Wales Department of Education and Communities Evaluation Framework (2014) as shown in the figure 5.1.

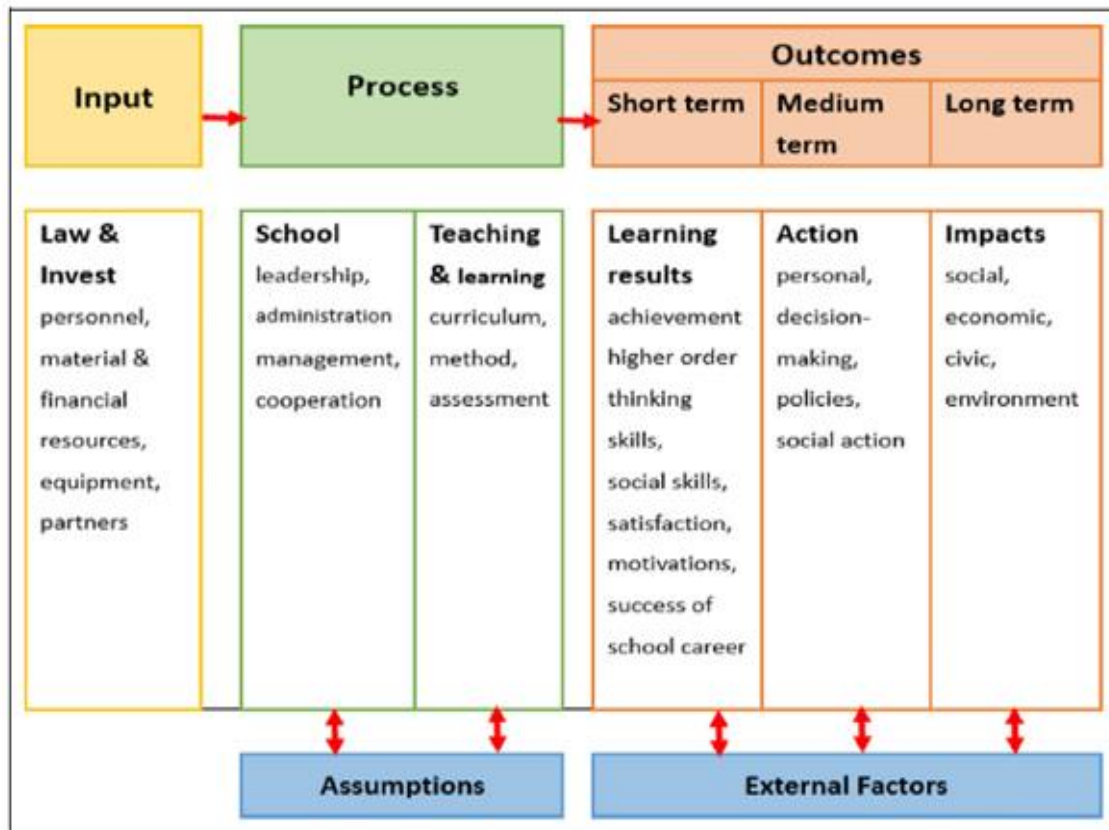


Figure 5.1: Gifted Education Program NSW Evaluation Framework (Chen & Chen 2020, p.120)

The researchers explained that the Special Education Act of Taiwan encompassed the gifted education regulations. Chen and Chen discussed the significance of gifted program evaluations using evidence-based practices like the NAGC Standards to advance the current programs in Taiwan and developing long-term sustainable plans for gifted program design and evaluation (Chen & Chen 2020) and formed an important reference for this research.

The present study aimed to explore the gifted programs and evaluate its effectiveness and the in-depth discussion regarding the findings of the current study are organised in the order of the research questions and explained in the following subsections.

5.2 Qualitative Analysis and Discussions of the Gifted Programming Options offered across Private Schools in Dubai

This section discussed the findings considering relevant literature to respond to the second research question, namely:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

The detailed information collected by the qualitative methods in the preliminary phase of this study formed the most significant contribution in understanding the gifted educational provisions and services offered by various private schools. As explained in the previous chapters of this report, the evidence gathered by interviews with the school educators were validated alongside the findings of the recent annual KHDA school inspection reports and evaluated against the six standards of the NAGC Pre-K-12 Gifted Education Programming Standards. Comprehensive discussions regarding the findings of the research alongside the NAGC Standards and appropriate literature are presented in the following sections.

5.2.1 Standard 1: Learning and Development

The NAGC Standard 1 recognised the peculiar learning and developmental needs of students with gifts and talents and explained the research-based practices that advance these students' self-awareness, cognitive and affective advancement with expected student outcomes in general educational settings.

The gifted education programming options and services offered by the private schools in Dubai were wide-ranging with some schools providing comprehensive programs and services while others had only initiated the identification procedures. These inconsistent provisions could be attributed to the lack of specific gifted education standards or guidelines from the KHDA, the regulating body responsible for inspecting all private schools in Dubai. AlGhawi (2017) explained that the absence of federal laws specific to giftedness alongside poor implementation of the 2010 UAE policy document as important barriers to development of relevant provisions and services for students with gifts and talents. Such sentiments were echoed by other researchers like Gomez-Arizaga et al. (2020) explaining how gifted learners can get disengaged and apathetic with their learning if the curriculum is not adapted to suit their profile including their interests, strengths, cultural context, and exceptional needs. The basic rationale of education is to ensure that all students learn meaningfully at school. The authors refer to countries like Chile where national policies regarding gifted education are non-existent, raising awareness by voicing student concerns is a compelling and significant strategy to inform the necessary changes in education (Gomez-Arizaga et al., 2020). This situation is not hugely different from the local scenario within Dubai and the present study aims to raise attention to similar issues at hand.

One of the encouraging findings within this standard was that most of the participating schools designed learner profiles that described the gifted students' interests, strengths, learning preferences, and gifts. This evidence-based practice was reinforced by Maeng (2017) who reported that when teachers plan lessons based on student profile and choice, the efficacy of curriculum or instructional differentiation increased. Maeng recommended

that the learner profile must comprise of their individual preferences, gender, learning styles, cultural background, and interests which stimulated their curiosity, understanding, building on prior knowledge, passion, and advanced their learning readiness (Maeng 2017).

The majority of the participating schools created Advanced Learning Plans (ALPs) for their gifted students with learning goals commensurate with their interests and strengths. These ALPs were collaboratively developed with subject teachers, students, and parents. Prior research by Sahragard and Heidari (2017) advocated for the use of dynamic assessments, which was a compilation of instruction and testing after deliberating on the students' potential like their advanced memory, higher order thinking skills, and emotional intelligence. The researchers echoed the significance of the learner and their family being aware of their giftedness to provide a supportive environment that is paramount to their development. Sahragard and Heidari (2017) recapped the work of Vygotsky explaining the valuable information derived from effective assessments to further inform appropriately challenging instructions offered to gifted students. According to the authors, *Dynamic Assessments* could be used to evaluate the learning process or the product.

Educators from the participating schools that developed ALPs explained that the enrichment tasks or activities planned for the gifted students were with the intent of advancing their above-average abilities and skills. Along similar thoughts, assignments aligned to learner interests and preferences were recommended as excellent pedagogical strategies to cater to the needs of students with gifts and talents by Swaggerty and Brommel (2017). The affective factor of student motivation could be advanced by

offering them opportunities to communicate their rich experiences with their peers, providing innovative and original tasks, and enhancing their sense of belonging within the school and wider community. The authors expressed additional significant contributing factors including the qualifications and attitudes of teachers, affective learning environment, flexible task-based grouping and meaningful engagement of students that could lead to successful provisions for students with gifts and talents (Swaggerty and Brommel, 2017).

It was heartening to note that all participating schools reported the provisions of curriculum differentiation, project-based learning opportunities, enrichment options within and outside of schools, and strategies to enhance the higher order thinking skills along with leadership capabilities. These encouraging outcomes were in accord with the expectations of gifted programming standards (NAGC, 2019). According to Tomlinson (2014), successful teaching practices encompassed the process, content, and product alongside the associated learning environment to develop meaningful educational experiences for students with gifts and talents. Effective differentiation emphasised curriculum access to every individual learner allowing them to progress in their knowledge and understanding while catering to the diverse range of learner readiness, interests, and needs. Teachers needed to take ownership of modifying, differentiating, or developing suitable curriculum accommodations and offer appropriate scaffolding of pupil learning while attempting to close any academic gaps or extending their learning experiences (Tomlinson, 2014).

Comparable outcomes were evidenced by Kaufman et al. (2012) about academically gifted learners who received challenges by teaching practices of extension tasks,

challenging lesson objectives, flexible grouping, and independent research opportunities in suitable subject areas. Such teaching and learning strategies were in accordance with the recommendation by Kaufman et al. (2012) of using some form of gifted rating scales as part of the identification. Also, the significance of these research-backed practices was reiterated by Gomez-Arizaga et al. (2020), who advised student-centered education, providing relevant challenges to students with gifts and talents, presenting open-ended questions, tasks requiring in-depth knowledge, project-based learning opportunities, and planning appropriate tasks to enhance their higher-order thinking skills. Analogously, Maeng (2017) appreciated the recognition and respect given to the individual differences of learners' profile, interests, and academic readiness by educators offering differentiated instructions. Based on social constructivism, the purpose of differentiation was to safeguard the rightful accessibility to a responsive curriculum and consigning the student at the heart of the learning to ensure their success along their educational journey.

Although most of the participant school coordinators mentioned differentiation and enrichment options being offered to their identified gifted students, important strategies like ability grouping or flexible grouping were not discussed by the educators or did not seem to be a popular practice locally. This finding was resonated by Van-TasselBaska et al. (2020) having reported inadequate use of this strategy across twenty districts in the US. Students with gifts and talents demonstrated benefits in their critical thinking skills along with subject-specific abilities from flexible grouping used by teachers. The authors explained the substantial impact of differentiation instructional practices on the learning of gifted students and reported a positive shift in the usage of differentiation within six district schools but found disappointing results in the other districts. Other effective

strategies described by Van-TasselBaska et al. (2020) included the attitude, experience, ability, limited class sizes, and professional development of teachers that could influence the learning progression of students with gifts and talents. These noted experts explained the inconsistency in the behaviours of educators like learner readiness, encouraging learning environment, teachers' pedagogical and subject knowledge and planning, and pressure to cater to individual needs of all students within the classroom (Van-TasselBaska et al., 2020).

Along similar trends, Vidergor and Gordon (2015) explained that recent research documented the rewards of the critical phenomenon of segregated learning that involved like-minded gifted peers being grouped for specific tasks or lessons. Ability grouping opportunities within the school created to cater to the motivations, learning styles, distinct tasks, interests, ability, and instructional strategies reported multiple benefits for the gifted students. Such groupings allowed gifted and high ability pupils to function in mutually enriching and profiting circumstances, and students alongside teachers conveyed their gratification with the educational programs. A similar study in Israel described positive perceptions in gifted learners about their school, enhanced interactions between teachers and students and higher academic achievements (Vidergor & Gordon, 2015).

Unfortunately, the school leadership of none of the participating institutions were rated above *Very Good*. The significance of an outstanding school leadership team cannot be overemphasised when effective curriculum and instructional differentiation and student-centred education is the focus of any study. This fact was reiterated by Handa (2019) who examined the perceptions of teachers and school leaders regarding the use of

differentiation while catering to the needs of students with gifts and talents across government schools in Australia. This study reported that exemplary leadership, including the school principals, acknowledged the importance of differentiation and ensured that the teachers engaged in ongoing professional development to continually improve their skill set. Handa retold the importance of curriculum and instructional differentiation to cater to the distinct needs of the gifted learners, while explaining the central role of teachers but driven by equally effective leaders to achieve this meaningful environment. Gifted and talented students could enjoy the supportive and engaging learning within schools because of aligned perceptions between leaders and teachers regarding differentiation rather than these strategies being enforced from external agencies (Handa 2019).

Comparable studies by VanTassel-Baska et al. (2020) evidenced that well planned gifted programs led to effective differentiation for the gifted learners and stated that the application of research-based resources and professional development courses in using specific gifted models should be the priority for enhancing teaching behaviours to enhance the higher-order thinking skills of the deserving learners. Some useful examples included critical thinking sessions within specific subject areas or concepts, or using mathematical reasoning in middle school, or effective use of instructional grouping for students with gifts and talents within reading. VanTassel-Baska et al. (2020) informed that their study found teachers using common lesson plans for all students despite some being identified as gifted.

One significant observation from the interviews conducted with the gifted educators was the common ignorance of strategies to counter gifted underachievement with appropriate

interventions at school. Prior research on gifted education have recognised numerous reasons for student underachievement. Ziegler and Stoeger (2017) describe the systemic approach whereby the educator would question the whole composition of the education systemic factors including but not limited to learner motivations, lower degrees of interest, possible exam anxieties, teacher expectation levels, parent attitudes. These noted experts explain this contemporary paradigm which enabled the gifted educator to review the student's actiotope holistically and based on their findings, design appropriate interventions in a strategic manner to create or restore the optimal circumstances for the effective performance of the actiotope (Ziegler & Stoeger, 2017).

The important role played by self-confidence in explaining underachievement by gifted students was discussed by Meulen et al. (2014). Numerous learners opted for the simplest or least demanding pathway thereby impeding their exposure to relevant challenges as explained by previous studies. Additional studies described the concerns like psychological issues including anxiety or depression, difficulties maintaining social relations, school dropouts, and other emotional troubles, especially with very highly gifted students. Meulen et al. expressed gifted underachievement because of ineffective differentiation by teachers, unmodified learning environments, impracticable expectations by parents, or other similar factors. Gifted underachievement could be observed in the form of frustrations, lack of engagement, boredom, anger, withdrawals, and other socio-emotional behaviours (Meulen et al., 2014).

Not many of the participating schools had provided for suitable mentors to guide the students with gifts and talents. A mentor in the field of student's interest can play a significant part in the selection of their career pathway of a gifted student. This finding

was reported by Steenbergen-Hu and Olszewski-Kubilius (2017) during their research with high school learners having received enrichment opportunities or acceleration options in Math and Sciences. Almost a quarter of the students with gifts and talents explained the strong impact of appropriate encouragement provided by mentors on their learning and career choices (Steenbergen-Hu & Olszewski-Kubilius, 2017).

An additional influential factor that can affect the learning progression of students with gifts and talents was the presence of a role model (Camper et al., 2019). Their study regarding the reasons for gifted students to end up as school dropouts in urban areas ended up documenting the absence of a role model along with dysfunctional families, lack of engagement at schools, and minimal family involvement. Camper et al. (2019) hoped that future provisions at schools would incorporate social skills progression as part of gifted services at schools. In the current study, not a single school reported the students' exposure to appropriate role models as part of gifted programming options.

Regarding the current study findings, only some school educators showed awareness of career counselling and vocational education availability to cater to the specific needs of their gifted students. In addition, only one participating school educator discussed the option of acceleration for the learners with gifts and talents. The significance of acceleration and career counselling cannot be overemphasised. Evidence for these sentiments were reiterated by Ziegler et al. (2013) having stated that acceleration was actively promoted across all the states of Germany. The authors discussed the importance of effective mentoring for gifted pupils, acceleration and enrichment offered areas of student interest, students receiving secondary education with college preparedness had advanced alongside special or magnet schools for intellectually gifted learners, increased

population of vocational institutions, enhanced partnerships between schools and universities regarding admissions and support transition programs, along with giftedness support outside of schools in terms of summer camps becoming increasingly popular.

In continuation, Ziegler et al. (2013) also elucidated the exemplary achievements of gifted students being mentored by a specialist and expressed the rationale behind the growing number of mentoring establishments in Germany. The experts mention that one of the popular mentoring programs was CyberMentor which was an online service specifically for encouraging high school gifted girls in the STEM field. Every mentor-mentee relation remained active for a year and hundreds of students benefitted annually from this provision. The researchers explicated how counselling supported students and their families to further their unique talents and provided schools with a strong pillar for its gifted services. The noted experts highlighted that giftedness needs to be perceived as a dynamic and complex concept that can be advanced with evidence-based learning practices at every educational institution (Ziegler et al., 2013).

The thought-provoking strategies described by Ziegler et al. (2013) sum up the multitude of gifted programming options in accordance with the NAGC Standard 1 and the next part explains the Standard 2 of Assessment in detail.

5.2.2 Standard 2: Assessment

This standard by NAGC conveys comprehensive understanding and information about assessments including identification of students with gifts and talents and the learning development of students with the expected outcomes, and appraisals of the gifted

provisions in a holistic way are described clearly. The present study outcomes relevant to this standard are discussed in this segment of the report.

One positive finding of this study was that all the participating schools had developed gifted and talented identification procedures, although these processes fluctuated from one school to the other. This outcome agreed with the reporting about the advancement in gifted education by AlGhawi (2017) during her research across public schools in Dubai. However, the number of identified gifted students contrasted from one school identifying only 1 student on the gifted register to another having 22 identified gifted students. This variance could be due to differing student populations or lack of proper identification processes. As stated in the UAE School Inspection Manual (2015-16), even though all gifted students demonstrate some typical characteristics like inquirers, rapid pace of learning, and creativity; the gifted identification could be adversely affected by the diverse population of students from numerous cultural and linguistic backgrounds, socioeconomic status, curriculum, gender, and being non-responsive to the individual needs and learner motivations (UAE MoE, 2015).

Regarding gifted identification, Nakano et al. (2016) discussed the advantages of using tools like the Gifted And Talented Evaluation Scales (GATES) screener which measured learner abilities across various batteries like the academic skills, creativity, intellectual ability, leadership skills, and artistic talent. This domain-specific assessment proved immensely helpful in understanding individual profiles and recognizing talents that helped in providing appropriate challenges. One example documented by Luria et al. (2016) was that learners identified with strong leadership skills could be offered suitable opportunities as recommended by Sternberg's model. Similarly, the assessment of

creativity had been established as a positive attribute necessitated as a part of giftedness identification process by Luria et al. (2016). Additionally, the importance of creativity assessments, learning environments, and products have been emphasised by renowned theories of giftedness and creativity (Kaufman et al., 2012). One of the main theories guiding the study was the Gagné's Differentiated Model of Giftedness and Talent (1999) which acknowledged the numerous domains of giftedness, while the modern version DMGT 2.0 (2009) differentiated between giftedness as aptitude-specific and talent as field-specific along with the explanation of the progressive path that translates the giftedness into talent with appropriate support systems (Miller, 2012). The finding of this study regarding the use of multidimensional identification process agreed with the theoretical framework discussed in chapter three.

The current study found that a couple of schools reported using comprehensive identification procedures including Renzulli's Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS). The Renzulli scales were an extension of his theory of giftedness which proposed the three-ring concept including the above average ability, task commitment, and creativity followed by incorporating the environmental factors that could affect gifted behaviours (Renzulli 2020). The practice of using the SRBCSS for gifted identification was promoted by Plucker and Esping (2015). The authors described that intelligence and creativity shared a complex correlation, and this has often been evaluated and critically analysed by numerous researchers, and its significant influence on the gifted provisions cannot be over-stated (Plucker and Esping, 2015). Utilising broad creativity-based assessments, behaviour character rating scales like the Scales for Rating Behavioral Characteristics of Superior

Students (SRBCSS), which incorporates teacher inputs in additional areas like learning, motivation, planning, science, and technology; and other student self-assessments could support the meaningful gifted provisions (Kaufman et al., 2012).

Additional suggestions regarding gifted identification were reported by Ketter and Bower (2017) having demonstrated the advantages of innovative skills or subject-specific checklists in identification of students with gifts and talents. They illustrated the example of a mathematics-based checklist named ‘Creativity-in-Progress Rubric’ that enhanced the creativity and student motivation as explained by El Turkey et al. (2017). Another example stated by the researchers was the use of writing checklists that could be used as an effective strategy of providing feedback to learners about their product by the teachers.

The NAGC Standard 2.3 described the significance of using non-verbal assessments to identify students from diverse cultural backgrounds. This expectation was satisfied by all the participating schools by using the Cognitive Ability Testing (CAT4) that had a non-verbal battery of tests. This assessment was mandatory according to the KHDA regulations (KHDA, 2016). While this was an encouraging find regarding identification process, one essential aspect overlooked by most of the participating schools was providing the gifted behaviour checklists or other documents in the native language of the student to enable identification or improved understanding of giftedness by their families (NAGC, 2012). The Cognitive Ability Testing (CAT4) used by all schools as part of gifted identification comprised of verbal, non-verbal, quantitative, and spatial batteries (GL Assessments 2018).

One surprising finding of the study was that none of the participating schools had identified any twice-exceptional students. This could be a genuine case of such a student

not being part of the participating school population or improper identification procedures or lack of awareness regarding twice-exceptionality among the school educators. One of the reasons could be the small population of twice-exceptional learner population in general (Neihart et al. 2016).

As part of this qualitative evaluation of gifted education in the emirate of Dubai, one of the common areas of weakness identified was the lack of using off-level standardised assessments to interpret the learning progression of students with gifts and talents. This formed one of the evidence-backed practices within the NAGC standard 2. Analysing student outcomes because of curriculum differentiation, enrichment options or socio-emotional interventions and enhancing gifted provisions based on the evaluative information collected forms a significant factor within gifted education. The NAGC standards 2 of program evaluation enlist the expected learner outcomes encompass the robust identification processes, comprehensive assessment of above-grade level performance, mastery of content, high order thinking skills; followed by qualitative and quantitative analysis of the gifted programming options offered to students, embedding the annual appraisal of programs and services within the gifted education processes that further estimate individual constituent to advance provisions, and dissemination of these findings to the relevant stakeholders (NAGC, 2019).

Following up on the assessment standard, the following section deliberated on the significant factor of Curriculum and instructional planning for students with gifts and talents.

5.2.3 Standard 3: Curriculum planning and instruction

The NAGC Standard 3 articulated the specific student outcomes and the appropriate research-based prototypes of curriculum and teaching practices responsive to the specific needs of students with gifts and talents. This standard encompassed all stages including planning or developing, selecting, modifying, and designing suitable curriculum with cultural context and developing a breadth of instructional strategies leading to student advancement (NAGC, 2012).

Regrettably, there is an absence of gifted education standards in the local context from the KHDA and each school develops some curriculum modifications that it deems appropriate to meet the needs of advanced learners. This results in inconsistencies from one educational institute to another as obvious from the annual school inspection reports. Although not generalizable, it was heartening to see that all the participating schools provided the learners with gifts and talents extension tasks, enrichment opportunities, project-based learning, out-of-school activities matching to the students' interests, special clubs and met some of the evidence-backed practices according to NAGC Standard 3. The curriculum planning and instructional strategies provision varied from one school to another and was extremely inconsistent.

A few notable good practices relevant to this standard followed by some of the participating schools included tasks to enhance the student's creativity, critical thinking, innovation, and other higher order thinking skills. Similar thoughts were shared by Vidergor (2018) who propagated the multidimensional curriculum model (MdCM) in the study conducted in Israel. The author evidenced 40% advancement in the thinking skills when exposed to this curriculum model. Previous studies focused on the twenty-first

century skills comprising of creativity, innovation, problem-solving, communication, and computing. Vidergor (2018) explained that the MdCM integrated components from numerous curriculum models designed for students with gifts and talents. The MdCM drew inspirations from Tomlinson's Parallel Curriculum Model, VanTassel-Baska and Stambaugh's Integrated Curriculum Model and the Future Problem-Solving Program. The MdCM involved the development of the learner's inquiry and problem-solving skills to instil futuristic abilities in the gifted students (Vidergor, 2018).

The present study evidenced the use of a parallel curriculum for gifted learners offered by the US curriculum school. This finding was as recommended by Tomlinson (2009) who proposed the parallel curriculum comprising of the core curriculum, curriculum of connections, curriculum of practices, and curriculum of identity. Although the present study could not gather details of the provision made by the US curriculum school, the finding was very heartening in terms of curriculum modification for gifted students. Similarly, the Multiple Menu Model by Renzulli, Leppien, and Hays (2000) advised a menu of knowledge tools and applications, instructional strategies, and menu of possible products guiding with differentiation techniques for gifted learners. Other helpful gifted provisions and services covered by similar giftedness research studies are discussed below.

Support for project-based learning opportunities by incorporating the quaternary design principles of personalisation, collaborative skills, equity, and original ideas; was documented by Anderson (2018). The author suggested helpful steps to employ creative engagement strategy comprising of lesson time set aside for learners to elucidate the content creatively, extend student capacity in using metaphors for abstract concepts

utilizing visuals, movement, or poetry; incorporate dramatic forms as regular classroom routines, explain expected audience partaking, active discussions regarding the array of emotions experienced while learning with peers, and reflections from learners about meaningful experiences and connect (Anderson 2018).

Extending the curriculum models, one of the contemporary curriculum models recommended for gifted students was the Real Engagement in Active Problem Solving Model (REAPS) by Maker et al. (2015). The authors explained that this model was comprehensive and could be implemented in a flexible manner. The REAPS model comprised of strategies of modification of content, process, product alongside the learning environment; could be used across a multitude of cultural settings, varied age groups, and adapted for specific needs of students with gifts and talents. The authors described this curriculum model as driven by evidence-based teaching and learning practices that enhance the problem-solving skills of gifted students using creative approaches (Maker et al., 2015). Another study by Riley et al. (2017) also evidenced benefits of the REAPS Model within the New Zealand context for secondary gifted students. However, the authors suggested professional development and support for teaching staff regarding the effective usage of the REAPS Model could be differentiated and enhance learner engagement and show growth in their potential. The additional advantages for the students with gifts and talents included improvement in collaborative problem-solving, contributions as a community, connection to their cultures within the Science subject area alongside soliciting teacher awareness about the special capabilities about their students and readiness to scaffold them appropriately (Riley et al., 2017).

Most of the participating schools in the current study reported few research-backed practices for students with gifts and talents like provision of high-quality research tasks, peer mentoring options, extensive abstract work, collaboration opportunities with their high ability peers, enterprise skill-based tasks, participation in external competitions and field trips, and independent research activities. These strategies were in line with the expectations set by the UAE School Inspection Framework 2015-16, which discussed evidence-based practices for supporting gifted students (UAE MoE, 2015). Similarly, positive outcomes in advancing the talented student interests within the STEM field owing to their participation in science-based competitions like the *Science Olympiads* were reported by Höffler et al. (2017).

Similarly, some good practices offered by the participating schools comprised of planning for suitable leadership and entrepreneurship options, promoting innovation and sustainability ideas among the students with gifts and talents. These strategies were suggested by the DSIB inspection supplement 2017-18 which also emphasised curriculum adaptation, learning skill progression, and social responsibility (DSIB 2017). Also, the year 2015 was declared as the Year of Innovation by the UAE Government and innovation was explained as one of the pillars of the UAE Vision 2021 (UAE Government 2014). The subsequent year was designated as the Year of Reading by the UAE Ministry of Education, as part of the Vision 2021 plan. The Education Ministry established the UAE Reads teams, raised awareness among all the stakeholders of education, and actively followed up with this initiative through the annual school inspections within private education in Dubai (UAE MoE, 2016). On a positive note, most of the participating schools encouraged the reading program as a whole-school project except one of the

participants that received a specific recommendation by the inspection authorities to boost their reading scheme for their learners (KHDA, 2020).

One of the noted deficiencies in the gifted educational programs offered by all the participating schools was the absence of identifying underachieving gifted students and providing appropriate interventions to support them. One such successful strategy was reported by Meulen et al. (2014) about the specific type of pullout program called the Day a Week School (DWS). This program intended to provide differentiated curriculum personalized to the pace of learning and level of each gifted student by pulling them out of their regular classrooms only once a week. This approach maintained the balance between inclusive learning and specific intervention that catered to the individual needs of the gifted learners. Meulen et al. (2014) evidenced the advantages for the deserving students as they had the opportunity to pursue their aspirations and learn advanced higher order skills while their parents shared positive sentiments as the needs of their children were met, alongside regular classroom teachers who happily contributed towards developing the accelerated or enriched curriculum for the students. The authors highly recommended this innovative strategy that created a win-win situation for all stakeholders while enhancing the academic self-concept of gifted students and meeting their socio-emotional needs to some extent (Meulen et al., 2014).

Following the reflections of the findings and literature regarding the NAGC Standard 3, the subsequent section makes notes for the Learning environments Standard.

5.2.4 Standard 4: Learning environments

The implications of an encouraging, safe, and caring learning environment for the students with gifts and talents cannot be overstated. This standard incorporated the learning environment that endorsed self-dependence, socio-emotional wellbeing, motivation, leadership skills that nurture social change, effective development of learners from diverse backgrounds, communication abilities, growth mindset, and the feeling of valuable identity of the community (NAGC, 2019). The learning environments offered by each participating school were wide-ranging and is described in this section.

The two IB curriculum schools and one of the Indian curriculum schools provided evidence for learning environments that enhanced the personal and social competence of the students with gifts and talents. They offered a variety of enrichment opportunities appropriate to advancing not only the students' academic abilities but also their artistic talents like art, drama, music, or sports. Many of the schools had opportunities for developing the leadership skills, collaboration, and communication skills of students. Most of these schools demonstrated an inclusive learning environment. Some of the participating schools encouraged students to be socially responsible while displaying exemplary wellbeing and safeguarding practices themselves. The KHDA inspection authorities commended on the robust community sense and respect for educators and peers along with good behaviour by the students in a couple of the participating schools (KHDA, 2020). Most of these schools had counsellors for socio-emotional counselling as well as guidance counselling for high school learners. This resource was not very well utilized for the students with gifts and talents by all the schools.

The impact on the learning owing to the individual epistemologies of students with gifts and talents was highlighted by Gallagher (2019). The author described the effect of the learner's epistemic reasoning skills on their responses to curriculum, perceptions, knowledge, and psychosocial factors. Gallagher documented the findings of prior studies that substantiated the rapid development of epistemological reasoning skills of gifted students as compared to their peers. The researcher implied the need for inquiry-based learning, regular opportunities for innovation and leadership advancement alongside long-term plans for student progression across these skills. Project-based tasks, increasingly abstract activities, presentation of complex tasks, and prospects to enhance the higher order thinking skills is especially important for the gifted learners (Gallagher 2019).

Some recommendations made by the inspection authorities to the participating schools included the advancement of positive coping skills, better understanding of the flexible grouping for students with gifts and talents, providing for an enhanced curriculum in their second language, and offering consistent counselling to cater to their socio-emotional needs. In addition to developing their access to assistive technology that augment their expressions, teachers should be self-reflective of their practices, and offer meaningful engagement of student through regular assessments, intervention, and tracking of the outcome of these interventions (KHDA 2020).

The significance of optimizing the potential of gifted students by the initiating a well-developed affective curriculum was discussed by Cavilla (2019). The author offered a framework for this affective curriculum with the intent to decrease the inconsistencies in the socio-emotional and cognitive development of students with gifts and talents, who

may demonstrate an amplified capability for morality and emotional intelligence. Cavilla (2019) deliberated on the evolved concept of learning which has led to improved understanding of the criticality of social and emotional learning for gifted students, which impacts the relation between their affective and cognitive domains. The researcher further explains how a fragmented approach to supporting the socio-emotional needs of these sensitive learners could limit their overall development (Cavilla 2019). This finding by Cavilla was consistent with the findings of the present study. One of the coordinators of gifted education participating in this study showed her lack of awareness regarding the counselling services at the school, while a few other educators did not seem to be collaborating with their respective school counsellors.

Most of the participating schools mentioned enrichment options being offered to their identified gifted students. One of the schools displayed awareness of the Renzulli program and used the Renzulli behaviour rating forms for determining the specific needs of their learners. Based on the findings of these checklists, students were offered appropriate enrichment. Similarly, another IB school provided relevant enrichment opportunities after identifying the interests of their students. One of the Indian curriculum schools also made some enrichment programs for their gifted students, though not comprehensively enough. The effectiveness of any provision was evidenced by the statistical data analysis which showed over 50% students managed to attain in line with or above their ability-based expectations alongside being motivated. The KHDA document analysis also revealed commendations for these schools regarding their curriculum modifications (KHDA 2020). Prior research in Saudi Arabia by Aljughaiman and Ayoub (2013) regarding the benefits of the OASIS enrichment program documented

enhancement of their students' critical thinking, analytical abilities, decision-making, and self-perception among other improvements. The authors evidenced significant advancement in the learners' creative skills and emphasised the need for such educational programs to improve the affective facets of students including their self-reliance, confidence, persistence, and collaboration. Aljughaiman and Ayoub (2013) reiterated the prominence of enrichment programs in maintaining the motivational levels of gifted students.

Also, KHDA's recommendation regarding teachers being self-evaluative of their practices were highlighted by VanTassel-Baska and Johnsen (2007), who discussed the necessity of teacher standards for the success of gifted programs, to ensure equity in education and support appropriate talent identification. They explained the significance of teacher receiving education themselves to be informed regarding their pedagogy, teaching strategies, and research-based practices to engage gifted learners purposefully in the regular classrooms. VanTassel-Baska and Johnsen (2007) further reflected upon the evolution of gifted education and its consequences on curriculum differentiation strategies encompassing of acceleration, advanced learning objectives, curriculum compacting, flexible grouping, independent study opportunities, problem-based learning, tiered lesson planning, promotion of higher order thinking skills, and specific skills required for numerous subjects. The authors reiterated the requirement of integrating career guidance in the learning plans for the gifted students (VanTassel-Baska & Johnsen, 2007).

The above discussions provided in-depth exploration of the study findings relevant to the NAGC Standard 4 and the next section explains the results for the Programming Standard.

5.2.5 Standard 5: Programming

The range of provisions and services extended to the students with gifts and talents were referred to as programming by the NAGC. This continuum of educational programming options comprised of the giftedness policies and procedures, identification processes, differentiation, curriculum modifications, enrichment, extension tasks, and any other services offered to the deserving learners. The concept of special schools for the advanced learners is yet to be established within the emirate of Dubai for private schools (NAGC, 2019). The programming options proffered by the participating schools were widespread and are detailed below.

The present study evidenced several good programming practices like differentiated teaching strategies, challenging learning objectives, extension tasks, accelerated programs, and enrichment lessons matched to the student interests by most of the participating schools. The comprehensive services also included student participation in numerous internal competitions like the Mathematics and Science exhibitions, musical shows, leadership tasks, communication advancement options, the parental involvement in their children's learning by half of the participants whereas the inclusive ethos was demonstrated by all the schools. Some of these deliberations are covered by the guidance from VanTassel-Baska and Johnsen (2007) in the section above.

Another study by Kitsantas et al. (2017) echoed the need for the provision of a consistent and gradually challenging learning environment for gifted students to keep them engaged in their educational journey, while its absence might negatively influence their cognition and affective domains. Additional provisions could comprise of self-regulated and directed learning opportunities, Tomlinson's Parallel Curriculum Model, Renzulli and Reis' SEM, independent study tasks, rapid pacing of curriculum, opportunities to interact with their like-minded peers, promoting positive perceptions about their education, increasing complexity in learning, and appropriate instructional strategies (Kitsantas et al., 2017). Regarding the significance of gifted identification with middle school students, Cross et al. (2016) reported positive correlations between their academic self-concept and being identified as gifted within the school and suggested this may be the source of their academic and social coherence.

Although the present study did not specifically investigate the reading levels of the participating gifted students, some schools had good reading programs in place as evidenced by the KHDA school inspection reports. The importance of personalized selection of literature to satisfy that the students with gifts and talents with challenging reading materials that could motivate and interest them was highlighted by VanTassel-Baska (2017). She further explained how choosing appropriate reading books could potentially transport the gifted students away from technology into the world created by their imagination and intellect and the required stimulation to enter their own magical space (VanTassel-Baska 2017).

Analogous to the suggestions by VanTassel-Baska (2017), a similar study conducted in Hongkong by Sui Chu Ho and Lau (2018) revealed the correlation between reading

engagement and the intrinsic motivation of gifted students. The authors explained the important relations between the use of reading strategies, frequency, reading comprehension, variety of books read, and motivation within western countries. They expressed the cycle of reading more led to enhanced vocabulary and advanced reading skills and this in turn motivated student to become better readers, and the students showed growth in their cognitive and affective areas concurrently. The authors reiterated that this reading to learn program was probably the major cause of improvement in the PISA scores (Sui Chu Ho and Lau, 2018). The UAE has employed similar reading strategies and schools are expected to have a reading initiative in place. The outcomes of these initiatives need to be evaluated and published by the authorities.

Another study by Newell (2017) described the benefits of using audio clips, visuals from artists, photographs, excerpts from primary sources of information, music, and other multisensory inputs during literature lessons, students demonstrated improved engagement with the lesson and initiated relevant and precise questions. Some gifted students developed inquiry trees using Bloom's Taxonomy on street art, rap, and giftedness using multiple perspectives. The researcher discussed the manifold advantages of using culturally responsive literature and incorporating themes of scientists, leaders, philosophers, and others to help learners reflect and realize their role and responsibilities within their societies (Newell 2017).

Some recommendations from the NAGC standards that were relevant to the programming were to include the planning of special budget allocations for the programming options, the development of multi-year programs, enhancing the reading programs, and improving career advice for gifted students (NAGC 2012). The following section presented the

findings and discussion regarding the professional development of teachers which formed the NAGC Standard 6.

5.2.6 Standard 6: Professional Learning

The NAGC Standard 6 expounded the teachers' professional development standards for the Gifted and Talented education used as a reference checklist within the US context. Within the UAE, there is a paucity of identified teacher training standards specifically for gifted education and the researcher utilized the NAGC Standard 6 to evaluate the current levels of professional development within private schools in Dubai (NAGC, 2012).

Lamentably, one of the weakest areas in gifted provisions and services offered at private schools in Dubai came across as the professional development of teachers and heads, specifically regarding gifted education. Not a single school seemed to have invested appropriately in teacher training or leadership training about enhancing programming standards for students with gifts and talents. This fact was reiterated by AlGhawi (2017) as an important barrier to advancement of gifted education in the region.

Recent studies by VanTassel-Baska, Hubbard, and Robbins (2020) have evidenced that the teaching competencies required for promoting the higher order thinking among learners were better developed in the group of educators having received professional development than untrained teachers. Other studies have reported similar positive results over time for teaching staff trained in utilizing differentiation. In addition to the professional development, effective implementation of strategies catering to the needs of gifted students requires the right attitude from teachers, time to plan lessons and availability of resources at hand. The authors discussed the findings of some Australian

teachers having received specific workshops in gifted education narrated positive shifts in their competencies and attitudes while catering to gifted learners. Additional studies conveyed ineffective application of the two most researched differentiation strategies regarding gifted education, namely, flexible grouping and acceleration, by teachers despite getting appropriately trained. The researchers also explained the differences from a cultural perspective with teachers in Singapore using differentiation more effectively as compared to teachers in the US. Follow-up research revealed the reason for the successful implementation in Singapore was attributable to the practical content of the teacher training courses.

One of the strong recommendations by the inspection authorities to a few participating schools was to use the assessment data to meaningfully plan learning experiences for gifted students and develop multiyear educational programs that ensured learning progression for the deserving students. Prominent experts in the field of gifted education like Callahan (2004) have discussed the disregard of program evaluation by educators over the past few decades and categorized the seminal evaluative resources into categories that offer theoretical or practical parameters, provide specific program analyses, suggest impetuses for deliberations of issues that circumferent evaluations, or recommend new research studies regarding the evaluation processes. Callahan (2004) directed gifted educators towards gifted education evaluation to make significant contributions that would enhance the efficacy and worthiness of the gifted provisions and services.

Being strongly influenced by these noted scholars, the current study attempted to investigate and qualitatively evaluate the gifted programming options provided to middle

school gifted learners across private schools in Dubai. Following the detailed analysis described above, the researcher decided to evaluate one cognitive aspect of student learning, namely, demonstration of learning progression of gifted students proportionate with their ability, which forms part of the NAGC Standards 3 and 5 using quantitative methods. Also, an additional quantitative evaluation of an affective factor of student motivation formed the third part of the current study. The final investigation was to discuss the identification of the gifted students based on their demographic data and describe the inclusion of diversity within the local educational context. The detailed description of the findings of this evaluation across the core subjects of English, Mathematics, and Science follows in the next section of this thesis.

5.3 Quantitative Analysis and Discussions of the Student Data to Supplement the Qualitative Analysis

This section discussed the findings considering relevant literature to respond to the second research question, namely:

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

5.3.1 Review of Student Data in Cognitive Domain

As explained in the research design and methodology, Cognitive Assessment Test-Version 4 (CAT4) was used to measure student ability by all the participating schools as this was mandated by the educational authority in the emirate of Dubai (KHDA, 2016). Each school used some form of standardised testing appropriate with the curriculum

offered for assessing students' attainment. Quantitative analysis was used to correlate the learner ability and attainment data. The findings are discussed in the sub-sections below separately for English, Mathematics, and Science alongside outcomes of other relevant research studies. A copy of the CAT4 assessment and all the standardised assessments including GL Assessment PTE, PTM, and PTS; ASSET, MAP, and the Acer IBT are enclosed at appendices for improved understanding towards the end of the thesis.

5.3.1.1 Review of Student Data in English

IB Curriculum School 1

The quantitative analysis of the student attainment data using the standardised assessment Progress Test in English (PTE) versus their ability data utilizing the CAT4 showed that 61% of the gifted students attained in line with or above the expected scores.

The KHDA school inspection report rated the English attainment of the school as *Very Good*. The other feedback in the report stated that the school had well developed reading strategies using traditional texts as well as digital media, the library program was very engaging, the leadership were committed to enhancing the reading across the school, students demonstrated good verbal expressions along with broadly developed written skills. The inspection authorities also commended the embedding of instructional methods promoting critical thinking and inquiry skills that were integral to the IB curriculum. Teachers encouraged collaboration and emphasised on literary analytical abilities allowing strong language development in learners (KHDA, 2019). All these evidence-based practices led to the *Very Good* English progress amongst students.

IB Curriculum School 2

The analysis of the learner attainment data using the standardised assessment IBT Scores versus their ability data utilizing the CAT4 showed that none of the gifted students attained in line with or above the expected scores. Gifted underachievement was one of the most neglected area of the provisions and services offered by all the participating schools.

The KHDA 2018-19 report commended that large majority of learners exceeded the UAE National Agenda Parameters. The student attainment data in English in the middle school was rated as *Outstanding*. The inspection authorities strongly commended the teaching practices that promoted the creativity and critical thinking in learners by accenting the use of project-based learning (KHDA, 2019).

UK Curriculum School

Similar quantitative analysis of the student attainment data using the Progress Test in English (PTE) versus their ability data utilizing the CAT4 showed that 75% of the gifted learners attained in line with or above the expected scores.

The 2019-20 KHDA inspection report praised the reading assessment data in terms of being informative, realistic, detailed, and accurate analysis by the school. The school was also commended for encouraging the reading habits as a lifelong learner in English and teachers advanced their analytical skills. Although the overall attainment data for the school was rated as *Acceptable*, the language acquisition was improved in students in middle years and high school as compared to primary years (KHDA, 2020).

Indian Curriculum School 1

The statistical analysis of the student attainment data using the standardised assessment ASSET versus their ability data utilizing the CAT4 showed that 76% of the gifted students attained in line with or above the expected scores.

The KHDA 2019-20 inspection report commended the numerous programs by the school to enhance student literacy, effective communication skills of the middle school learners, student self-confidence during class discussions or presentations, improved researching abilities and using technology effectively. Some recommendations by the inspection authorities included further development of writing skills and avoidance of quick paced lessons to allow learners to gain in-depth understanding of concepts.

Indian Curriculum School 2

The quantitative analysis of the student attainment data using the standardised assessment ASSET versus their ability data utilizing the CAT4 showed that 60% of the gifted students attained in line with or above the expected scores.

The KHDA 2019-20 report mentioned that the school encouraged reading skills of their students. The educational authority rated the student attainment data in the middle years in English as *Very Good*. Middle school students were reported to be articulate, confident speakers, good listeners and writing was an area that was required to be developed further (KHDA, 2020).

US Curriculum School

The quantitative analysis of the student attainment data using the standardised assessment MAP versus their ability data utilizing the CAT4 showed that 50% of the gifted students attained in line with or above the expected scores.

Since the US curriculum school had initiated gifted identification recently and the official KHDA report was unavailable, the analysis of student attainment data would probably not reflect the efficacy of the gifted provisions offered to learner, but rather first quality teaching strategies by subject teachers.

The overall mean of the English attainment data from all the schools combined was analysed using the SPSS program and the results are explained below.

English:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above Expected	34	32.4	32.4	32.4
	Below Expected	34	32.4	32.4	64.8
	Expected	25	23.8	23.8	88.6
	Not Available	12	11.4	11.4	100.0
	Total	105	100.0	100.0	

Tables 5.1: Student Attainment Data Analysis (English)

Findings of Table 5.1: Regarding the English Attainment- ***56.2% students performed at expected or above expected levels in correlation to their ability, 32.4% underachieved while data for 11.4% students was not available.***

Prominently, two important themes emerge from the outcomes explained above, the first being the encouraging result of 56.2% students attaining as expected or above expected within English language despite inconsistent gifted educational provisions being offered at various schools. We could imagine the results if all private schools offered high quality gifted programs to deserving students. Secondly, gifted underachievement is a profoundly serious issue that needs immediate attention by all the educators. Additionally, there are no studies conducted within the English language achievement specifically regarding gifted learners within the UAE.

Most of the language-based studies relevant to gifted learners were conducted across the U.S. Gokaydin et al. (2017) explained that higher order thinking enhancement and language progression were the communication basic blocks that allowed expression of innovative ideas, emotions, learning, and experiences with others while playing a significant role in the intellectual advancement and reflective thinking skills for students with gifts and talents. Previous studies have evidenced the augmented language acquisition competencies of gifted students encompassing enriched verbal abilities, above average reading skills, superior comprehension, expansive vocabulary, and expressive skills. Teachers were required to differentiate the language content, instructional techniques to cater to these unique needs of gifted learners. Some recommended strategies included advanced language content, appropriate reading resources, open-ended tasks, inquiry-based opportunities, multidisciplinary areas of work, enriched vocabulary, and flexible ways of expression to develop holistic approach to language curriculum. Another helpful aspect was the integration of technology within language education to boost the learning of gifted students (Gokaydin et al., 2017). All of these findings were extremely

helpful and relevant in the UAE context to enhance the gifted students' academic achievement and advance their language skills.

Likewise, the importance of designing an advanced literacy program for the gifted learners was highlighted by Beltchenko (2019) explaining how the regular curriculum failed to meet the metacognitive needs of these young readers at school. Books characterizing appropriate role models would be one of the ideal resources that could resonate with the gifted students visualizing themselves as problem-solvers and critical thinkers. Beltchenko (2019) enlisted some of the observable behavioural traits of advanced learners as overly broad vocabulary, curious nature, usage of complex sentences and reading abilities considerably above their chronological age. The author discusses the significance of using data from standardised assessments that are valid as well as reliable including the NWEA MAP test or Cognitive Tests alongside reading proficiency to understand the literacy needs of the gifted students. This study indicated the traits of an enhanced literacy curriculum including reading program with books of various genres, vocabulary advancement opportunities, greater exposure to literary devices and styles along with numerous prospects to express verbally or through extensive writing. Beltchenko (2019) finally recounted some unique requirements of gifted students as development of strategic thinking, active learning process, right to novel learning considering their cultural background, interests, and curriculum requirements.

The current study also used the students' cognitive data (CAT4) and their standardised attainment data (PTE/IBT/ASSET/MAP) to evaluate their English achievement. This was in line with the study methodology used by Beltchenko (2019). Several important

suggestions that can be used to further improve the gifted programs was providing advanced literacy-based books based on student interests and reading age. The current study did not analyse the reading scores of the gifted students as many learners probably were at an advanced reading age as compared to their chronological age. Also, the study by Beltchenko made an important recommendation regarding the provision of books portraying appropriate role models for gifted students. This was an observed drawback evidenced by the qualitative analysis of the current study in the previous discussions.

An analogous study by Callahan et al. (2015) discussed the lack of appropriate challenging levels of curriculum and instructional strategies offered to gifted students, which formed the centre of effective gifted programming. These findings were reiterated by numerous experts like Renzulli, Reis, Tomlinson, VanTassel-Baska, and others that found the curriculum and instructional model in the budding stages along with inadequate studies regarding interventions catering to gifted learners. Additionally, some researchers reported some barriers to evidencing efficacy of curricula or instructional strategies as problems determining effective assessment of student outcomes, difficulty in evaluating the extent to which gifted education models were responsible for learner progression, and dearth of information about implementation of gifted programs (Callahan et al., 2015). These conclusions reverberate the situation in the local context, which faces a serious privation of research on giftedness.

Callahan et al. (2015) discussed a few popular Curricular and Instructional Models suitable to the needs of gifted students including Kaplan's Depth and Complexity Model, Tomlinson's Differentiation Model, and Schoolwide Enrichment Model by Renzulli and Reis. Some Curricular recommendations comprise of student choice in content, in-depth

learning opportunities, increased exposure to abstract concepts, open-ended questions, critical thinking-based tasks, and usage of advanced learning resources. Correspondingly, instructional strategies that were suggested for gifted learners by Callahan et al. (2015) covered independent activities, cross-curricular theme-based instructions, student voice in the creation of products or presentation, and an augmented pace of instruction. The conceptual framework for the present study was also based on Tomlinson's Differentiation Model and Renzulli and Reis' Schoolwide Enrichment Model, thereby learning from Callahan's study.

Drawing from the noted experts mentioned above, Callahan et al. (2015) designed the CLEAR Model as a curricular and instructional framework for gifted students. The proposed model also amalgamated five components of specific learning goals, learning experiences driven by data, continuous formative assessments, enriched curriculum, and genuine products. Their research indicated positive outcomes for the gifted student achievement using the CLEAR Model and advised further studies investigating the efficacy of this model with students from diverse cultural and socio-economic backgrounds, classroom of varied sizes, different grade levels and disciplines (Callahan et al., 2015). The proposed CLEAR model could be applied in a few private schools in the local context and its efficacy could be evaluated for future purposes.

Like the language specialty discussions above, the subsequent section makes important considerations for the Mathematics field.

5.3.1.2 Review of Student Data in Mathematics

IB Curriculum School 1

In the current study, the quantitative analysis of the student attainment data using the standardised assessment Progress Test in Mathematics (PTM) versus their ability data utilizing the CAT4 showed that 70% of the gifted students attained in line with or above the expected scores.

The KHDA 2018-19 report reported that the middle school mathematical proficiencies were built upon prior knowledge and strong mathematical skills developed in Primary grades. Positive outcomes were documented in problem-solving skills, mathematical enquiry, critical thinking abilities, alongside organizational and communication skills of middle school learners. The school presented a well-structured knowledge and skills progression mathematics standards that benefitted all learners. The only recommendation was to explicitly demonstrate inquiry consistently across math lessons (KHDA, 2019).

Based on the student data and KHDA findings, gifted underachievement should be considered by the educators to enhance the provisions for the deserving students.

IB Curriculum School 2

Similar quantitative analysis of the learner attainment data using the standardised assessment Acer IBT Math against their ability data utilizing the CAT4 showed that 100% of the gifted students attained in line with or above the expected scores.

According to the annual school inspection report, the mathematics progression if students was *Outstanding* and attainment was rated as *Very Good*. Special commendations were

made about the improvement in the mental mathematics and number skills in middle school learners. Similarly, positive outcomes were reported about the students' analytical abilities, problem-solving, and the balanced approach of using technology with critical thinking skills. These findings explain the 100% students meeting or exceeding their ability-based expectations. Some recommendations by the authorities included enhancing the learning experiences of mathematically gifted middle school students (KHDA, 2019).

UK Curriculum School

Comparable quantitative analysis of the student attainment data using the Progress Test in Mathematics (PTM) versus their ability data utilizing the CAT4 showed that 71% of the gifted learners attained in line with or above the expected scores.

Mixed findings were documented by the recent KHDA inspection report with learners demonstrating good reasoning, critical thinking, and problem-solving skills but inconsistent investigating abilities. Some recommendations included strengthening mental math skills, practical applications of mathematical concepts, and appropriate challenges to learners (KHDA, 2020).

Indian Curriculum School 1

The statistical analysis of the student attainment data using the standardised assessment ASSET versus their ability data utilizing the CAT4 showed that 81% of the gifted students attained in line with or above the expected scores.

The KHDA inspection report 2019-2020 commended students' motivation across the school that led to an overall improvement in their attainment. A few constructive findings recorded were regarding the real-life applications of mathematical concepts learnt during

lessons and quality peer support offered in secondary grades. However, KHDA specifically documented lack of support provided to gifted students and develop interventions for underachievement (KHDA, 2020).

Indian Curriculum School 2

The quantitative analysis of the student attainment using the standardised assessment ASSET data versus their ability data utilizing the CAT4 showed that 80% of the gifted students attained in line with or above the expected scores.

The annual inspection report by KHDA 2019-20 explained that students were more adept with using standard math procedures rather than applying these to new situations. They demonstrated robust understanding of definitions and math facts which supported the consolidation of their logical capabilities. Some recommendations by the KHDA included the provision of challenging lesson objectives to more able learners, improved differentiation by teachers, and having high expectations of all learners (KHDA, 2020).

US Curriculum School

The quantitative analysis of the student attainment data using the standardised assessment MAP versus their ability data utilizing the CAT4 showed that 50% of the gifted students attained in line with or above the expected scores.

Like the case of English data analysis, since the US curriculum school had initiated gifted identification recently and the official KHDA report was unavailable, the analysis of student attainment data would probably not reflect the efficacy of the gifted provisions offered to learner, but rather first quality teaching strategies by subject teachers.

Mathematics:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above Expected	28	26.7	26.7	26.7
	Below Expected	23	21.9	21.9	48.6
	Expected	33	31.4	31.4	80.0
	Not Available	21	20.0	20.0	100.0
	Total	105	100.0	100.0	

Tables 5.2: Student Attainment Data Analysis (Mathematics)

Findings of Table 5.2: Regarding the Mathematics Attainment- ***58.1% students performed at expected or above expected levels in correlation to their ability, 21.9% underachieved while data for 20% students was not available.***

Analogous to the English language results, the two important themes are echoed within the Mathematics domain as observed from the outcomes explained above. Firstly, the positive consequence of 58.1% students attaining as expected or above expected within Mathematics probably because of gifted educational programs being offered at various schools, notwithstanding its inconsistencies. These results could have been more robust if all private schools offered efficient gifted programs to the learners. Secondly, gifted underachievement continues to be an overpoweringly serious concern that demands urgent attentiveness by all the educators. Lastly, 20% of student data was unavailable for the purposes of evaluation and this information could have huge implications while gauging the effectiveness of Mathematics provisions by local private education. Moreover, there was only one prior research study within the mathematics area specifically regarding gifted learners within the UAE.

Research about mathematically gifted students in the local context was rare, especially research regarding gifted education and teachers' perspectives (Jarrah & AlMarashdi, 2019). Although the UAE educational transformations were notable in the recent years with the commitment to enhance inclusion of students with any additional needs, many gifted learners were at a risk of underachievement owing to the absence of appropriate challenging opportunities or differentiated curriculum made available to them. Also, there needs to an increased awareness about the success of the UAE government initiatives concerning gifted programs (Jarrah & AlMarashdi, 2019). The authors stressed the significance of teacher perceptions for further improvement of gifted programs for mathematically gifted students. Their study revealed teachers generally had optimistic perceptions regarding their competencies but questioned the efficacy of the educational programs offered to gifted students. Jarrah and AlMarashdi (2019) recommended relevant professional development of teaching staff to develop the mathematical provisions and services further along with increased research investigating innovative teaching and learning approaches customized towards students with gifts and talents. This study by Jarrah and AlMarashdi had significant implications for mathematics-based gifted programs in terms of regular evaluations, which was an attempt made by the current study, alongside the pressing requisite of professional development for the teachers in the UAE scenario.

Comparably, the study by VanTassel-Baska et al. (2020) recounted that all math teachers, irrespective of the year or grade levels, provided advanced instructions to identified gifted students. The authors testified that the most enthused teaching observed was in math classrooms. Topical research about mathematical giftedness and creativity has

increasingly generated great interest among educators (Singer et al., 2017). Since leadership in the technological sphere can be dominated by individuals with exceptional mathematical capability, enhancing learning opportunities for mathematically advanced students were emphasised by the National Council of Supervisors of Mathematics and the foundation of a STEM network was accepted by the NAGC in 2011. The study by Singer et al. (2017) focused on the correlation of mathematical creativity, giftedness in mathematics and associated conditions for its realization, and teacher proficiencies and creative approaches to teaching and learning.

Similarly, the authors discussed two prior studies in the same year examining the evolving knowledge gains in inquiry-based lessons. They used the theory of Abstraction in Context (AiC) to explore the unique processes of developing and consolidating increasingly abstract mathematical concepts by Hershkowitz et al. or other notable investigation by Nolte and Pamperien regarding the utilization of problem-solving approaches that advanced learner motivations in mathematically developed students. Singer et al. (2017) further explained that learners' cognitive preferred style could be a good indicator of mathematical creativity alongside the significance of the professional development of teachers to identify and encourage the high achieving and mathematically creative students (Singer et al., 2017). The present study found that most of the participating schools developed learner profiles that listed the student's preferred learning style of cognition. While this was a heartening find, the KHDA reported unreliable teaching practices within the participating schools. Effective use of the learner profiles for the gifted students could be an initial step in the right direction followed by using evidence-based teaching and instructional practices to enhance the gifted programs in the region.

Another important strategy designed to promote math exploration using the inquiry or problem-solving among gifted learners was employing Math Circles (Burns et al., 2017). This approach was initiated by Harvard Professor Bob Kaplan alongside Ellen Kaplan in the US in 1994 to cater to the advanced needs of the students with gifts and talents. Following the success of this strategy, the NAMC commenced the Math Circle–Mentorships along with the Partnerships Programs intended to educate the novice leadership groups on the organizational and academic constituents of leading Math Circles. Additional studies recommended limiting this approach to gifted students for most effective outcomes. Burns et al. (2017) described their findings as definitive positive gains in terms of offering challenging objectives and promoting intellectual camaraderie among mathematically gifted learners. The findings of these study have important ramifications for the private education in the local context. The Math Circle-Mentorships could be piloted in Dubai schools for the gifted students and the evaluation of the said provision could evidence numerous gains for the meriting learners. The proposition by Burns et al. about fostering intellectual comradeship among the mathematically gifted students would go together with the previous suggestion and advance the math abilities by leaps and bounds.

Regarding mathematical giftedness, another interesting aspect that has gained substantial evidence is the speed of processing information. Baruch et al. (2014) investigated the correlation of five tests dependent on processing speed; namely digit-symbol, arithmetic activities, symbol search, visual matching, and eliminating numbers and recorded that the gifted students' performance was superior in the arithmetic, digit-symbol, and symbol search. Processing speed of information can be used for performance predictions owing

to its strong connections with working memory, accurate problem solving, and advanced inductive reasoning skills. Numerous prior studies have evidenced faster response by gifted learners on tasks assessing speed of processing information. Similar confirmations were made by the research among secondary student by Baruch et al. (2014), alongside reporting gender differences with girls outperforming in the digit-symbol assessment requiring verbal encoding skills indicating stronger verbal strategies in female learners. Similar studies are the need of the hour within the local setting to make students and teachers aware of the individual capabilities in terms of learner's speed of processing information and working memory while putting this information to good use in teaching and learning practices.

Another important study by Phan and Ngu (2018) documented the correlations between the gifted students' affective traits and mathematical achievement. They indicated the vicious cycle of positive self-esteem based on academic success and vice versa thereby explaining the necessity of providing an encouraging learning environment. The only exceptions to these influences were the impact of domain-related self-esteem on the student-teacher relationships. In general, the gifted learner's self-perceptions affected their academic achievement, relations with peers and adults, and interest in the learning activities. Although the present study evaluated only domain-specific attainment versus ability information with the intent of learning the efficacy of the gifted programs offered to students, understanding the correlations between the mathematics achievement and the affective aspects would present a richer understanding of the needs of students with gifts and talents. The next study discussed the importance of math project-based learning and student motivations.

Remijan (2016) demonstrated how a combination of project-based learning and mathematics could motivate gifted students in secondary school to get purposefully involved in real-life based situations. After studying the National Council of Teachers of Mathematics standards of problem-solving, communications, reasoning, connections, and modern strategies, Remijan adapted the twelve-step engineering design to suit the secondary students and developed design-intensive projects to go through the steps of problem identification, brainstorm ideas, research, hypothesis generation, feedback collection, edit and proposal development, appropriate solution, evaluation, cost analysis, prototype design, and final design creation. This process automatically stimulated the learners while catering to their self-concept and motivation (Remijan 2016).

In addition to the above, contemporary strategies that cater to the multidisciplinary intellectual needs of gifted learners include the provision of science, technology, engineering, and mathematics (STEM) enrichment programs along with the traditional acceleration programs (Mun & Hertzog, 2018). Some successful teaching approaches provide concept enhancement using open-ended questioning, fostering an encouraging and collaborative learning environment, play-based inquiry, and developing learner identity as a mathematician. The positive outcomes of student learning environments that involved teachers observing and reflecting upon their learning experiences within the subject area, inspiring lively discussions, encouraging them to be risk-takers and learning from their mistakes, problem-solving, providing faster paced lessons, and offering personalized learning opportunities, could be overemphasised (Mun & Hertzog, 2018). The lessons learnt from the above study has the potential to have enormous impact for STEM based approaches in the UAE schooling system. With the UAE Government

announcing the 2071 Centennial Plan including education presented the central stage and expectations of knowledge-based economy combined with sustainable solutions, STEM education forms one of the important pillars of success (UAE Government 2021).

Drawing some important conclusions from the discussions above regarding the STEM field, the natural next step would be to explore the students' performance within the Science domain, as follows in the next section.

5.3.1.3 Review of Student Data in Science

IB Curriculum School 1

The quantitative analysis of the Progress Test in Science (PTS) in correlation to student cognitive ability test data (CAT4) showed that only 40% of the identified gifted learners attained as expected with or above expected levels. These statistics were not encouraging in the field of Science.

IB Curriculum School 2

The IB Curriculum School 2 demonstrated *Very Good* outcomes with 83% of the identified gifted learners attaining as expected or above expectations in IBT Science assessments in correlation with their CAT4 data.

UK Curriculum School

Data analysis of student attainment in Science (PTS) versus their cognitive ability (CAT4) found only 42% of gifted students performed as expected or above expected levels at the UK School.

Indian Curriculum School 1

The statistical analysis evidenced positive outcomes that 73% of the middle school gifted students attained as expected or above expected Science scores in ASSET in correlation to their CAT4 data.

Indian Curriculum School 2

The Indian curriculum school data analysis showed encouraging outcomes with 80% of the middle school students having Science attainment in ASSET data in accordance or above expectations based on their CAT4 data.

US Curriculum School

Although 100% of the identified students showed Science attainment data in MAP as expected or above expected levels as correlated to their CAT4 data, this result cannot be held as conclusive as the US curriculum school had only 2 students in middle school identified on the TAG register. **Science:**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Above Expected	26	24.8	24.8	24.8
Below Expected	33	31.4	31.4	56.2
Expected	25	23.8	23.8	80.0
Not Available	21	20.0	20.0	100.0
Total	105	100.0	100.0	

Tables 5.3: Student Attainment Data Analysis (Science)

Findings: Regarding the Science Attainment- ***48.6% students performed at expected or above expected levels in correlation to their ability, 31.4% underachieved while data for 20% students was not available.***

Parallel to the English and Mathematics outcomes, similar matters are resonated within the Science realm as witnessed from the tabulated information explained above. Firstly, the result of <50% students attaining as expected or above expected within Science is not as reassuring as the English and Mathematics evaluations possibly due to the variable gifted programs being offered at the participating schools. These results could have been healthier if all private schools offered the expected gifted programs consistently to the learners. Secondly, gifted underachievement persists to be a strikingly solemn concern that stresses critical focus by every educator. Also, 20% of student data was absent for the current estimation and this loss of information could have bigger repercussions while determining the effectiveness of Science provisions by the private schools.

Some of the relevant studies that could provide invaluable guidance for the improvement of science programs within the home context are discussed below.

Wilson (2018) investigated the features of exemplary STEAM-based lessons offered to students with gifts and talents and reported the advancement in their creativity, in-depth knowledge alongside improvement in their visual-spatial abilities. These progressions were probably due to the cross-curricular links between the science, mathematics, engineering, technology, and art along with good collaborations between teachers and students combined with specialized assessment criteria. Wilson discussed the importance of good evaluation strategies combined with professional development for teachers regarding STEAM lessons could lead to enhanced development for relevant gifted learners. Post ESSA 2015-16, there has been a noticeable growth from educators in the US to offer specific curricula integrating Art in the STEM lessons to advance the creativity, critical thinking, academic and intellectual skills, student reflections, and imagination among students with gifts and talents (Wilson 2018). This study could have great impact on the current science provisions in private education for giftedness. The importance of cross-curricular links for purposeful learning experiences was highlighted by the KHDA in their feedback for the couple of participating schools inspected recently. As mentioned above, STEAM-based lessons could enhance student learning especially with the UAE 2071 Centennial action plan that needs to be developed by all schools. Effective evaluation of any program offered remains an area to be enhanced within the local settings. In addition, teacher training should be given prominence by the relevant authorities to achieve meaningful progression in our educational programs for gifted students.

Further, Maeng (2017) study reported that technology played a vital role in making her science lessons effectively differentiated and well planned for students with gifts and talents. Technology supported her planning to cater to the individual interests and learning preferences by adapting the learning process or the final product. The author recommended the National Education Technology Standards for Teachers as a reference document for all science teachers to understand the standards to advance learners' inquiry skills, building their knowledge, problem-solving, and creativity. The researcher explained how the science lessons were observed to be well differentiated when the teacher used the learner profiles and allowed the students to select the differentiated process or products based on her planned options. She designed tiered tasks using a variety of technological aspects of PowerPoints, videos, internet, and smartboards. An example of a differentiated science lesson flowchart can be referred from the article. Like the above discussions, the school inspection authorities pointed out the requirement of effective use of technology by some of the participating schools (KHDA 2020). Also, the importance of using the areas of interest and learning preferences from the student profiles created by most schools remained a point of contention. Lastly, the use of National Education Technology Standards for Science Teachers as a reference document could produce consequential results for students with gifts and talents. This brings us to one of the ignored but eloquent skill, namely spatial ability and its relevance to the science domain.

Although spatial ability has been regarded as an important gifted attribute that diminishes socio-economic, linguistic, or cultural biases, there seems to be an inconsequential emphasis on using spatial domain within general gifted education (Yoon & Mann, 2017).

With the STEM field emerging as a significant segment of gifted programs, spatial ability could be cogitated as a potential indicator of relevant talent. Prior research studies have documented their concerns regarding gifted under identification of learners with high spatial abilities along with lack of studies about appropriate learning environment to enhance gifted achievement utilizing their spatial capabilities. Yoon and Mann (2017) explained the crucial skill of three-dimensional rotation within the STEM settings including engineering, geology, geometry, chemistry, and technology. Available evidence describes the superior performance of male students as compared to female learners within the spatial domain. More specifically, male learners dominated in the block rotation, perspectives, and surface development while the female students performed better on the visual memory component of the spatial assessments. Yoon and Mann reiterated the prominence of identifying and offering STEM enrichment to the spatially gifted students and recommended further research about the individual preferences in problem-solving, skills of processing spatial data, and accuracy or speed versus complexity of spatial tasks performance in future (Yoon and Mann, 2017). In the Dubai context, all the students have their CAT4 assessments mandated by the KHDA, which means that the Spatial scores are available for every gifted student to the teachers. There is a dire need to not only be data rich but be data savvy and put the extensive data available to good use and train teachers with teaching and instructional strategies that cater to the spatially gifted learners.

Similarly, the importance of academic rigor while implementing project-based learning within the STEM area was highlighted by Edmunds et al. (2017). The authors stressed the significance of professional development of teachers in effective use of project-based

strategies to design an impactful learning for gifted students. The characteristics of classes with high academic rigor found the learners more actively involved in the project while applying their knowledge, answering the critical questions, and creating useful outcomes. The teachers displayed active engagement and expertise within their specialty areas and further motivated students to perform well (Edmunds et al. 2017).

Also, the significance of the science enrichment programs for advancing positive attitudes within sciences while promoting the self- concept of gifted learners was highlighted by Gubbels, Segers and Verhoeven (2014). The authors discussed the number of gifted students selecting the STEM field have reduced in the western countries according to the OECD (2008) report. Gubbels, Segers and Verhoeven (2014) reported an advancement in the intelligence quotient, interest levels and motivation of the gifted students post being offered science enrichment programs and strongly recommended these provisions based on the progress demonstrated by the learners across their cognitive, affective, and attitudinal or holistically (Gubbels, Segers & Verhoeven, 2014)

The gifted programming options offered by each participating school as explained by their educational authority, were validated by the recent KHDA school inspection reports, and analysed using the NAGC's six gifted education programming standards in the sub-sections above. The following part of the thesis paints the overall picture of gifted education in the emirate of Dubai and summaries the findings from the investigation from the initial part of the study.

5.3.2 Review of Student Data in Affective Domain

The significance of the affective domain in the education of gifted students have been reiterated on numerous occasions in the above sections. This part of the quantitative analysis attempted to answer the following research question.

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

The findings of this pilot study surveying the middle school gifted students using the AMS tool found outcomes that were very encouraging with the students on an average bring intrinsically and extrinsically equally motivated while not being amotivated. Prior research by Liu et al. (2017) evidenced that the survey results agreed with the self-determination theory. The seven-factor based questionnaire was reasonably appropriate and the internal consistency was found to be good for each subscale. This study findings differed in that the students seemed to be more extrinsically motivated and female students scored less on amotivation as compared to male students. Some of the noteworthy implications for educators were explained as usage of responsive learning strategies like collaborative work, offering immediate positive feedback to students, developing a sense of community, opportunities for student-led inquiry, activities that are challenging with appropriate teacher scaffolding to help advance student competence (Liu et al., 2017).

Other similar studies ascertained construct validity and strong reliability for the 7-point Likert scale based AMS tool. Utvær and Haugan (2016) found robust positive correlations among the basic need satisfaction and autonomous motivation. They advised that comprehensive identification processes of needs and appropriate support impeded amotivation. This finding could have powerful impact on developing suitable provisions

for gifted learners. Similarly, Litalien et al. (2017) braced the usage of the AMS survey to explore learner motivation and their research findings sustained the actuality of a motivation continuum, which could be further inform predictive analysis like learner self-regulation.

One possible explanation of the extrinsic motivation that the middle school students displayed in the present study could be possible high expectations from parents, teachers, or peers. These reasons were found by another study by Al-Dhamit and Kreishan (2016), who considered the situations faced by the learners due to high expectations from their family owing to their gifted identification. This probably explained their findings of students demonstrating extrinsic motivation. In addition, the scholars interrelated the intrinsic and extrinsic motivation of gifted learners alongside their conceptions of self-competence and parental support. According to the SDT, the prominence of the autonomous academic behaviours because of parental scaffolding stemmed as intrinsic motivation in gifted students. An additional important outcome of their study was the robust positive association between the intrinsic and extrinsic motivation of gifted students with their achievement goals.

From the self-determination theory perspective, students that are satisfied with the triad fundamental needs are capable of self-engaging actively in school tasks. Intrinsically motivated learners engaged in activities to satisfy their passion and did not need any external rewards or promises to enhance their performances. Also, extrinsically motivated students could be performing tasks for to avoid guilt or not pleasing their families or teachers, or gaining better career prospects in future, or fulfilling the self-determined value systems. In general, all types of motivations can be observed in the broader school

settings under different circumstances (Brophy 2010). These explanations agreed with the findings of this study where students seemed to be equally intrinsically and extrinsically motivated but were not amotivated overall.

In continuation, Garn et al. (2010) elucidated the momentous control of parents' attitudes concerning the schools on the learning consequences of their gifted children. A majority of the parents investigated revealed the importance of scaffolding their children with various responsive strategies to advance their academic motivation. Most parents were prepared to modify the home environment to cater to the individual requirements of the students. An additional important deduction by this research was the hindering attitude of parents that was generally correlated to their perception of an untrained educator who was unsuccessful in supporting to the individual needs of the gifted students. However, the researchers also reported that varying support from parents regarding autonomous behaviours of students was commonly observed. Finally, Garn et al. (2010) recommended more research in motivational studies, especially exploring the parental interventions for gifted and other children to enrich the current motivation-based literature database. The present study agreed with this requirement cited by Garn et al. as there are extremely limited studies regarding gifted students' motivation or self-perceptions in the Dubai context.

Relevant to the local setting, the cultural effect on the gifted education was aptly deliberated upon by the study in Jordan (Al-Dhamit & Kreishan, 2016). They expressed how the parents exercised great influence over student voice regarding their choice of subjects in secondary school and why the learners felt the need to place remarkable efforts to gratify their parents' expectations. Gifted learners were automatically pressured to

attain good grades at school and not spend efforts in extracurricular activities of their choice. An alternative significant outcome regarding the parent's educational backdrop was that the father's education seemed to have a greater influence on the student motivation as compared to mothers' background. Al-Dhamit and Kreishan advised that since the needs of the gifted students are peculiar, they should not be ignored by educators. Schools should provide quality training programs and include parents in such initiatives. They accentuated the significance of fostering awareness about gifted provisions (Al-Dhamit & Kreishan, 2016). Many of these findings could apply to the Asian part of the student population and could lead to substantial number of the gifted learners continuing to be extrinsically motivated for understandable reasons.

Since the current study explored the middle school gifted learners, the study by Doyle (2017) was relevant to the factfinding purposes. Although the author described the advanced intellectual abilities of the gifted adolescents, the point highlighted was the incomparable emotional capability and vulnerability in these crucial years. Some negative emotions that were evidenced by these adolescents comprised of underachievement, perfectionism leading to trauma, emotional stress factors including anxiety, depression, low self-esteem, and possibility of suicide in few learners (Doyle, 2017). The socio-emotional needs of the gifted students are highly disregarded within the private schools in the local context. The present study intended to gather the Pupil Attitude to Self and School by GL Assessments data to add to the affective information, but unfortunately not a single participating school conducted this assessment. The PASS information could be extremely helpful in understanding the socio-emotional needs and planning pastoral interventions for all students. The researcher would advocate for the PASS assessments

to be made mandatory for all private schools by the KHDA soon. Also, the gifted underachievement has been discussed on numerous occasions in the cognitive domain and is reiterated in the affective domain.

While extrinsic motivation being discussed by multiple studies above, Clinkenbeard (2012) discussed the critical inferences of intrinsic motivation on the affective functioning of students with gifts and talents, especially the underachieving learners. Some motivating factors that could turnaround the underachievement in case of adolescents were creativity or intellectual interest-based activities which were identified strengths of the learner pursued outside of the school environment, perceptions linking educational success to their individual goals, and classes the offered independent study or challenging opportunities. Although teachers and parents would offer extrinsic motivational measures to manage underachievement, student outcomes improved effectively over time when meaningful options were provided to them including those that appealed to their intrinsic strength or interests (Clinkenbeard, 2012). This finding was pertinent to the current situation in the local settings with the rate of underachievement being evidenced @20-35% range and the affective outcomes showing students as equally extrinsically and intrinsically motivated.

One of the most significant learning regarding the socio-emotional education on the whole school level was discussed by Taylor et al. (2017). The authors described the policies and practices that supported the students to gain knowledge, attitudinal aspects, and skills that advanced their individual development, social skills with peers and adults, work efficiency, and ethical behaviours using the Social and Emotional Learning (SEL) interventions. Numerous affective, behavioural, and cognitive competencies were

enhanced among students including self-management skills of emotional regulations, self-awareness abilities of strengths and weaknesses, social cognizance of empathy and multiple perspectives, improved relationships, alongside constructive decision-making skills using the SEL (Taylor et al., 2017). Further to this study, there was detailed explanation about the Collaborative for Academic, Social, and Emotional Learning (CASEL), a leading global organization that nurtures evidence-based practices and policies to advance the academic, social, and emotional competencies by means of the robust curriculum for gifted students at high school level by Cavilla (2019). The relevant section for middle school was discussed in the Literature Review section of this report. In addition, the Handbook of Social and Emotional Learning by Durlak et al. (2015) discusses the foundation, evidence-based programming, assessment, policy, and practices of the SEL, and is well worth investment of resources for catering to the affective needs of students with gifts and talents.

The present study could evaluate only 26 AMS surveys completed by students despite numerous reminders from the researcher to the relevant educators. The importance of the teachers receiving professional development regarding the socio-emotional or affective needs of gifted students was emphasised by Watts (2020). Teachers often misinterpreted the peculiar behaviours of gifted learners as lack of subordination and hence awareness of the asynchronous development of the cognitive and affective domains was stressed. Additionally, the need to incorporate student voice in their curriculum was crucial for them to be deeply engaged with their learning, their need to feel valued by their teachers, personalisation in correlation to the students' learning preferences and interests were echoed by Watts (2020). Additionally, the study by Tan et al. (2018) showed that the

perception about motivation being important for the learning to progress was valued by the gifted students more than their peers. Also, the insights regarding intelligence being viewed as pertaining to school or non-school domains while giftedness being considered as an affective facet relating to attitudinal aspects was an interesting outcome (Tan et al., 2018).

One of the major areas that seem to be neglected by the private schools in Dubai seemed to be assessment of students' affective aspects and offering appropriate pastoral interventions. Since KHDA has mandated the use of the GL Assessments Cognitive Ability Testing CAT4 to understand the cognitive abilities of all students for adapting the offered curricular and instructional strategies and identification of their needs. These provisions would be holistic in nature if the KHDA would also have mandated the usage of GL Assessments based Pupils Assessment to Self and School (PASS) to gauge the learners' attitudinal aspects towards themselves and their schooling including their feelings about their teachers, punctuality, and attendance among other perceptions (GL Assessments 2018). These factors are especially important for the gifted learners who may demonstrate heightened emotional states but would also cater to all the students' needs. Making holistic educational provisions would only prove to have benefits for the students and schools. The researcher suggested to add the PASS testing to the mandated assessment list in the conclusion section of this thesis.

In furtherance, after the AMS evaluation, the last part of the statistical analysis regarding the demographic differences owing to the gifted students' identification were analysed and the findings are discussed below.

5.3.3 Review of Student Demographic Data

The research question directing the last quantitative analysis of the current study is as follows:

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

Private schools in Dubai are licensed by the Ministry of Education (MoE) but governed by the Knowledge and Human Development Authority (KHDA). To cater to the educational needs of the expatriate population in Dubai, schools offering 17 different curricula operate concurrently with the most popular curricula being the British, IB, Indian, and American (UAE MoE 2021). The information regarding the exact number of schools offering the popular curricula are shown in table 5.4 as follows:

TOTAL SCHOOLS IN DUBAI	296
UK Curriculum	88 (30%)
US Curriculum	40 (13.5%)
Indian Curriculum	35 (12%)
IB Curriculum	35 (12%)

Table 5.4: Schools of popular curricula (Which School Advisor, 2021)

For the statistical part of student data analysis in the cognitive domain, the IB Curriculum Schools together contributed to 26.7% of student data, the UK Curriculum School provided 28.6%, the Indian Curriculum Schools together contributed to 42.8% while the

US Curriculum School provided 1.9% of data. This range in the number of participating students could be owing to inconsistent identification processes, the dynamic nature of the Dubai expat population, or different student numbers in each school, among other reasons.

The same reasons explained above could be responsible for the split of the number of students in each year group. The students in Year 7 formed 44.8% of the participation, students in Year 8 populated 40% and the balance 15.2% students were from Year 9. Also, the female students formed 46.7% and the male students were 53.3%. This data shows no predominant group of students with gifts and talents based on gender.

The population in Dubai is composed of 15% Emiratis, 51% are Indians, 20% Other Asians, and a high number of western expats (World Population Review 2021). Regarding the ethnicity of the participating students, 12.4% of the students were of European origin, 1.9% students were American or Canadian, 54.3% students were Indian nationality, 30.5% students were Other Asian category, and only 1% were Emirati students. The distribution of students based on nationalities indicated that the identification was fair, representative of the Dubai population numbers and based on their cognitive abilities (CAT4).

The above statistical analysis concluded the statistical analysis and discussions of the current study and the last part of the discussion follows in the next section. This includes the qualitative evaluation of the gifted programs offered across various schools and their effectiveness as evidenced by the study findings.

5.4 Summary of Findings

Ideally, schools should embolden learners to pursue their natural curiosity, inspire them to plummet in learning of their interests, ignite their passion, develop the growth mindset, and innovate while reflecting on their wellbeing and encouraging high moral standards (Martin 2018). Also, neurological research conducted over a decade utilizing the Magnetic Resonance Imaging technology had discerned the dynamic brain development during adolescence and specifically gifted students probably possess superior executive control processes. If the gifted adolescents make effective use of this intelligence skills, the neural connections develop further; else these vital connections may vanish with maturity (Dixon 2009). These arguments inspired the researcher to design the current study that investigated gifted programs provided by the private middle schools in Dubai and evaluated their effectiveness.

The definitions of the terms Gifted and Talented selected by the UAE School inspection authorities was using Francois Gagné's Differentiation Model of Giftedness and Talent (UAE MoE 2015). The researcher used the above definitions for the purposes of the current study which was guided by the following research questions:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

To summarize the findings of the study, the subsequent sections explain the important outcomes for each research question herewith.

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

The foremost finding of this study was the unpredictable range of gifted programs offered by the numerous participating schools. The other main highlights of the study are enlisted below:

- 1) The positive finding of the study was that all the participating schools, which varied from being rated as *Very Good* to *Non-rated* by the KHDA, had some gifted identification systems in place. All the schools did not rely on a single IQ test but had a breadth of identification procedures including some form of cognitive testing (CAT4), teacher referrals using checklists, parental nominations among other methods. Additionally, every school had an educator responsible for gifted programs and this helped accountability issue. However, there was no consistency in the identification systems which ranged in the comprehensiveness attribute and most of the educators responsible for the gifted programs were not appropriately trained for the purposes. In addition, none of the schools had any identified twice-exceptional students on their registers. This could be due to lack of awareness regarding twice-exceptionality among the educators or a sincere case of no twice-exceptional student being part of the participating school population.

- 2) The second encouraging outcome of the study was the fact that all the participating schools fostered an inclusive learning environment. Some of the schools were commended for their outstanding commitment to inclusion by the KHDA. Inclusion has evolved tremendously over the past decade in the UAE owing to the emphasis by the educational authorities. The federal laws and regulations, social model of inclusion practiced by the UAE, inclusion policy 2017 by the KHDA followed up with numerous guiding publications, the central stage given to inclusion during the annual school inspections are all responsible for this progression.
- 3) Most of the participating schools were rated at least *Good* by the KHDA authorities except one school that could not be inspected due to Covid circumstances. This process assured all the stakeholders about the quality of teaching and learning at these schools.
- 4) Since the present study was conducted across all the popular curricula offered by private education in Dubai including the British, American, IB, and Indian; the findings were all encompassing. However, since only 6 schools participated in this study, the results cannot be generalized, and this was not the objective of the research.
- 5) Most of the educators developed learner profiles detailing essential information like student interests, strengths and weaknesses, challenging goals, and possible teaching strategies. Some of the schools also produced Advanced Learning Plans for the identified gifted students. This documentation was immensely helpful for curriculum and instructional differentiation by the classroom or subject teachers.

However, the consistency and the quality of these documents were not ascertained by the researcher.

- 6) The students with gifts and talents received several forms of enrichment options, independent research tasks, entrepreneurship and leadership opportunities, problem-solving activities, and opportunities to pursue their interests in and out of school by many of the participating educators.
- 7) Curriculum differentiation remained a bone of contention based on the findings of this study. A couple of schools provided evidence of good practices as discussed by the educators and validated by the KHDA reports. Disappointingly, the majority of schools did not receive good feedback from the inspectors regarding curriculum differentiation. A few schools received commendation by the KHDA regarding the need to improve their teaching and learning practices.
- 8) Collaboration between the educator responsible for gifted education and the school counsellor remained an area of serious concern. Counselling services are extremely important for students with gifts and talents, sometimes due to their heightened emotional sensitivity and the complex changes during adolescence. Student wellbeing and pastoral interventions needed an increased emphasis by most of the participating schools.
- 9) The researcher intended to analyse the Pupil Attitude to Self and School (PASS) assessments to understand and analyse the affective data. Deplorably, none of the participating schools conducted PASS or any assessment to gauge students'

affective or attitudinal aspects. Obviously, this area needs huge impetus from the KHDA to ensure that it is practiced by all private schools in Dubai.

10) Guidance counselling regarding career prospects was well established in a few schools but continued to be an area for further development in half of the participating schools.

11) One of the biggest concerns regarding the gifted education was the poor professional development of educators. Most educators had attended some webinars on their own accord but there was no quality assurance or compulsory qualifications for practicing gifted programs. This finding was appalling and needed immediate attention by the KHDA and will be highlighted in the conclusion chapter.

12) Effective usage of assessment data to inform the teaching and interventions was a noted weakness in the gifted provisions and services based on the findings of this study. The KHDA inspection reports highlighted this issue for many of the participating schools. The quantitative analysis of the student attainment in correlation to their cognitive ability data demonstrated the pressing demand for tackling gifted underachievement. With appropriate provisions by the relevant educators, there could be a notable positive impact on student self-perception and achievement.

13) Increased emphasis on the STEM-based lessons was an urgent requirement in most of the participating schools. The statistical analysis of student data on standardised assessments showed the weakest performance in the Science field.

This could be a major cause for concern with the increased focus on sustainable solutions, innovation, and the UAE Centennial 2071 plan.

- 14) None of the participating schools perceived the importance of mentoring the students with gifts and talents. Also, provision of appropriate books with role models as problem solvers could further enhance the gifted programs and need to be looked at by schools in Dubai.
- 15) An important recommendation by the KHDA to some of the participating schools was the development of multi-year plans for students. This visionary provision could make an immense impact on gifted provisions.
- 16) The study outcome regarding the affective domain had mixed results. On the positive side, the mean data showed that the students were not amotivated. On the other hand, students showed equally strong association with extrinsic and intrinsic motivation leading to mixed feelings about the outcome. Student's affective aspects need immense attention from all educators.
- 17) Statistical data analysis evidenced unbiased identification regarding giftedness with almost equal representation from male and female students. Also, the student representation based on their nationalities seemed to project the population distribution present in Dubai. This was a heartening outcome.
- 18) The quantitative data presented strong rationale for advocating for gifted programs in the local context. More than 50% students attained as Expected or Above Expected levels in correlation to their ability across the core subjects of English, Mathematics, and Science despite inconsistent gifted programs.

Additionally, all the students scored remarkably high on the motivation scale.

These findings supplemented the qualitative outcomes and proved the effectiveness of the gifted provisions and services by all the participating schools.

All the above findings offered extremely convincing justification for development of consistent gifted programs in private schooling in Dubai. The researcher hopes the findings of this pilot study will help in advocating for the well-deserved emphasis on giftedness by Dubai local educational authorities. Appropriate conclusions and recommendations for future research will be presented in the next chapter of this thesis.

CHAPTER SIX: CONCLUSIONS

6.1 Overview

If you look at history, innovation doesn't come just from giving people incentives; it comes from creating environments where their ideas can connect. (Steven Johnson in Martin 2018, p. 44).

An optimal learning environment complementary to the students' giftedness is paramount to the growth or advancement of their talent, which is a consequence of personal and social enterprise. Prior research studies have evidenced varied social support systems that help students with gifts and talents by providing appropriate information resources, teaching and instructional strategies, enrichment opportunities, and socio-emotional guidance. Additionally, the triad support systems include the school, home, and out-of-school systems for enhancing the talents (Neihart et al., 2016). A common ground applicable in the UAE context is that the social or a rights-based model of inclusion is prevalent in schools locally (KHDA, 2019).

As discussed by Renzulli and Reis (1991), initiating advocacy for gifted education programs must take precedence for all professionals in this field. Although, the activist approach based on citing gifted learners as national resources and explaining the specific needs of these students are adequate for advocacy endeavours, when these efforts are strengthened with examples of the impact of gifted programs and effectiveness of the provisions and services, the case becomes persuasive (Renzulli & Reis, 1991). The intention of the current study is in harmony with the guidance given by these noted experts. the purpose of this research is to investigate the Gifted Education Programs and its Effectiveness across the Private Middle Schools in Dubai.

The objectives of the present study were to attend to the following research questions:

RQ1) What gifted programs are offered to meet the needs of identified gifted learners in middle schools in the private sector in Dubai?

RQ2) To what extent do these programs enhance the students' cognitive domain in terms of their English, Mathematics, and Science scores as compared to their predicted scores?

RQ3) To what extent do these programs enhance the students' affective domain in terms of their self-perception?

RQ4) Are there any significant differences in the student representation and academic performance of the gifted learners based on demographics?

The present study provided some in-depth insights into the gifted education programs offered by private middle schools following all the major curricula (British, IB, American, and Indian) and its effectiveness across the learners' cognitive and affective domains. Some important conclusions that can be drawn from the evidence gathered by this study are discussed herewith that could act as a tool for advocacy for the neglected but deserving students in private education in Dubai.

Although the most significant challenge faced by the researcher was the lack of resources and reliable infrastructure at every level, a silver cloud in the lining is the availability of the NAGC programming standards that served as the basis of gifted services advocacy and provided the required evidence-based standards to engage in the investigation of relevant educational provisions for the advanced learners (NAGC, 2012). The NAGC standards attended to the pre-K12 educational programs along with teacher development, but the current study focused on the gifted educational programs.

One of the heartening outcomes was that all the participating schools had multidimensional identification procedures in place that encompassed but was not limited to the cognitive assessment scores, teacher referrals using behaviour checklists, parent nominations, anecdotal evidence, and observations. This finding agreed with major theorists who believed in the multifaceted dimension of gifted identification including Howard Gardner, Joseph Renzulli and Robert Sternberg. Renzulli and Reis (2018) described the diverse forms that could be displayed by gifted students including creativity, attention deficit, twice-exceptionality, varied cognitive profiles, learning styles or preferences, interests, underachievement, asynchronous development, unique set of strengths and weaknesses. The current study also witnessed gifted underachievement as part of its statistical analysis. However, this did not hamper them being identified as gifted learners. Also, each participating school had an educator responsible for gifted programs and this helped accountability issue. Both these findings helped the researcher arrive at the first conclusion that the gifted education had evolved massively over the past few years. This result agreed with the finding by AlGhawi (2017) documenting positive development in the field of gifted education within public schooling system in the emirate of Dubai.

Similarly, another encouraging finding of the study was that all the participating schools fostered an inclusive learning environment, with some being commended for their outstanding commitment to inclusion by the KHDA. The UAE has witnessed tremendous advancement within inclusion over the past decade. This progression can be evidenced by the establishment of the Federal Law 29/2006 regarding rights of people with special needs followed by the ratification of the United Nations Convention on the Rights of

Persons with Disabilities in the year 2010, the Dubai Law No. 2/2014 concerning the protection of the rights of persons with disabilities, the Executive Council Resolution No.2/2017 on regulating private schools in Dubai with offering robust support for the effectual inclusion, further succeeded by the Dubai Inclusive Education Policy 2017, numerous guiding publications by the KHDA like the Implementing Inclusive Education, Directives and Guidelines for Inclusive Education, and Advocating for Inclusion – Parent Guide alongside the central stage given to inclusion during the annual school inspections (KHDA 2021).

Analogously, one more interesting find of the present study was the use of an individual learner profile by all the participating educators. These profiles enlisted student interests, strengths and weaknesses, challenging goals, and possible teaching strategies. Some of the schools also produced Advanced Learning Plans for the identified gifted students. The significance of these profiles for curriculum and instructional differentiation by the classroom or subject teachers cannot be overemphasised. Tomlinson (2014) discussed the effective ways of modifying the curriculum content, process, or product based on the information regarding the student readiness levels, interests indicated by the learner's passion or affinity towards a specific subject or skill, learning preferences or style, strengths, and weaknesses. The expert stated that the learning profile was basically information about how the student learns (Tomlinson 2014). Also, online generation of learner profiles was offered by Renzulli Learning platform to support effective differentiation for gifted students and designing impactful enrichment opportunities for the deserving learners (Renzulli, 2021).

Additionally, a few participating schools in the present study had also developed the Advanced Learning Plans (ALP) for the gifted students, which were similar in content to an Individualized Education Plan (IEP). The information that must be covered within an IEP was explain in detail by the KHDA in their publication on Directives and Guidelines for Inclusive Education (KHDA 2019). The involvement of students in developing the learner profiles or the ALPs is paramount to advancing their self-awareness in addition to knowing how to access resources that support their needs, developing purposeful challenging school experiences, understanding their affective needs in addition to their cognitive ones, ascertaining the mentors who can support them facilitate these challenges inside or outside of school alongside ensuring parental involvement (NAGC 2012).

Proceeding to the next conclusion derived from the varied findings was the range of programs offered by the participating schools. While all the schools offered numerous enrichment options, independent research tasks, entrepreneurship and leadership opportunities, problem-solving activities, and opportunities to pursue their interests in and out of school, there was a lack of consistency in these programs. This conclusion was ascertained by the detailed feedback in the school inspection reports published by the KHDA. Useful templates for extension tasks for numerous areas like arts, sports, history, languages, social studies, life skills, writing activities, mathematics, sciences, technology, and social studies can be easily found as hard copy or soft version by Winebrenner (2005). Helpful resources like these could be adapted to make them suitable for the UAE context and shared with all educators to ensure consistency in extension planning for students with gifts and talents.

Schools could use the knowledge and evidence from the multitude of enrichment programs including Renzulli and Reis' Schoolwide Enrichment Program (SEM), the REAPS model, and the OASIS models discussed in the literature review sections. Most of the information about the SEM including useful forms can be availed freely from the Renzulli Center for creativity, gifted education, and talent development (UConn 2021). Tomlinson's Parallel Curriculum Model, Renzulli, Leppien and Hays's Multiple Menu Model, and Tomlinson's Curriculum Differentiation Model provides numerous alternatives to teachers to personalize the learning process for every gifted student.

Inconsistent practices regarding identification of gifted students were also discovered during the initial qualitative phase of this study, where the comprehensiveness of the identification itself was questionable. Curriculum differentiation practices were a weak area in the gifted provisions by the participating schools. While a couple of schools provided evidence of good practices, most schools did not receive good feedback from the educational inspection authorities. Not a single participating school had any twice-exceptional student on their gifted registers. Also, few schools received commendation by the KHDA regarding the need to improve their curriculum modifications, teaching and learning practices (KHDA 2020).

In addition, most of the educators responsible for the gifted programs were not appropriately qualified or trained for the purposes. A few responsible educators had attended some relevant webinars on their own accord, but there was no quality assurance or compulsory qualifications for practicing gifted programs. To add to the unfortunate circumstances, there was no drive from the school authorities to arrange for appropriate professional development of their staff to enable them to cater to the unique needs of the

students with gifts and talents. An additional observation by the researcher was the misconception of the school leadership regarding the training needs of only the coordinators responsible for gifted provisions. For successful inclusion of gifted students, every teacher in the school should be aware of differentiation principles to ensure high quality first teaching in every classroom. The Standard 6 of the NAGC described the teacher preparation in terms of knowledge and skills to enhance the talent development of gifted students alongside their socio-emotional growth (NAGC 2012). Henceforth, the area of teacher training within Dubai pertaining to gifted education, needed immediate attention by the KHDA authorities.

Also, research-based practices for basics of gifted programming options like screening and evaluation, differentiation principles, acceleration, managing gifted underachievement, compacting curriculum, using Bloom's Taxonomy for generating appropriate questioning, boosting creativity using helpful classroom strategies, tiered assignments, template for the ALP, learning contracts, mentorships, out-of-school extension provisions, and other differentiation checklists are available in the Resource and Training Manual by Pennsylvania Department of Special Education (Pennsylvania Department of Education 2021). The information about these useful resources could be made available to the educators in Dubai.

One of the most worrying conclusions drawn upon by the present study was the sheer neglect of the schools regarding the socio-emotional development of the students with gifts and talents. The collaboration between the educator responsible for gifted education and the school counsellor was almost non-existent in many schools. The significance of counselling services due to the heightened emotional sensitivity and the complex changes

during adolescence of the middle school gifted students cannot be accentuated enough. Student wellbeing needed an increased prominence by most of the participating schools. It was utterly appalling to learn that none of the participating schools including the ones rated *Very Good* by the KHDA carried out the Pupil Attitude to Self and School (PASS) or equivalent assessments to understand and analyse the student's affective data. Deplorably, none of the participating schools considered any socio-emotional curriculum for the students with gifts and talents. Also, only a few schools had well established guidance counselling regarding career prospects, but this continued to be an area for further development in half of the participating schools. Evidently, these areas needed huge impetus from the KHDA to ensure that it is followed up by all private schools in Dubai. Some of the suggested socio-emotional learning curricula that could be implemented in schools include but is not limited to the Handbook of Social and emotional Learning by Durlak et al. (2015) or the CASEL's comprehensive curriculum discussed in prior chapters (Cavilla 2009) for ensuring holistic services to our gifted students.

Another major concern was the inefficient usage of assessment data to inform the teaching and interventions. The statistical analysis of the student attainment in correlation to their cognitive ability data demonstrated the pressing demand for collaring gifted underachievement. This finding was very distressing as none of the participating students had any other identified learning disability or any other plausible reason for this underachievement. This observation must be frustrating for the students themselves and their parents irrespective of their cultural backgrounds. Gifted underachievement could correlate to a varied gamut of intrapersonal issues comprising of depression, stress,

anxiety, low self-esteem, perfectionism, social immaturity during adolescence, anger, frustration, or unidentified learning differences. Possible solutions to managing the gifted underachievement include the use of Achievement-orientation model to develop appropriate interventions, psychological counselling services, good collaboration between all the stakeholders to understand the possible reasons and derive relevant solutions, mentoring options, and promoting the growth mindset among other comprehensive solutions (Neihart et al., 2016).

A few improvements being suggested bearing in the mind the UAE Centennial 2071 plan involve the improved emphasis on the STEM-based lessons as the statistical analysis of student data on standardised assessments showed the weakest performance in the Science field. With the immense importance being handed to sustainable solutions, innovation, problem-solving and promotion of higher order thinking skills, it is inevitable that the STEM or rather the STEAM activities be embedded within the curriculum. The stress of guarantying success of students in Science irrespective of their prior achievement levels or other needs was referenced by Maeng (2017), who recommended differentiated curriculum and instructional strategies and using the contemporary reforms in science by way of the Next Generation Science Standards education.

Finally, the statistical analysis also showed that the majority students performed at or exceeded the attainment levels across the core subjects of English and Mathematics with mixed results in Science alongside encouraging affective data with all students showing intrinsic and extrinsic motivation. These findings supplemented the qualitative outcomes and proved the effectiveness of the gifted provisions and services by all the participating schools. The present study found that despite the inconsistency in gifted provisions and

services across the private schools, the identified gifted students benefitted with their labelling as being gifted, support from school and parents. One can only imagine the immense growth in student achievement if there is consistency enforced by the educational authorities. Also, the number of students that can avail of gifted education programs would increase if appropriate broad-based identification procedures were enforced and perceptions of giftedness were improved across schools, and this in turn would lead to an advancement in efficacy of gifted programs.

Based on the findings of the current study using the NAGC Gifted Education Programming Standards (2010), the researcher sincerely advocates for new initiatives from the KHDA in terms of a comprehensive Gifted Policy, Gifted Education Standards analogous to the NAGC standards adapted for the local context, actively inspecting schools regarding gifted provisions and services, in recognition of the unique needs of the students with gifts and talents and raising the quality of inclusive education within the emirate of Dubai.

6.2 Recommendations for future research

Locally, the available research database consists of a singular study exploring educational provisions for gifted students across primary public schools by AlGhawi (2017). While she reported the enhancement in gifted education over the past decade, many of the concerns raised by the study comprised of the weak implementation of gifted education within public schools, unclear definitions of giftedness, incongruities regarding the actuality of official policies, and the immediate need for improved teacher training among others (AlGhawi, 2017).

The present research was the first study focused on exploring the gifted programs offered across private middle schools and intended to bridge the literature gap to some extent. Whereas the current study outcomes agreed with the findings by AlGhawi (2017), this study was unique and added many eye-opening aspects to the gifted education situation within the emirate of Dubai. Firstly, this was a pilot study investigating gifted education across private schools. Secondly, the current study supplemented the qualitative findings with the statistical analysis across the students' cognitive and affective domains to evaluate the effectiveness of the gifted programs offered in private schools. The immensely concerning gifted underachievement and disregard to the socio-emotional needs of students with gifts and talents were highlighted by the present research. Additionally, the present study outcomes evidenced strong rationale for the provision of gifted programs and offered robust grounds for advocacy of gifted education programming provisions and services for the meriting learners. Unpretentiously, the researcher anticipates bridging the literature gap to a small extent in the local context and hopes that many more researchers study the area of gifted education and support the development of the literature following some of the recommendations discussed below.

As explained, there is a dearth of research regarding giftedness in the UAE context. The researcher strongly recommends many more giftedness-based studies across public and private schools covering the primary, middle, and high schools. Also, research exploring and evaluating the gifted educational provisions and services across tertiary and vocational education alongside universities would support the development of a comprehensive picture of what is ongoing and how it can be further enhanced to cater to the unique needs of our meriting students.

The NAGC standards of learning and development, assessment, curriculum planning and instruction, learning environments, programming, and professional development; each constitute a significant area of future research for giftedness (NAGC 2012). Another under researched field is that of twice-exceptionality. The perplexing needs of students with giftedness coexisting with a disability needs an increased emphasis from educators and researchers (Neihart et al. 2016).

Previous studies across numerous countries regarding gifted education was discussed in the literature review of this thesis. Some of these include the exploration of gifted services in the US by Kaul and Davis (2018), investigation of gifted services in Australia by Long et al. (2015), gifted education services exploration in the German speaking Europe by Ziegler et al. (2013), challenges to gifted education in India by Kurup and Maithreyi (2012), and practice of enrichment programs in Taiwan by Chen and Chen (2020). Each of these research studies can support the further investigations needed to be carried out in the UAE in the absence of appropriate reference literature in the local context.

In addition to the above recommendations, there needs to be an increased awareness regarding the literacy needs of the gifted learners with advanced abilities and probably a reading capability well above their chronologically similar aged peers. The UAE government and the KHDA emphasize the significance of strong language skills. The President, H.H. Sheikh Khalifa Bin Zayed Al Nahyan declared the UAE Reading Law in 2016 with the intent to consolidate reading in the UAE community. Also, H.H. Sheikh Mohammed bin Rashid Al-Maktoum, the vice-president of the UAE and ruler of Dubai announced that the Government's objective was to make reading ingrained as a regular habit and it was the responsibility of each school to translate this law into reality (DSIB

2016). In continuation, the Year 2016 was declared as the Year of Reading by the UAE Ministry of Education (UAE MoE 2016). Henceforth, new research needs to be conducted for specifically exploring the literacy-based gifted programs within the local context to understand the existing provisions and promote best practices in the region.

Along similar perceptions, the importance of science, mathematics and STEM related programs has already been discussed in the preceding chapters. Unfortunately, the current study found student attainment to be the weakest in the Science subject although the analysis from this study is not representative of the giftedness in the emirate of Dubai. The UAE Government takes its performance in TIMSS very seriously and this was also a consideration of the National Agenda Parameter (DSIB 2016). Bearing this in mind and the fact that gifted students can make a difference to the UAE attainment if appropriate programs are offered to them, the researcher strongly recommends studies exploring the gifted programs offered in Science, Mathematics and STEM related projects or enrichment options.

The DSIB School Inspection Supplement 2016-17 described the significance of moral values on the learners' personal and social growth in the light of ethnic diversity within private education. The KHDA explained that the UAE's moral education program would lead to the development of morally mature citizens regardless of the curriculum offered by the schools and set clear expectations about the learners' behavioural attitudes and affective domain (DSIB 2016). Neihart et al. (2016) explained Kohlberg's theory of moral advancement leading *justice reasoning* and encompassing authority, personal interest, interpersonal expectation and conformity, social systems and conscience, social contract and individual rights, and universal ethical principles. Kohlberg proposed that

more advanced cognitive ability would probably lead to speedy moral development, and educators working with gifted students would observe enhanced levels of moral judgment. This could lead to interesting findings regarding gifted students and their moral development and hence recommended for future research.

Another important addition to the core curriculum for schools was Social Studies in line with the UAE National priorities along with the Dubai Strategic Plan 2021. The DSIB continues to focus on the curriculum mapping, teaching strategies and resources, active engagement of students alongside their research and collaborative skills, and relevant assessment methods. The annual inspection report for each private school is required to express their findings specifically about the development made by the school regarding social education (DSIB 2016). Since this has been a relatively recent development, future research studying the impact of social studies on gifted students with relevant interests would make fascinating finds.

While the current study focused on academically gifted students, creativity in terms of performing arts like drama and music, sports, photography, culinary skills, arts, and other similar fields were not explored. Kaufmann distinguished between intelligence as application of a known solution to a new situation whereas creativity was use of a novel solution or imagination irrespective of the presented circumstance. Henceforth, creative intelligence is very distinct from academic intelligence (Neihart et al., 2016). Creatively gifted students merit equal importance and attention as academically gifted students. The researcher sincerely hopes that future studies will explore the provisions and services for the creatively gifted students in private schools in Dubai to add to the richness of information regarding giftedness.

Generally, research in gifted education intends to investigate a specific area of interest guided by one or more theoretical frameworks. The cognitive abilities of student with gifts and talents are advanced and unique to each learner but fails to provide a holistic understanding of their needs. The considerations of their asynchronous socio-emotional facets are as important as their cognitive aspects to get an overview of the individual wants of student with gifts and talents and offer appropriate provisions and services (Neihart et al. 2016).

The current study was a pilot study regarding giftedness within private education in Dubai. Since there was no prior literature regarding the gifted programs offered across private schools in Dubai, the researcher thought it was appropriate to explore the gifted programs offered and evaluate its effectiveness across the cognitive and affective domains of the identified gifted learners in middle grades. Although the cognitive data was available for most of the participating students owing to the ability and attainment standardised assessments being mandated by the educational authorities, the same did not materialize with the affective data.

Unfortunately, the KHDA had not mandated the private schools to conduct any assessment measuring affective aspects of the students and the researcher struggled to gather the same. Approximately 25% of the students with gifts and talents completed the motivational survey and the data could not be representative of the participant population. Henceforward, one recommendation would be conducting some studies based on the affective domain of students with gifts and talents across the primary, middle, and high school students. These studies would provide invaluable data to help educators understand the socio-emotional needs of the deserving learners.

In addition to the self-determination theory used in the present study, some of the noteworthy theories from the developmental psychology that may be helpful for the above-mentioned research are discussed here. Erikson's theory propositioned that identity evolved by confronting and resolving eight sequential crises correlated to relevant stages in life comprising of trust or mistrust, autonomy or doubt, initiative or guilt, industry or inferiority, identity or diffusion, intimacy or self-absorption, generativity or stagnation, and integrity or despair. Numerous studies have drawn from Erikson's theory and explored specific challenges attached to suitable age groups of their interest. Another important affective theory is Dabrowski's Theory of Positive Disintegration that proposes a course of personality progression (Neihart et al., 2016). The researcher hopes that future studies based on the affective characteristics of gifted students will assist in development of a well-rounded literature overview in the local context.

The researcher found this exploratory journey helpful in becoming increasingly aware of the practices followed by varied curriculum schools in Dubai. Some of the findings were optimistic in nature like all the participating schools having identification processes, some form of enrichment opportunities, and the student data analysed in the cognitive domain itself. However, the researcher was exceptionally disappointed to learn that none of the schools, including the premier ones, had any assessment to identify the socio-emotional needs of the students with gifts and talents. This outcome combined with the lack of attention to gifted underachievement was incredibly heart-breaking when the researcher wore the learner-centred lenses. Another enormously unfortunate finding was the neglect of professional development of educators regarding giftedness.

This four-year journey focusing on gifted students helped the researcher develop into a better critical thinker and emotionally involved with the pains that these students possibly face on an everyday basis at schools. It is so difficult to imagine their educational journey with lack of purposeful engagement by the educational stakeholders. With great humility, the researcher hopes that this study will make a positive impact on the giftedness field in Dubai by publishing the research. This study endeavoured to bridge the literature gap to a small extent with the aspirations that the future studies will keep on contributing meaningfully to improve the gifted education scenario in the local perspective. Some final thoughts by the researcher are shared in the last subsection of this report.

6.3 Final thoughts

Global research has evidenced that schools with successful inclusion demonstrate outstanding achievement. When schools give precedence to equity in education and inclusiveness as the prominent features for establishing educational superiority, appropriate professional development is offered to teaching staff with the intent to equip them with the relevant strategies to provide meaningful personalisation and the enhancement of differentiation that seamlessly benefit all learners regardless of their backgrounds and conscious of their individual needs. Prior studies have proven that such great schools have displayed better results in international assessments with subsequently improved inspection outcomes (KHDA, 2019).

Reforming, augmenting, and acclimatizing the mainstream curriculum to render it universally accessible is essential to empower the inclusion of every child. This requirement is also an elementary constituent of supporting high quality student

engagement, learning, active participation, and successful outcomes for all learners (KHDA 2019). Since the educational authorities demand innovation from the schools, is it unfair to expect innovation from the KHDA or the Ministry of Education regarding giftedness in the region. Contemporary education means equity for all learners, collective efficacy, empowerment for each student, strong communities of evidence-based practices, accountability, leading creativity, and innovation, and creating meaningful relationships (Martin, 2018).

Purposefully, the present study presented comprehensively the gifted programs offered across private middle schools and demonstrated its effectiveness across the cognitive and affective domains of the gifted learners. These results were encouraging despite the lack of support from the KHDA authorities and consequently inconsistent gifted provisions and services by the participating schools. If the deserving students were offered comprehensive and consistent identification, appropriate curriculum adaptations or modifications, engaging teaching and learning strategies, relevant assessments used for informing teaching, challenging learning objectives, excellent collaboration among all the stakeholders of education, purposeful professional development for teaching staff, gifted education programs suitable for the Dubai context, and above all emphasizing equity in education meaningfully, the sky would be the limit for our meriting learners.

Designing the environment for success starts with aligning principles, expectations, and actions. As educators, we are empowered to inspire, impact, and influence several lives each day. We owe answers to our gifted students about what we are doing to ensure their love of learning grows, their curiosity is intact, they aspire to innovate, create sustainable solutions, collaborate with peers, maintain good relationships, become self-reflective,

have high moral standards, practice good ethics, become productive citizens, and above all desire to make the world a better place to live. With this positive mindset, the researcher hopes we can all create a brighter future for our most deserving gifted learners.

CHAPTER SEVEN: REFERENCES AND APPENDICES

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Appendix

Master List of Structured Interview Questions

1. Describe the services and programs that are provided for the gifted students in your School within Dubai Educational zone?
2. What are the current strengths of the services and programs provided for gifted students?
3. In what ways might the services and programs for gifted students be improved?
4. Gifted students can vary dramatically from one another in terms of their ability levels. Do you have a range of services and programs to meet the needs of gifted learners? If so, please describe.
5. Research shows that gifted students may be identified and served in the general intellectual domain or in specific academic domains (e.g., math but not language arts and vice versa). Are students being served in your school who may qualify in only one area such as math or language arts?
6. Do you have any additional comments regarding how students are served?
7. Please describe your identification process (at each building level).
8. What are the strengths of the school's identification process?
9. What are the weaknesses of the school's identification process?

10. Do you have any suggestions for improving the identification process?
11. Please describe the school's exit procedure for students who are not successful in the program.
12. Do you have any suggestions for improving the exit procedure?
13. Is it your perception that the curriculum and instruction are at a more advanced level than a class for other students at the same grade level?
14. If yes, in what ways are the curriculum and instruction different for the identified students than for other students in the same grade level?
15. Can you give examples of how the curriculum and instruction for gifted students includes the development of communication, research, collaboration, and critical and creative thinking skills?
16. In what ways is the curriculum enriched for gifted learners?
 17. What are the overall strengths of the curriculum and instruction for gifted learners?
 18. Are there areas within curriculum and instruction for the gifted that could be strengthened? If so, describe what they are. Do you have any suggestions for how the school could improve in these areas?
 19. In what ways does the school address the social and emotional needs of gifted students?
 20. Is there a differentiated guidance and counseling plan in place for gifted students? If so, please describe.
 21. Describe the professional development experiences you have participated in related to meeting the needs of gifted students.

Appendix: GL Assessments



info@gl-assessment.co.uk

A quick guide to CAT4 levels

CAT4 is available at seven different levels of difficulty. The tests have been developed in an overlapping, progressive format and are referred to as levels A to G. Levels X and Y refer to CAT4 Young Learners.

The target year group and age range covered by the norms for each test level are shown in the table below.

CAT4 Level	Standardised Age Group	England and Wales	Scotland	Northern Ireland
X	6:00-7:11	Y2	P3	Y2 (P3)
Y	7:00-8:11	Y3	P4	Y2 (P3 & P4)
Level A	7:06-9:11	Y4	P5	Y4 & Y5 (P4 & P5)
Level B	8:06-10:11	Y5	P6	Y6 (P6)
Level C	9:06-11:11	Y6	P7	Y7 (P7)
Level D	10:06-12:11	Y7	S1	Y8 (F1)
Level E	11:06-13:11	Y8	S2	Y9 (F2)
Level F	12:06-15:11	Y9 & Y10	S3 & S4	Y10 & Y11
Level G	14:06-17:00+	Y11 & Y12	S5 & S6	Y11, Y12 & Y13

Schools are recommended to use the level of CAT4 shown for the year group they want to assess. This is particularly important if the school results are being combined with those from other schools for whatever reason.

Please see the Reports section of this website for a full description of the CAT4 reports. Briefly, there are eight core reports available for CAT4:

Group report for teachers – this includes scores for all students in the pre-defined group with analysis by battery and gender (plus by additional criteria specified by the school) and a full range of indicators depending on the level of CAT administered. An overview of students' profiles is available from this report with a listing of which students fall into each profile. This

is part of the Standard Service for paper users and is automatically available to users of digital CAT4.

Chargeable reports are:

-
- Individual report for teachers this gives a more detailed analysis of an individual student with the full range of scores, indicators and a narrative description of their profile and its implications for teaching and learning.
 - Individual report for students – a student-friendly version of the teacher report explaining performance and offering advice of how the student can learn most effectively.
 - Individual report for parents – a parent-friendly version of the teacher report explaining their child’s performance and offering advice on how parents can support learning at home.
 - Summary report for senior leaders – an overview of the group’s performance that is tailored for school’s management team and Board of Governors.
 - Summary presentation for senior leaders (*PowerPoint® format*) – this extracts information from the Summary report for senior leaders and presents it in a short but detailed presentation that is suitable for use at management and Board meetings and for any whole school sessions relating to CAT4.
 - Excel report – exported raw/core data to facilitate further in-school analysis and uploading to the school’s management system
 - Cluster report – a version of the Summary report for senior leaders but covering several schools.

<https://www.gi-assessment.co.uk/support/cat4-product-support/>

Progress Test Series

Measure progress reliably

How can the PT Series make a difference to you?

Helps you set targets with confidence and monitor progress reliably year on year

The PT series provides a reliable, consistent attainment measure against the backdrop of recent changes to national assessment and accountability. Question level analysis highlights any gaps in knowledge and understanding, helping you to personalise learning, from providing extra support to setting more challenging targets.

Supports conversations with governors, parents, pupils and inspectors

Individualised pupil reports for every assessment give a snapshot of each child's strengths and areas for development. Specifically designed to support conversations with parents, they avoid technical language and suggest strategies for parental support in the home.

Helps you support your pupils to be the best they can be

You can easily identify where specific cohorts are excelling or underperforming, helping you to plan future teaching and learning strategies.

Saves you and your school time

The digital version of PT Series saves you marking time by providing instant results and analysis which you can act on straight away. The reports have been designed to be easy to access so there's no need for any data-crunching

Quick Questions

What does the Progress Test series do?

Measures your pupils' knowledge, understanding and application of the core subjects:

1. English: focuses on grammar, punctuation and spelling, and on reading comprehension, using age-appropriate fiction and information texts.
2. Maths: assesses key aspect of maths appropriate to the age of the pupil including mental maths for those aged 8 and over.
3. Science: measures two dimensions of science learning, understanding of science content, and working scientifically (application of skills).

Why use the Progress Test series?

It's statistically robust. The PT Series was standardised against a UK sample of over 100,000 pupils, with benchmarks verified every year based on analysis from half a million pupils.

What does the Progress Test series tell you?

The PT Series is a once-a-year progress measure, used at the end of the academic year. It can also be used twice a year to support individual interventions and teacher planning.

It supports school improvement initiatives by showing the relative performance of your pupils compared to national benchmarks. Testing year-on-year enables you to track individual and group progress. Transition tests provide an accurate profile of your pupils and sets a baseline from which to monitor progress.

How do I use the Progress Test series?

The tests are designed for pupils aged 5 – 14 years and can be taken online (PC) or on paper. Results for digital tests are generated automatically on completion, paper-based tests are supported by GL Assessment's marking and standardisation service.

Easy to access reports are matched to the needs of different stakeholders, for groups, individuals and parents, plus Excel reports and KS2/GCSE indicators.

Who uses the Progress Test series?

Over half a million pupils take the PT Series each year. Because the data is robust, it supports feedback and planning discussions with senior leaders, pupils and parents.

<https://www.gi-assessment.co.uk/products/progress-test-series/>

Appendix: Academic Motivation Scale

Please fill in the data to the best of your knowledge. Kindly bear in mind that you do not need to fill in any details that reveal your identity. The purpose of the survey is to understand the student motivations.

Please circle the correct options

Year Group Y7, Y8, Y9

Gender - Male / Female

Age Group - 10-12 years, 13-16 years

Nationality- Emirati European American
 Indian Other Asian Australian
 Others, please specify: _____

Please continue with the other survey questions on the next page.

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to college.

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2	3	4	5

WHY DO YOU GO TO COLLEGE ?

1. Because with only a high-school degree I would not find a high-paying job later on.	1	2	3	4	5
6 7					
2. Because I experience pleasure and satisfaction while learning new things.	1	2	3	4	5
6 7					
3. Because I think that a college education will help me better prepare for the career I have chosen.	1	2	3	4	5
6 7					
4. For the intense feelings I experience when I am communicating my own ideas to others.	1	2	3	4	5
6 7					
5. Honestly, I don't know; I really feel that I am wasting my time in school.	1	2	3	4	5
6 7					
6. For the pleasure I experience while surpassing myself in my studies.	1	2	3	4	5
6 7					
7. To prove to myself that I am capable of completing my college degree.	1	2	3	4	5
6 7					
8. In order to obtain a more prestigious job later on.	1	2	3	4	5
6 7					

9.	For the pleasure I experience when I discover new things never seen before.	1	2	3	4	5
6	7					
10.	Because eventually it will enable me to enter the job market in a field that I like.	1	2	3	4	5
6	7					
11.	For the pleasure that I experience when I read interesting authors.	1	2	3	4	5
6	7					
12.	I once had good reasons for going to college; however, now I wonder whether I should continue.	1	2	3	4	5
6	7					
13.	For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	1	2	3	4	5
6	7					
14.	Because of the fact that when I succeed in college I feel important.	1	2	3	4	5
6	7					
15.	Because I want to have "the good life" later on.	1	2	3	4	5
6	7					
16.	For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	1	2	3	4	5
6	7					
17.	Because this will help me make a better choice regarding my career orientation.	1	2	3	4	5
6	7					
18.	For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	1	2	3	4	5
6	7					
19.	I can't see why I go to college and frankly, I couldn't care less.	1	2	3	4	5
6	7					
20.	For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	1	2	3	4	5
6	7					
21.	To show myself that I am an intelligent person.	1	2	3	4	5
6	7					
22.	In order to have a better salary later on.	1	2	3	4	5
6	7					
23.	Because my studies allow me to continue to learn about many things that interest me.	1	2	3	4	5
6	7					
24.	Because I believe that a few additional years of education will improve my competence as a worker.	1	2	3	4	5
6	7					

25. For the "high" feeling that I experience while reading about various interesting subjects.	1	2	3	4	5
6 7					
26. I don't know; I can't understand what I am doing in school.	1	2	3	4	5
6 7					
27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.	1	2	3	4	5
6 7					
28. Because I want to show myself that I can succeed in my studies.	1	2	3	4	5
6 7					

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