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Promoting Literacy and Numeracy Skills in Primary Schools: Strategies for Improving Reading, Writing, and Mathematical Abilities in the Middle East, with a Focus on Saudi Arabia through the IB and Cambridge Curricula

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ABSTRACT

The early years of learning are important in the development of a learner's skills, especially literacy and numeracy skills. In this paper, the method of improving learning in reading, writing and mathematical abilities in the primary schools, especially for the International Baccalaureate (IB) and Cambridge programs, will be highlighted. Discussing Western educational interventions as applied to the Middle Eastern context, particularly Saudi Arabia, we describe how incorporation of such curricula may contribute to the development of sound academic skills. The need for culturally responsive learning instruction and activity, cooperation, as well as staff development will also be discussed.

Keywords: Literacy, Numeracy, Primary Education, Middle East, Saudi Arabia

INTRODUCTION

With new educational fronts emerging in the Middle Eastern region, as well as in Saudi Arabia in particular, it has perhaps never been more important for primary learners to develop their basic literacy and numeracy skills (UNESCO, 2023). Since nations seek to improve the competitiveness of their national economy and become more connected to the digital economy, these fundamental skills are of immense importance. Good literacy skills, both in terms of reading and writing, as well as mastery of numerical skill, is not only a prerequisite for academic success but also the competencies that learners need to survive, in the emerging contact sovereign state systems. As the concept of urbanisation advances, Availability and accessibility of technology in the classroom, and social changes are requiring educational mandates that close these gaps to follow suit.

IB and Cambridge Curriculum can be mentioned as educational frameworks, which may play a huge role in enhancing literacy and numeracy in primary education (Cambridge Assessment International Education, 2022). In certain aspects, both systems focus on the reform recalculating, maintenance of learning based on questioning and a comprehensive concept of teaching aimed at developing such values and attitudes as critical thinking, creativity, and intercultural sensitivity. Using these innovative strategies educators in Middle East and Saudi Arabia primary classrooms can make classroom modifications that will help students learn meaningfully. Use of appropriate teaching approaches will also factor the multilingual situation that is prevalent in the area of the study as well as ensuring increased student learning participation resulting in better student performance in reading, writing and mathematics (McGregor & Alghamdi. 2023). This essay seeks to extract practical measures from these prestigious curricula to show how educators and policymakers can enhance the teaching and learning of literacy and numeracy skills in the region's primary schools. Below is a table comparing the International Baccalaureate (IB) and Cambridge curricula based on relevant aspects for promoting literacy and numeracy in primary schools in Saudi Arabia:

Table 1: Comparison between IB and Cambridge curricula based on the aspects of promoting literacy and numeracy in primary schools in Saudi Arabia

Aspects	International Baccalaureate (IB)	Cambridge Curriculum
Philosophy	Focus on holistic education, fostering inquiry, intercultural understanding and critical thinking	Emphasises academic rigor, clarity and progress across all subjects
Approach to Learning	Inquiry-based and student-centered, encouraging exploration and problem-solving	Structured and systematic, with clearly defined learning objectives
Integration of Literacy	Literacy is embedded across subjects, emphasising reading, writing and speaking through real-world context	Literacy is taught as a distinctive subject with clear progression path in reading and writing
Numeracy Focus	Integrating numeracy with real-world problem-solving and cross-disciplinary projects	Focuses on core mathematical concept with application through word problems and exercise
Cultural Adaptability	Encourages integration of local cultures and language into the curriculum fostering global citizenship	Offers flexibility to integrate local cultures, while maintaining global standards
Suitability for Saudi Arabia	Promotes bilingual literacy (Arabic and English) and culturally relevant themes	Provide a rigorous framework adaptable to Saudi educational goals and Vision 2030
Teachers Development	Emphasises ongoing professional training in inquiry-based methods and intercultural sensitivity	Provides resources and training for delivering subject-specific content effectively

LITERACY SKILLS DEVELOPMENT STRATEGIES

The Literacy Skills Development Approach closely emphasises on the importance of equipping young learners with literacy skills which are essential for communication and comprehensions (Ehri, 2005). This approach adopts an interdisciplinary approach to literacy by teaching reading, writing and speaking and listening, thus enhancing balanced student literacy (Alsubaie, 2022). Due to the fact that the balance of the skills is created, the approach is useful in developing the skills of self-expression and appreciation of other peoples' ideas as the foundation for people's further education and interpersonal communication.

In addition to the Literacy Skills Development Approach which already underpins both the IB and Cambridge curricula, other elements extend the curriculum even more: inquiry-based learning and critical thinking (Sweller,1988). These frameworks are effective because they encourage students to actively participate in the learning process and foster further inquiry. Through the use of hands and reflection, this approach allows students to assume an active role as receivers of information but also as learners of the process. Such an active interaction with language and content helps to foster critical rather than technological literacy – literacy required to live in the contemporary world. Improving student literacy in primary schools calls for a proper plan that corresponds to the learners' needs and at the same time relies on sound theory (Dweck, 2006). Cambridge and International Baccalaureate (IB) programs contain successful approaches to developing literacy especially by incorporating productive practices that encourage engagement, interpretation and culture in the learning

process (Alfaraidy 2020). Table 2 below outlines strategies on literacy development with practical tips and critical points that any educationist and/or policy maker can consider implementable in schools to enhance early learners' literacy skills.

Table 2: Approach to Literacy development

Strategy	Description	Example
Integrated Language Approach	Cooney's reading, writing, speaking and listening for balanced literacy development	Bilingual texts in Arabic and English fostering multilingual flexibility
Phonics: A core Literacy Strategy	Introducing the relation between sounds and letters: offering entertaining activities	Teaching students to blend and segment sounds in both languages to help them recognise similarities and differences
Interactive Reading Programs	Encourages shared, guided and technology-enhanced reading experience	Reading clubs, ebooks and apps to promote reading fluency and comprehension
Writing Workshops	Focuses on drafting, revising and peer review to build writing skills	Writing assignment with culturally relevant themes such as Saudi history and traditions.
Inquiry-based learning	Promotes curiosity and critical thinking through questioning and exploration	Projects involving analysis of local stories or themes linked to students' lives
Cross-Curricular writing	Integrating Literacy to other Subjects which will improve the understanding of the students	Literacy can be linked to subjects like History, Mathematics, Science and so on to solve problems

Integrated Language Approach

To support the goal of raising literacy levels in primary schools, there is the need to incorporate an integrated language approach (Alsubaie, 2022). The focus here is integration, in the sense that, reading, writing, speaking, and listening are related competencies. The curriculum of the International Baccalaureate organisation is based on the concept of inquiries that foster students' learning approach to text material through subjects and genres (Bunnell, 2008). Incorporation of literacy across the content areas will enable the students to grasp how literacy is relevant in their daily practice hence making what they learn even more interesting.

Saudi Arabia as a country where Arabic is the medium of instruction has the challenge of creating formative processes that merge Arabic and English phonic compendium (Alghamdi, 2017). This can be done by reading in two languages, calling on students to write in both languages, and writing in context. In creating multiple linguistic contexts, the educators can improve flexibility of the linguistically valued skills and the general literary achievement (Alfaraidy, 2020).

Phonics: A core Literacy Strategy

Phonics is the process of connecting learners to sounds of English by teaching them to read and write English by recognising the individual sounds. It is in preparation for reading for meaning, a first step in mastering word identification as well as the understanding of words a reader has not earlier come across (Ehric 2005).

The Role of Phonics in Early Literacy

In our research, phonics is identified as valuable in enhancing the training of phonemic awareness which is viewed as an important stage in learning the equivalence between letters and sounds (Shute, 2008). This skill is very important for learners who have to deal with phonetics in two languages, say in Saudi Arabia Arabic and English language (Alshammari, 2016).

Systematic Phonics in a Multilingual Context

For students learning English, in bilingual or multilingual countries such as Saudi Arabia, systematic phonics can be modified to fit in the challenges that learners encounter. For example:

- Explain the phonics of Arabic and English language as well as comparing and contrasting between the two.
- Engage students in decoding skills by incorporating bilingual text so that second language becomes a means of improving comprehension as well as fluency (Alghamdi, 2022).

Classroom Application of Phonics

- Phonics Games: Some of the best activities include a sounds matching game, cards and applications that are downloaded from the internet.
- Blending and Segmenting: The children engage in segmentation or clanging where they learn to blend two sounds to form a word, or Segmenting where they are required to analyse a word into its individual sounds.
- Decodable texts: Read books that are developmentally appropriate and have words suggested by the texts which support phonics skill being taught.
- Tracking progress: Teachers use phonics-based assessments to identify students' strengths and weaknesses, such as recognising specific sounds or blending them into words (Carty et al., 2007).

Intervention Phonics Program for struggling Readers

Intervention phonics programs are crucial for students of reading age who lack necessary skills due to learning difficulties, as phonics provides a systematic method to build these skills. These programs are specially designed to meet the needs of schools as they focus on teaching children what they need to know in order not to fall behind in their reading (Dweck, 2006).

The Importance of Intervention Phonics

Intervention phonics programs focus on:

- Determining which particular topics are problematic for, such as recognising words, joining sounds or recognising certain words by sight.
- To offer close, clear and methodical nurture to develop those deficits intentionally.
- Improving the administrative sentences' reading rates or word recognition levels to guarantee students' access to other parts of the curriculum (Alghamdi, 2020).

Culturally Responsive Implementation of Intervention Phonics Program

To increase the efficiency of phonics intervention, it is crucially important to use a culturally sensitive approach. When instruction is connected to culture and language, students comprehend what their instructor is teaching in a much simpler and meaningful way. This approach is especially important in the Saudi Arabia context, by for instance, students who

use Arabic as their first language and English as the second language to learn (Alfaraidy, 2020).

- Incorporating bilingual materials: Arabic and English bilingual texts enable students to develop phonics in both languages as they can switch to what they fully understand best. These materials guide students into the revelation of possible similarities in the phonetic systems of the two languages and support both languages making it easier to balance between the two and ensure progress. An example is: Reading of a storybook with side by side Arabic and English text (Alghamdi, 2017).
- Using Culturally Relevant Content: Promoting the use of context that will interest the learners with focus on cultural relevance makes phonics real. This could include popular news, tales, poetry, and words, which are connected with Saudi Arabian history and customs, and people's activities or teaching phonics through the use of real life recalling names, places and scenarios. An example of a phonics activity is writing and reading with words such as wadi for valley, masjid for mosque or oud, a traditional musical instrument to support phonics with cultural integration.
- Engaging Families and Communities: Engaging family and community investment restocks the principles of literacy and phonics learning. Educators can suggest that parents should read to children in Arabic and English at home in particular they can also organise awareness creating sessions involving parents with regards to teaching the phonics in a culturally appropriate manner. An example might be a school can sponsor a 'Family Literacy Night' that incorporates dual language picture books and games with phonics that will be fun for both parents and children.

Interactive Reading Programs

Interactive reading programs can help enhance children's reading abilities which is why their use needs to be encouraged (National Reading Panel, 2000). Reading aloud, guided reading as well as shared reading help nurture a reader while at the same time sharpening the student's reading skills and comprehension. Of all the Cambridge curriculum recommendations, the one most significant in respect of engaging students with texts is the issue of reading for pleasure.

Furthermore, using ICT tools, like e-books, and developing interest-education technology applications can arouse students' interest in reading. In Saudi Arabia More people are using digital means and embracing digital skills hence, the educators can also use the tools to enhance a dynamic reading mode. Besides, by starting reading clubs in the community and arranging reading events, the home-school relations can be enhanced, as well as reading culture after school (Cambridge Assessment, 2022).

Writing Workshops and Peer Review

Another area that may be improved through structured writing courses is writing skills in the subject area for students so as to enable them put down their ideas in writing coherently (Graham & Perin, 2007). The IB curriculum promotes writing as a process and writes the complete process as writing, drafting, revising and editing. Professional practitioners teaching in Saudi Arabian primary schools can adopt writing workshops that include the aspect of peers' feedback where learners comment on their colleagues' work. It also helps improve their writing by fostering a sense of collaboration through group work.

Including cultural interest and concern in the task makes the works assigned to students to be more engaging. For example, investigating the history of the community, its customs and problems can inspire the talents of students and make them reveal themselves as authors.

Figure 1: Primary school students engaged in literacy and numeracy activities, incorporating traditional and digital tools to enhance learning outcomes
Source: Internet Researcher

Inquiry-Based Learning

Inquiry is also promoted by both the IB and Cambridge frameworks and it promotes students' active learning since students are asked to participate in asking questions, learning and finding information. Introduced as one of the most effective ways of making students interested in what they are learning, this approach encourages curiosity, meaningful understanding that leads to a critical approach to learning. In Saudi Arabia, it would be easy for educators to undertake this approach by ensuring use of materials that the students can relate with due to their cultural experiences (Alghamdi, 2023). This way, teachers are capable of making lessons more effective and meaningful by making them based on familiar contexts.

For instance, teachers may select Arabic and English storybooks and make them available for students to read themes that will socially represent them. This prevents social themes of the information conveyed from remaining on the surface and also promotes critical thinking by questioning how the topics discussed unconcern with their lives. Thus, for teachers eager to combine cultural references/cognisance of students' context, and various literary and academic pursuits, this proposal presents the opportunity to design an educational environment where the learner is both propelled and comforted in their literacy development. Not only does this strategy help with learning new language but also enhances the attitudes toward the material and the subject in general.

Integrated Language Arts

Co-teaching of both reading, writing, and oral communication promotes learning of a number of aspects at a go hence improving on the learning process (Friend & Cook, 2017). This approach reveals the links between language skills where students gain insight into how writing and reading enhances their communication in class and otherwise. As a result of use of the IB and Cambridge curricula, it is possible for teachers to develop interdisciplinary activities that incorporate literacy with other subjects so that students can be provided with a more integrated approach to their learning (Cambridge Assessment).

For instance, in a mathematics lesson, a teacher can use reading comprehension exercises whereby he or she presents word problems for students to solve, as part of the mathematical content (Hiebert & Wearne, 1993). Besides, this itself enhances students' literacy skills as well as numeracy skills where students write a passage and solve figures of speech mathematically. In this way, providing learning situations that encourage the use of literacy and numeracy side by side, teachers facilitate the construction of generic skills needed for each subject area (Fisher & Frey, 2012). It fosters independent thinking, problem solving, and letter cognitive relations while at the same time fulfilling student competence in language and mathematics

Differentiated Instruction

The value of understanding the variability of learning needs within a classroom is crucial to help children with their literacy development. Each student has strengths, difficulties and individual learning style thus making it hard to apply an approach that will meet everyone's needs. Putting into practice concepts like differentiating instruction gives educators the opportunity to teach their students in a way that would help students with high, middle or low skills with learning ability do well in class. Such a type of learning benefits the children since each learner would be expected to learn at the rate they are best suited for while still encouraging them to achieve so much.

In Saudi Arabian primary schools, technology brings effective ways for effective differentiation in teaching. Through use of technology based tools and applications, it is easier for teachers to deliver lessons that address abilities, speed and style of each learner. For example, cooperative applications such as learning applications or game-like educational applications can follow the students' performance, and provide challenging tasks and direct feedback to the students in learning problems or difficulties in real time. This word and ICT based approach not only acts as an incentive for students but also supports teachers to intervene in learning to guarantee the learners to progress for enhancing their humble literacy abilities. Incorporation of technology in instruction therefore can help teachers design and offer a teaching-learning environment that accommodates the needs of all students (Shute, 2008).

CROSS-CURRICULAR WRITING: LINKING LITERACY TO OTHER SUBJECTS

In Saudi Arabia, integration of the writing tasks with the rest of the subjects allows the students to practice their literacy skills effectively in real life situations. It aligns well with an integrated learning approach and helps to contextualise writing across subjects such as history, science and art (Alghamdi 2017). Students thus acquire academic curriculum and real-world knowledge and skills required in their day to day lives through identification with the content forms presented to them (Alsubaie, 2022).

Examples of Cross-curricular Writing Activities

- History: Composing is always connected with the national history and this task requires creating a diary entry from the first person experiencing one of the key events – the unification of Saudi Arabia.
- Science: Producing a report about a problem in the community for instance; desertification and supporting your ideas with scientific literacy (Alghamdi, 2022).
- Math: Developing problems with operations contextually connected to real life situations, such as calculating the expenses required during an event in the community during Eid (Sweller, 1988).
- Art: Creating a short story or an essay on an artifact from KSA or creating a localised story based on the theme of KSA culture and landscape (Boaler, 2009).

Benefits of Cross-curricular Writing

- Engagement: Ideally, writing assignments should be based on issues that are general and immediate in nature as well as the students' environment (Ehri, 2005).
- Skill integration: The consolidation of writing assignments with other school subjects is a good way to develop the students' literacy and expand their knowledge in other subjects as well (Heritage, 2010).
- Broader learning: With an emphasis on composition, a student is well rounded because they write about matters belonging to historical or scientific domains that enhance their reasoning and creative abilities (Dweck, 2006).

NUMERACY SKILLS DEVELOPMENT STRATEGIES

Literacy is related to numeracy because the latter comprises comprehending the number system and simple counting as well as more advanced analytical and calculating skills (Booth & Newton, 2012). In the modern world where technology is part of human life, adequate numeracy is significant when interacting with extensive societal and professional activities. However, a peculiar focus on the Middle East and particularly Saudi Arabia, a country in the process of tremendous economic, social, and educational transformation, the enhancement of numeracy learning environment for the current P data analysed indicate that the development of numeracy skills of the students in the primary school is critical for nation building and meaningful implementation of the Saudi Arabia's Vision 2030 (Saudi Vision 2030, 2016).

Successful numeracy strategies rely on the delivery of practical teaching approaches blended with aspects of theory in primary school education. (Slavin, 2010). Comparing the given practices to the best practices in the IB and Cambridge Curricula it is possible to identify several approaches which are most appropriate to the context of Saudi Arabia and Middle Eastern education in general (Alfaraidy, 2020) The table below shows some of the features of development in numeracy where these strategies can be affected with the view of improving the numeracy competency of primary school learners.

Table 3: Approaches to Numeracy development

Strategy	Description	Example
Real-world Application	Links maths concepts to everyday life making learning practical	Using community data to analyse trends or calculate market price
Collaborative Activities	Encourages teamwork to solve mathematics problems, enhancing communication skills	Group projects such as budgeting for a class trip or creating geometric art
Cross-curricular integration	Connect mathematics with other subjects for holistic learning	Solving word problems in science experiments or analysing statistical data in Geography
Culturally Relevant Content	Adapts lesson to local context and experiences for greater engagement	Using Arabic numerals or local examples like calculating expenses for a Ramadan celebration
The 'Student Boss' Approach	One student in the group is allocated as a 'boss' who facilitates in peer marking through group consensus and explanations	An extension activity for early finishers. Students agree on the correct answers through explanations
Collaborative Marking	Students exchange their answers and highlight mistakes and then lecture on corrections that need to	The pupils work, then each participant swaps over with his or her partner to look at their

	be made.	completed texts.
Explaining steps to success to peers	Students explain or create a step-by-step guide on how to calculate a numerical equation. This will be a win-win for the 'teacher' student and the students being taught	Their peer explains, makes conclusions about, and offers suggestions to the content.
Rapid Maths Recall	The teacher refreshes the brain of the student before starting a class by asking them what is being taught in the last class	At the start of each maths lesson, teacher presents student with recall questions from previous learning
Mistake Minutes Strategy	After each classes, there is chance for student to re-evaluate their work and check for where they make mistake so they can correct it	The teacher gives the students five minutes to revisit their work and tell where they spot mistake so they can both solve it
CPA Approach (Concrete, pictorial, abstract)	Students interact with physical objects or manipulatives to explore mathematical concepts	To teach addition, students can use counters, blocks, or beads to physically group and count objects (e.g., grouping 2 blue counters and 4 red counters to find the sum, 2+4=6)
Efficient Mental Math Strategies	it helps students to develop quick and accurate problem-solving skills by enhancing their ability to calculate without relying on computer	At the start of a Math lesson to get the brains warmed up or through moments in the day (how many minutes left till lunch time?)

Real-World Mathematics Applications

When we think about numeracy in primary school, it should be in relation to real-world applications of mathematics, not a series of math facts to be memorised. The IB promotes inquiry-based learning by providing open-ended mathematical problems that require critical thought and problem solving skills. Using local contexts, like analysing community data or trends from local farmers markets, for math lessons. These applications also make math delivery more relevant for the students, but at the same time, help them realise its significance in daily life.

Figure 2: Real world application of maths could be another strategy for numeracy development
Source: OhMyFacts

Collaborative Problem-Solving Activities

In the present world, all students should have a relative flexibility to enable collaboration that leads to the development of mathematics skills (Slavin, 2010). The problem solving activities based on the Cambridge curriculum foster collaboration and communication and also use critical thinking skills (Cambridge Assessment International Education, 2022). In classrooms across the Kingdom of Saudi Arabia, teachers can employ math centers where learners work in groups to solve problems. This type of peer learning lets the students work together, gain additional knowledge about specific problem solving techniques and boost their confidence levels (Alghamdi, 2022).

Additionally, the use of technology, including mathematics software applications and games enhance student participation and feedback (Al-Abdullatif & Alsubaie, 2022). They provide chances for individual learning because the teachers can address students within groups based on their abilities (Alghamdi, 2017).

Figure 3: Collaborative way of learning maths
Source: Father Leblond School

Continuous Professional Development for Educators

For the success of the stipulated strategies above, it is crucial to train educators continuously in their professional capacity. Training should include current approaches to teaching, culturally sensitive and content area knowledge. In Saudi Arabia, professional development aimed at the IB and Cambridge curricula can improve teachers' instruction and provide professional learning communities for teachers (Liu et al., 2023).

However, offering training for early career teachers with a view of giving them a mentor to help them improve on their performance is equally correct. When educators are involved, they are likely to promote student-learning and improve the culture of classrooms.

Inquiry-Based Learning

The two programs identify the development of inquiry-based learning as fundamental to learning, whereby students freely ask questions, make questions, carry out investigations, etc (Radford et al., 2019). This approach sustains and enhances the students' thinking skills and enables them to gain enhanced knowledge in mathematics with the aid of the application of the theories. That is why, using real-life practice and setting up a problem that would have to be solved through mastering tools of mathematics is one of the most effective approaches, which teachers are able to utilise (Bhatnagar et al., 2023). Through such challenges, students are oriented to learn and initiate undertakings in their own quest, in the process, educators help them to learn through achievement.

For instance, students may study the overall cost of a class outing through computation of costs within areas such as transportation, feeding and the fees for various activities in different centers. Apart from making the learning process more engaging, it gives

a student a practical application of the material being studied in mathematics class. Furthermore, it opens up an opportunity for the creation of communal tasks where learners are able to discuss the ideas, findings to one another. The strategies used to support this approach included a blend of team work and application of mathematics in real life problems which enhances the usefulness of mathematics outside classrooms.

Cross-Curricular Integration

Integration of numeracy across curriculum enhances numeracy learning process since concepts are expressed in real life situations hence makes it easier to grasp ideas. It can be a great idea to use mathematics in things like science, geography, and art so as to make a student understand its use in real life situations. For example, coming up with a solution to problems in scientific investigations or computations done in social studies enables the learner to express critical thinking abilities. In addition to reviewing mathematical ideas, it also prompts students to dissect the relationships with other disciplines, which enhances their understanding of the role of Math in other subject areas.

For example, in Saudi Arabian primary schools, to incorporate numeracy across all domains is possible, and can also support the cultural and educational objectives. (Bhatnagar, 2023) For instance, students may use mathematics to determine the number of usual products for a market day in a social studies project, or use measurement in Islamic arts and products to determine the sizes of geometrical shapes. They make math meaningful, and relevant to the cultural contexts, as well as foster literacy, imagination, and teamwork. In this way, making connections between numeracy and different subjects, teachers help children improve their confidence and flexibility when applying the material in the process of learning.

Formative Assessment

Monitoring and feedback should be integrated in the process of numeracy and learning to support students all the time they are in the learning process. The two frameworks underline the idea of using the diverse types of assessment rather than focusing on exams and tests. Some of these methods may include; observation checks, peer checking and portfolio analysis, which offer a broader perspective of a student's progress (Radford et al., 2019). This enables them to assess students' grasp of the knowledge and skills they are teaching while allowing them the flexibility they need to shape the course of that teaching based on data they are receiving in real time. (Bhatnagar, 2023).

In Saudi primary schools, formative assessments enable the teacher to get some form of information concerning the students' abilities or difficulties in numeracy. These are done at various intervals within the learning process and are useful to help identify areas where the learning has been less than comprehensive and help the student in need of clarification. Through the formative assessments, the teachers are able to recognise the usual practice they used and provide a well tailored interventionary approach to cater for the learning disabilities of the all students. This approach further enhances student numeracy as well as enhances deep and genuine understanding of numeracy requirements for a lasting student academic success

Culturally Relevant Content

One of the effective strategies in classroom practice is using your own cultural Math content knowledge to increase students' interest, particularly Middle Eastern students. Decision to use Arabic numbers, introduction of regional statistics into the context of conversation, and teaching such mathematical problems as the issue of implementing environmental problems as the local ones will also help to make students interested in the material studied more interested. Besides, arising interest and desire to learn more, it also

provides information on how it is all used and how one observes particular mathematical concepts in one's everyday practice. The material was delivered in a style that focused on how the concepts being taught in math can be applied in real lives, thus increasing pass-on interest by a demonstration on how mathematics is relevant in their daily lives. For instance, when a student is learning about the regional economics and applying mathematics to the regional environmental issues then he or she learns the importance of mathematics in their or societies welfare. This culturally responsive approach does assist to improve students' quantitative proficiencies at the same time as making it achievable for them to assume possession over what they learn and understand mathematics in connection to pertinent individual and communal problem-solving contexts (Kartik et al., 2023).

Figure 4: A teacher guiding a student through digital tools for numeracy development, showcasing the use of technology in Saudi Arabia's primary schools
Source: Internet Researcher

PROMOTING MATHS MASTERY THROUGH COLLABORATION

To master mathematics, students do not only require to solve the problems but require to know & apply this knowledge in different situations. Collaboration among students has been adopted in Saudi Arabian primary schools as a way of aiding the learners in achieving better understanding of mathematics as well as helping them grow their critical thinking abilities (Cohen, 1994). Partnering and cooperative learning, where students teach each other, solve problems together, and critique each other's work help the children reinforce the concepts they are learning mathematically (Slavin, 2010).

Applying Strategies in Different Scenarios

The basics of math understanding start with engaging the learners to solve problems in different areas (Hiebert & Grouws, 2007). Using numbers in context requires students to see the usefulness of mathematics in everyday life and can be a good approach to conducting mathematics.

Example Activity: Pupils may add up the amount for some items for a classroom party or find the space for their school garden through added or multiplication or measurement among other things (Boaler, 2009).

Explaining steps to success to a peer

Peer teaching is one of the teaching methods that will allow students to consolidate their knowledge of mathematics (Anderson, 2008). In this strategy one student writes down a mathematical problem in detail and then teaches this to another student.

How It Works:

- One finds the solution to a problem and describes the process in detail and loudly.
- Their peer explains, makes conclusions about, and offers suggestions to the content.

Benefit:

This way, a concept is explained by the 'teacher' student and the 'learner' student gets exposure to new ideas. This activity also helps confidence and improvement in the communication system. (Shute, 2008).

The "Student boss" Approach

The "Student Boss" approach works well to involve all class collective responsibility because it involves group arrangements where students help one another correct their work. (Slavin, 2010).

How It Works:

- Students work in groups addressing mathematics questions.
- One student in the group acts as a 'boss' who is supposed to read through all the other students' solutions and come to a group consensus of which answer is correct.
- It has been observed that the "boss" gets to explain why some error was made and how the same could be rectified so that everybody within the group is mindful of it.

Benefit:

When used, this method leads to improvement in critical thinking and learning as the student embraces the mistake made as an opportunity to grow. (Dweck, 2006).

Collaborative Marking

Collaborative marking encourages students and also enables them to learn from other students' work done. (Heritage, 2010).

How It Works:

- The individual work, then each participant swaps over with his or her partner to look at their completed texts.
- Students exchange their answers and highlight mistakes and then lecture on corrections that need to be made.
- Pupils get together and explain the ideas to one another to make sure everyone comprehends the solutions.

Benefit:

Grouping in marking enables students to work together, to pay particular attention to detail, and express their thought processes.

Maths Rapid Recall

Maths rapid recall is a strategy aimed at increasing students' knowledge of mathematical concepts by their frequent use and application (Swellar, 1988). This is especially important in Saudi Arabian primary schools as this will make sure that this mode of solving simpler problems is fresh and can be used while handling more complicated problems.

How It Works

At the start of each math lesson, teachers present students with three recall questions:

- One from the previous lesson.
- One from the previous week.

- One from the previous term.

These questions can be answered by the students individually or in pairs in a given amount of time for instance one minute.

Benefits:

- Reinforced Learning: Semi-annual review also aids students in the process of conceptualisation and direction of their learning since it assists them in making periodic assessments on what they know, and what they do not know.
- Builds Confidence: Effective recalling or past concepts makes students feel accomplished and prepared for the next lessons.
- Improves Retention: Through spaced repetition, principles in mathematics can easily be retained in the long-term memory (Alghamdi, 2022).

MISTAKE MINUTE: ENCOURAGING REFLECTION AND A GROWTH MINDSET

To vary every lesson with a 'Mistake minute', good practice is to apply it to both the literacy and numeracy lessons and help students develop a growth mindset towards their performance (Dweck, 2006). This strategy also stresses on the aspects of the mistakes made and makes the students perceive mistakes as the periods of learning rather than periods of loss (Boaler, 2016).

How It Works:

At the end of a lesson, students are timed for five minutes to evaluate their work and come up with a mistake they made.

They write down or explain:

- What the mistake was.
- Why did it happen.
- How they would correct it.

To help students understand what common mistakes are, and make corrections where necessary, teachers may allow time for group reflections.

Benefits

- Promotes Self-Reflection: Students learn to assess their work both in terms of effectiveness and relevance and the classroom process as an educational activity.
- Encourages Problem-Solving: Making and correcting errors encourage individualism and the building up of a person's tolerance levels.
- Builds a Growth Mindset: Students learn to welcome difficulties and never run away thinking it is wrong to make a mistake.
- Improves Skills: Practices, in this case, enable the avoidance of mistakes and enhance the right practices' retrieval (Sweller, 1988).

Example in Literacy

A student may notice that they failed to insert a proper punctuation sign during writing or used a wrong grammar rule. In doing the Mistake Minute, they would state how to prevent it and then rectify it to avoid the same mistake in future.

Example in Numeracy

A student could do something wrong on a mathematics equation, realise this during Mistake Minute and then correct the wrong doing.

CHALLENGES FACED BY SAUDI ARABIAN PRIMARY SCHOOLS IN IMPLEMENTING THESE CURRICULA

The adoption of the International Baccalaureate (IB) and Cambridge programs in Saudi Arabian schools poses some unique difficulties. The most significant challenge in these learning areas is to have the curricula brought into focus with the national education system and cultural values (Bunnell, 2008). The characteristics of the IB and Cambridge programs

include critical thinking, inquiry approaches to learning, and international mindedness that may, therefore, conflict with traditional methods of teaching existing in many Saudi schools. This misalignment can foster turbulence among the educators, parents and the policymakers since the latter may not trust anything that is out of the normal expectation of conventional teaching. Finally, a problem of inadequate preparation of teachers in these progressive approaches arises as well, particularly because teachers need considerable professional development to disseminate the curricula.

Another difficulty is the question of funding and other kinds of supply and support essential for the effective working of the given concept. The effective implementation of the IB and Cambridge curricula is expensive in terms of personnel training, instructional and other learning resources, and even in terms of the extra organizational arrangements that will need to be put in place, which may be beyond the financial capacity of most schools. In addition, a demand for suitable up to date structures that has teaching pedagogy of the present era, for instance the use of technology in teaching as well as student learning that may be scarce in some learning institutions (Alfaraidy, 2020). These logistical issues compounding a rapidly evolving educational environment contribute to further challenges as the school attempts to deliver a globally competitive education experience and with reference to logistical issues required to meet local legal requirements and demands of the larger Saudi society. The image below represents the Historical Literacy rates in Saudi Arabia, it shows the progress made but it also highlights the need for more innovative educational approaches so as to meet the standard of modern teaching challenges:

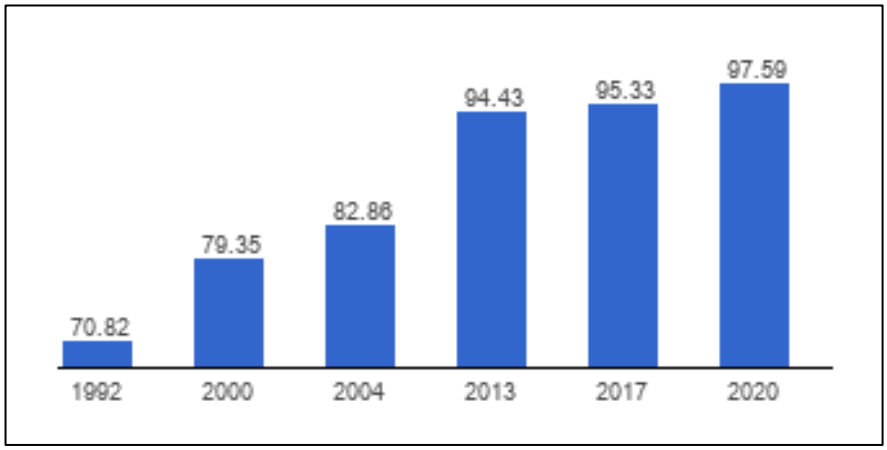

Figure 5: Historical literacy rates in Saudi Arabia
Source: TheGlobalEconomy

Although integrating the IB and Cambridge curricula in the Saudi Arabian learners broaden their horizons by expanding the number of great schools they can attend in the country and giving teachers a better way to prepare their students while they present several difficulties like adapting to the cultural contexts and attaining teacher readiness, these difficulties are hardly an issue when compared to the groundbreaking improvements that the programs offer in fact given the Saudi Arabian context. (Bunnell, 2008) It is, therefore, to the effect that by addressing these barriers systematically the prospects of integrating these curricula can open up new possibilities of raising the general standards in schools, developing higher forms of thinking, as well as equipping the learners for global citizenship. (Allmnakrah & Evers, 2020). The following section will discuss how these curricula have enriched Saudi Arabia's education system and which of the Vision 2030 objectives are met by its implementation.

BENEFITS OF IB AND CAMBRIDGE CURRICULA ON SAUDI ARABIA PRIMARY SCHOOLS

The adoption of the Saudi Arabia's Own Curriculum – IB and Cambridge curriculum within primary school has many benefits in relation to the Saudi Arabia Education Reformation plan (Saudi Vision 2030, 2016). Every curriculum takes the reasonings, intercultural communication, and global perspectives as the elements for learning by the young learners in the global world. The IB framework has adopted the approach of inquiry and a passion for learning all the lives when designing the learning framework. Similarly, Cambridge curriculum is academic and intense, and offers many opportunities for students across impressive numbers of subjects that can be helpful for various learners and their abilities. It also enhances educational activity by expanding the range of topics It also assists students in gaining and using all the fundamental skills that will be necessary in future studies.

In addition, the samples of implementing IB and Cambridge curriculum can be a great contribution in the academic learning and the professional learning of teachers in Saudi Arabia. These programmes provide professional development assistance in terms of teaching pedagogy and methods of assessment for the teachers. It is very effective in enhancing teaching competence and promotes school improvement practice in schools (Brown & Alkhateeb, 2020). Also the curricula at the international level gives Saudi students an additional opportunity of education opportunities in other countries thus sowing the seed of competitiveness and ambition. Hence, integration of these global education standards within primary school is relevant as the Kingdom of Saudi Arabia attempts to move away from oil economy and as, in-concert with Vision 2030, the society should be accommodated, and accordingly the learners, who would become the active citizens of the world (Allmnakrah & Evers, 2020). The table below highlights the benefits of IB and Cambridge Curricula on Saudi Arabian primary schools.

Table 4: The benefits of IB and Cambridge Curricula on Saudi Arabian Primary Schools

Aspects	International Baccalaureate (IB)	Cambridge Curriculum
Support for Vision 2030	Encourages critical thinking and global citizenship	Prepares student for competitive academic and professional environment
Bilingual Proficiency	Strengthen bilingual literacy (Arabic and English)	Offers clear progression path for English as a second language
Teacher Training	Provides continuous development for inquiry-based teaching	Focuses on equipping teachers with content-specific strategies
Student outcomes	Fosters creativity, collaboration and independent learning	Builds a solid foundation in core academic skills with measurable progress

CONCLUSION

Literacy and numeracy in primary school is an essential set of necessary skills which calls for complex measures to be taken. The strategies described in the present article, associated with the integrated IB and Cambridge curricula, suggest actual practices to raise the performance of learners in reading, writing, and arithmetic in Saudi Arabian primary schools. It is possible for educators to enable language learning across the curriculum, invite early grade reading programs that are responsive and interactive, as well as encouraging problem solving within cooperative learning structures, making language learning more effective and fun. These approaches not only enhance the students' basic literacy and numeracy, but also are aimed at developing other skills and helping them to succeed in the world that is rapidly becoming more diverse.

While the kingdom carries on the process of Saudi Arabia education system reform and improvement these approaches will guide the formation of a smart generation of autonomous learners. Ongoing professional practice improvements for teachers will encourage their professional growth as well as promoting student centred teaching methods to see that the teachers can meet the ever-changing needs of the students. Saudi schools by positively reinforcing a continuous improvement climate in teaching and learning can ensure young learners master literacy and numeracy that will ensure their success as learners in the future. In conclusion, it is strengthening those core skills essential for starting school that will help primary education students to excel, frolic in their future endeavours and be responsible members in their societies (Anderson, 2008).

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