DIGITAL
EDUCATION POLICY

MINISTRY OF EDUCATION

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Ministry of Education
2023

First Printing 2023
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DIGITAL EDUCATION POLICY

Published by:
Ministry of Education Malaysia,
(Educational Resources and Technology Division),
Persiaran Bukit Kiara, Bukit Damansara,
50604 Kuala Lumpur.

Telephone: +603-20817777
Facsimile: +603-20817788
Website: www.moe.gov.my

Design and Typset:
Dewan Bahasa dan Pustaka

Cover Design:
(Educational Resources and Technology Division)

Text Typeface: Helvetica
Text Typeface Size: 12 point

Printed by:
Multi Educational Book Enterprise,
No. 22A-2, Jalan PJS 8/4,
Dataran Mentari Business Park,
46150 Bandar Sunway,
Selangor Darul Ehsan.

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PREFACE

EDUCATION MINISTER

The Digital Education Policy will be a guide for every stakeholder in facing the digital era.

The Ministry of Education (MoE) aims to provide high-quality education aligned with the country's aspirations since independence. Enacted in 1961, the National Education Policy aims to produce balanced and harmonious individuals, supported by updated plans and strategies relevant to current educational developments.

In accordance with the development of various national agendas, including the Building a MADANI Nation, the implementation of the Malaysia Digital Economy Blueprint (MyDIGITAL) and the National Fourth Industrial Revolution Policy (4IR), as well as the challenges of online teaching and learning, the MoE has proactively developed the Digital Education Policy (DEP). This policy will serve as a guide for all stakeholders in adapting to the digital era. Incorporating Karamah Insaniah (human dignity) by fostering good conduct, ethics, and integrity will foster a harmonious environment and prevent negative practices among educators. These aspects will provide students with opportunities to upgrade their digital education skills.

The Digital Education Policy outlines the four digital education objectives that are supported by six thrusts, 18 strategies and 41 initiatives in great detail. More importantly, students, educators, educational leaders and all stakeholders can optimally utilise this policy to bridge the digital divide and enable successful implementation of digital education. The MoE hopes that implementing this policy will fulfil their commitment to delivering quality education services.

The COVID-19 pandemic has led to a shift in schooling practices – from face-to-face teaching and learning in schools to home-based teaching and learning. As a result, students and educators must become proficient in digital skills. While implementing this mode of education poses various challenges, it also creates opportunities and accelerates the digital education era.

I would like to express my appreciation for the commitment and efforts made by all parties to ensure the country's education evolves in line with global technologies. This document aims to produce knowledgeable, highly skilled, ethical and competitive human capital in the country. A positive and exceptional school environment can create happy students and satisfied teachers, which can act as the main driving force behind the creation of a developed and prosperous country in the future.

YB Fadhlina Sidek

MESSAGE

SECRETARY-GENERAL MINISTRY OF EDUCATION

The application of information and communication technology in teaching and learning is a vital element in education.

The current education system is faced with various challenges and unforseen limitations that require a systemic and holistic change. In light of this, proactive measures are needed in order to push forward changes in the nation's digital education landscape, harnessing the advantages offered by the National Fifth Industrial Revolution Policy (5IR).

Taking into considerations current developments, the implementation of the National Education Policy needs to continuously undergo a meticulous process of research and comprehensive evaluation for it to be improved and to meet current needs. In line with current developments, the information and communication technology in teaching and learning has also undergone a tremendous evolution and has become an important element in the education system.

This drastic change has presented a huge challenge to all stakeholders including students, educators, education managers, parents and the community at large. This challenge becomes more complex when taking into account the constraints faced by vulnerable groups, the population in rural areas as well as infrastructure and infostructure that are not yet fully completed. Therefore, immediate changes are needed to ensure a sustainable and smooth-running education system.

The Ministry of Education (MoE) is cognizant of the need to develop and implement the Digital Education Policy (DEP). The DEP will serve as a guide to all stakeholders, ensuring the successful implementation of the country's digital education plan.

The DEP contains a clear and succinct explanation of MoE's aspirations in facing the 5IR challenge and outlines four main objectives, namely, student-outcomes, the empowerment of educators and education managers, improvement of infrastructure and infostructure and active involvement of strategic partners. These objectives are in line with the development of digital education that takes into account the concept of Malaysia MADANI that is based on the pillars of Sustainability, Prosperity, Innovation, Respect, Trust and Compassion.

The responsibility of all the stakeholders is significant in ensuring the success of the DEP. This is supported by the report published by The Organisation for Economic Co-operation and Development (OECD) which states that policy makers need to ensure the existence of close cooperation between stakeholders so that the use of technology in the country's digital education is relevant, scaleable and easy to use. It is the responsibility of all involved to build and ensure a digitally literate future generation in order to face the challenges of the 5IR era.

My sincerest gratitude to all who have contributed and given their highest commitment and cooperation in the development of the DEP. May all these undertakings and continued collaborative efforts bear fruit and assist the country in the creation of a more creative, innovative and competitive future-ready human capital.

Dato' Indera Nik Nasarudin bin Mohd Zawawi

FOREWORD

DIRECTOR-GENERAL OF EDUCATION MALAYSIA

MoE is committed in transforming digital education holistically to enhance the education landscape of the nation.

In an effort to provide a competitive human capital for the future and produce a digitally savvy generation, Malaysia strives to form a new direction in the national education system. In line with these aspirations, the Digital Education Policy (DEP) emphasises on the competency of students and educators, professional development, the integration of digital technology and the networking with strategic partners.

This policy is part of the ongoing efforts by the Ministry of Education (MoE) in supporting the various national development initiatives as well as in achieving the objectives of the Malaysia Education Blueprint (MEB) 2013–2025. It is also congruent with the call to ensure inclusive, efficient and equitable quality education opportunities for all as expressed in the Sustainable Development Goal 4 (SDG4).

The COVID-19 pandemic has accelerated the transformation of digital education in this country. Among the concerns of MoE is the fact that 36 percent of the students do not have a digital device to participate in the online home-based teaching and learning. Furthermore, only 21 percent of parents claim of having high-speed Internet access. In addition, the Trends in International Mathematics and Science Study (TIMSS) 2019 Benchmarking Study and the Program for International Student Assessment (PISA) 2018 also show that there is a digital divide in the country's education system. Hence, MoE is committed to transforming digital education more holistically to sustain the country's education landscape.

I am confident that this ongoing effort by MoE can optimise the potential of students from preschool to post-secondary to ethically grasp knowledge and skills. The quality of educators and educational leaders too can be further improved to drive a sustainable digital education. I strongly believe that DEP's book is crucial in explaining the value of digital education through varied theoretical and practical exposure to the society in order to increase competitiveness.

I would also like to express my appreciation to all the parties involved in the commissioning of the DEP's book. It is my hope that all efforts made through the DEP will lead towards the successful achievement of the aspired aims.

Datuk Haji Pkharuddin bin Haji Ghazali

ACKNOWLEDGEMENTS

MoE would like to extend our sincere appreciation and gratitude to the following:

Patron
YB Fadhlina Sidek
Education Minister

Advisors
Dato' Indera Nik Nasarudin bin Mohd Zawawi
Secretary-General Ministry of Education

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Mahani binti Wahab
Md. Rasul bin Haron
Mohd Ezril bin Mohd
Mohd Faiz bin Wahid
Syarifah Intan Syafinaz binti Tuan Mat Ali
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Azalan bin Afendi
Siti Suhaini binti Zaharin
Nor Diana binti Yaacob
Hajah Juraidah binti Jalaluddin

Photos by
Unit Komunikasi Korporat KPM
Sekolah Sultan Alam Shah, Putrajaya
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LIST OF ABBREVIATIONS/ACRONYMS

Abbreviations/ Acronym	Term
4IR	National Fourth Industrial Revolution (4IR) Policy
5IR	National Fifth Industrial Revolution (5IR) Policy
BM	Matriculation Division
BPG	Teacher Profesionalism Development Division
BPI	Islamic Education Division
BPERMATA	PERMATA Division
BPK	Curriculum Development Division
BPKhas	Special Education Division
BPLTV	Technical and Vocational Education Division
BPM	Information Management Division
BPPDP	Educational Planning, Policy and Research Division
BPSBP	Boarding School Management Division
BPSH	School Management Division
BPSHA	Strategic Planning and International Relations Division
BPSM	Human Resource Management Division
BSKK	Sports, Co-curricular and Arts Division
BSTP	Educational Resources and Technology Division
DCS	Digital Competency Score
ELTC	English Language Teaching Centre
GLC	Government-Linked Companies
IAB	Aminuddin Baki Institute
IFLA	International Federation of Library Associations and Institutions
IPGM	Teacher Education Institute of Malaysia
ISTE	International Society for Technology in Education
JN	Inspectorate of Schools
JPA	Public Service Department
KPM	Ministry of Education Malaysia
KPPM	Director-General of Education Malaysia

LP	Examination Syndicate
MAMPU	Malaysian Administrative Modernisation and Management Planning Unit
MDEC	Malaysia Digital Economy Corporation
NGO	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
PADU	Education Performance and Delivery Unit
PdP	Teaching and Learning
PdPR	Home-based Teaching and Learning
PdT	Management and Administration
PGB	Principal and Headmaster
PISA	Programme for International Student Assessment
PKP	Movement Control Order (MCO)
PPB	Continuous Professional Development (CPD)
PPPM	Malaysia Education Blueprint
PUU	Legal Advisor
RDCI	Research, Development, Commercialization and Innovation
SaaS	Software as a service
SSQS	Smart School Qualification Standards
STEM	Science, Technology, Engineering and Mathematics
TIMSS	Trends in International Mathematics and Science Study
TKPPM	Deputy Director-General of Education Malaysia
TKSU	Deputy Secretary-General
TMK	Information and Communication Technology
TVET	Technical and Vocational Education and Training
UKK	Corporate Communication Unit
UNESCO	United Nations Educational, Scientific and Cultural Organization

BRIEF FACTS ON DIGITAL EDUCATION POLICY

1. **What is digital education?**
   Digital education includes the learning of knowledge, skills and values with regard to digital technology as well as the teaching and learning processes that utilise the use of technology in an integrated, creative and innovative way to produce a digitally fluent generation.

2. **What is Digital Education Policy (DEP)?**
   DEP is a commitment by the Ministry of Education Malaysia (MoE) to transform the digital education landscape in order to produce a digitally literate generation that is competitive. This is achieved through improving the knowledge, skills and values of students, educators and educational leaders and making provisions for quality infrastructure, infostructure and content as well as the the active participation of strategic partners in an integrated and cohesive manner from preschool through to post-secondary education.

   This policy is aligned to various national agendas including Building a MADANI Nation, the Blueprint for Digital Economy Malaysia (MyDIGITAL), the Fourth Industrial Revolution (4IR), the National Digital Network (JENDELA), the Malaysia Education Blueprint (MEB) 2013–2025 and the National Science, Technology, and Innovation Policy 2021–2030 (NSTIP), to ensure a structured and well-designed effort to address the challenges of the 5IR.

3. **Why the need for a specialised policy for digital education?**
   Firstly, the school excellence stage is at a basic level, which is evident from the fact that 52.7% of schools were rated at stage three or below in the excellence rating in 2019.

   Secondly, infrastructure and basic amenities cannot be provided due to challenges such as neighbourhood ecosystems that do not support school preservation, one-size-fits-all implementation and misaligned management issues.

   Thirdly, in 2019, students' digital competencies were achieved modestly, particularly in the cognitive and technology domains. The digital citizenship domain, however, showed good progress.

   Fourthly, International benchmarking studies PISA 2018 and TIMSS 2019 revealed that the computing capacity of digital devices in schools and the number of digital devices for teaching and learning (TnL) are at a low level. This indicates that the computer, digital device, software and broadband service availability in Malaysian schools is unsatisfactory.

Fifth, the COVID-19 pandemic has led to the implementation of remote TnL. There are several challenges associated with this, such as the fact that only 36 percent of students, whether located inside or outside the city, possess a device. Furthermore, only 21 percent of surveyed parents reported high Internet speed.

Based on these issues and challenges, a specialised platform for digital education should be developed with four objectives and six thrusts to build an ecosystem of sustainable digital education. This policy expects to offer substantial benefits to students and teachers involved in digital education, as well as those involved in TnL. The success factors for this policy include efficient school leaders, high-quality digital content, as well as enabling infrastructure and infostructure.

4. What is the aim of DEP?

DEP aims to develop a competitive, digitally fluent generation. To do this, DEP's strategies and initiatives are designed to align with its objectives, which include:

(a) fostering digitally fluent students to meet the demands of the digital era;
(b) promoting the integration of digital technology by educators and educational leaders in the education ecosystem;
(c) strengthening the infrastructure, infostructure and content of digital education; and
(d) optimising the active involvement of strategic partners as a catalyst for digital education.

Digitally fluent students are students who endeavour to use digital technology in an integrated, creative, innovative, responsible and ethical manner to create and produce innovations; analyse data scientifically; solve problems; as well as communicate and collaborate effectively.

5. How can DEP achieve its aspirations?

DEP outlines four objectives, six thrusts, 18 strategies and 41 initiatives to support the vision of digital education. Each thrusts provides guidance and strategic direction for the operational plan to address issues and challenges that require ongoing commitment by all parties. The essential components and strategies outlined in the DEP are as stated:

THE THRUSTS AND STRATEGIES OF DIGITAL EDUCATION POLICY

THRUSTS	STRATEGIES			
T1 DIGITALLY FLUENT STUDENTS	**S1.1** Empowering digital education in curriculum and assessment.	**S1.2** Developing Students' Digital Competency Standard.	**S1.3** Cultivating the integrated, creative, innovative and ethical use of digital technology in student-centred learning.	**S1.4** Nurturing students' potentials and talents in digital technology via co-curricular activities.
T2 DIGITALLY COMPETENT EDUCATORS	**S2.1** Identifying the level of digital competence of educators.	**S2.2** Improving the competency level of educators continuously.	**S2.3** Empowering educators as experts in digital education.	**S2.4** Cultivating knowledge, creativity and innovation of digital education holistically.
T3 VISIONARY DIGITAL LEADERSHIP CULTURE	**S3.1** Improving the digital competencies of education leaders.	**S3.2** Cultivating change in digital education leadership.		
T4 EMPOWERMENT OF INFRASTRUCTURE AND INFOSTRUCTURE	**S4.1** Providing agile and dynamic digital infrastructure across all MoE institutions.	**S4.2** Providing access to digital devices and support services for students and educators.	**S4.3** Utilising digital technology in MoE services.	**S4.4** Using data to improve the MoE service and the user experience.
T5 QUALITY DIGITAL CONTENT	**S5.1** Empowering digital learning platforms to improve user experience.	**S5.2** Empowering digital educational resources.		
T6 COMMITTED STRATEGIC PARTNERS	**S6.1** Strengthening strategic partnerships with parents, communities, NGOs, GLCs, public and private sectors in digital education.	**S6.2** Utilising collaborative partnerships and networks with parents, communities, NGOs, GLCs, public and private sectors in digital education.		

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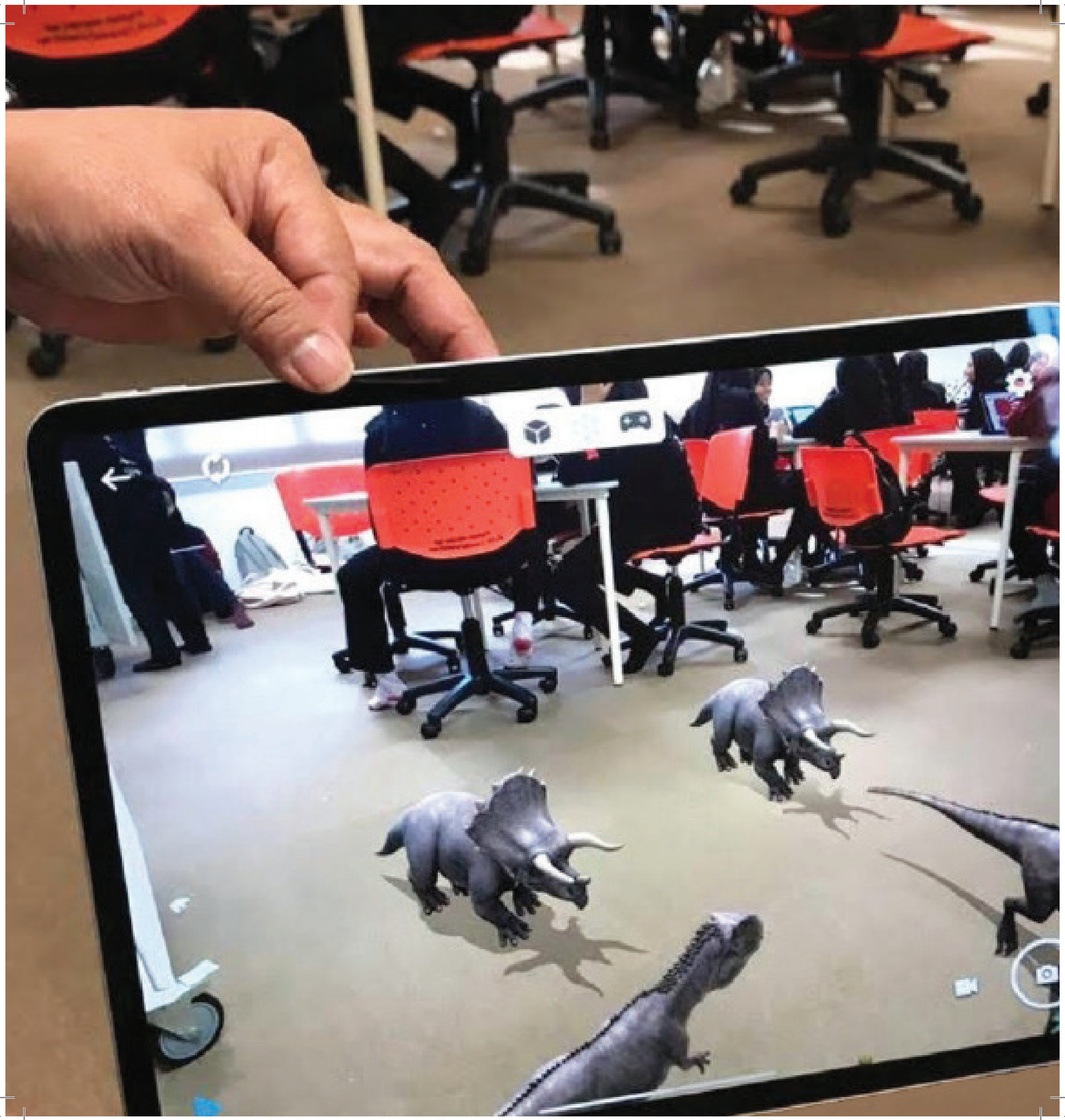


CHAPTER 1

PERSPECTIVES ON DIGITAL EDUCATION

PERSPECTIVES ON DIGITAL EDUCATION

The development of the country's digital education is closely related to the development of digital technology at the global and national levels. This presents a new challenge to the education sector to make changes along with the transformation of digital technology to increase the competitiveness and progress of the country's educational landscape.

1.1 GLOBAL PERSPECTIVE

The global community is in the midst of a digital era propelled by the Internet. Its impact is evident in our methods of communication, entertainment, business, education, and government services. Since the World Wide Web (www) was introduced in the 1980s, more than 4.9 billion[1] individuals worldwide have access to the Internet, equivalent to 63 percent of the global population. In 2021, the number of Internet users in Malaysia has risen to 31.2 million[2]. With the advent of the Fourth Industrial Revolution (4IR), digitalisation has accelerated significantly.

4IR encompasses emerging technologies that integrate the physical, digital and biological domains, influencing all aspects of human existence. However, technological progress in 4IR is increasingly erasing the boundaries between these domains. The education sector is also subject to the transformative effects of 4IR. Accordingly, in 2020, the World Economic Forum (WEF) launched the Education Framework 4.0, comprising of two key components – content and experience – which are closely linked to digital elements. The content aspect encompasses global citizenship skills, digital technology, creativity and innovation, whilst the experiential aspect involves personalised and student-driven learning. Refer to Figure 1.1 for further detail.

1 https://www.itu.int/en (accessed on 15 January 2022)
2 https://www.dosm.gov.my (accessed on 10 April 2022)

CONTENT
(Mechanisms built for proficiency adjustment)

Global Citizenship Skill
Focuses on awareness of the world, sustainability and active participation in the global community.

Interpersonal Skill
Focuses on interpersonal emotional intelligence skills (e.g. empathy, cooperation, negotiation, leadership and social awareness).

Technological Skill
Developing digital skills including programming, digital responsibility and the use of technology.

Creative and Innovative Skill
Fostering the skills needed to innovate including problem solving, analytical thinking, systems analysis and creativity.

EXPERIENCE
(Utilising Innovative Pedagogies)

Self-directed and Personalised Learning
A transition from standardised learning to learning tailored to individual needs and flexible according to students' developmental stages.

Collaborative and Problem-based Learning
The shift to project-based learning and problem solving through peer collaboration and reflecting future career.

Inclusive Education and Accessibility to Learning
Changes in the learning system that are not limited to schools.

Student-driven Lifelong Learning
Changes in the learning system, i.e. one will continue to consolidate existing skills and acquire new skills based on individual needs.

Figure 1.1 Education Framework 4.0.

Global Response towards Digital Education Needs During and Post-COVID-19 Pandemic Digital Education Action Plan 2021–2027, European Commission

The 10 guiding principles to ensure an education and training system that is appropriate for the post-pandemic digital era are as follows:

1. High-quality and comprehensive digital education that respects data protection and personal ethics as the strategic goal of all education and training bodies and agencies.
2. The shared responsibility for the transformation of education in the digital era by the whole community.
3. Optimal use of resources to ensure access to digital education for the entire community.
4. Digital education plays an important role in improving overall equality for society.
5. Digital competence to be a core skill for educators.
6. Educational leaders play an important role in digital education.
7. Digital literacy is important in life in the digital world.
8. Basic digital skills should be part of the skills that every citizen should acquire to be an active citizen, use public services, and to exercise fundamental rights.
9. Highly skilled human resources in digital technology to support the country's competitiveness.
10. High quality digital content is needed to holistically improve the skills, quality and education of citizens to become relevant citizens.

E9 Partnership Countries Initiative: Scaling-up Digital Learning to Accelerate Progress Towards SDG4

In order to achieve the goal of UNESCO's Education for All (EFA), the E9 Forum consisting of Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan was established. Among the E9 countries which make up more than half of the world's population, a large number of students are faced with learning challenges due to school closures caused by the COVID-19 pandemic. At that time, an estimated 11.3 million students were at risk of not returning to school. Due to this, the E9 national initiative is focused on managing the recovery levels, building resilience and re-energizing the post-pandemic school system. Among these initiatives include:

1. Provide children and teenagers with various mobile devices such as laptops and smartphones to access learning.
2. Ensure that digital content and Internet data are affordable for students, teachers and schools.
3. Provide provision for teacher training and improvement of innovative practices to enable digital learning.
4. Provide provision for refresher programs and youth skills improvement programs to enable schools to prepare students for the transition from school to the working world.

ASEAN Digital Masterplan (ADM 2025)

The ASEAN Digital Masterplan 2025 Framework developed in 2019 aims to make ASEAN a leading digital community and economic block. This is explained by the ADM 2025 vision statement, namely ASEAN as a leading digital community and economic block, strengthened through safe and transformative digital services, technologies and ecosystems.

ADM 2025 has outlined eight outcomes to be achieved and these are detailed in the operational plan. One of the successes is related to the education sector. ADM 2025's commitment in the education sector is to improve e-education services by improving access, quality and user experience, especially in the rural areas of ASEAN countries.

The rapid development of digital technology has been supported by human ingenuity and economic progress. Nevertheless, global uncertainty such as the COVID-19 pandemic has provided challenges as well as opportunities to accelerate the application and adaptation of digital technology in education.

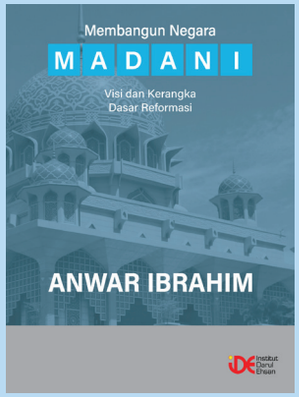
Although international comparison and benchmarking is the best approach, the planning and needs of a country should be adapted to the intended policy and the capabilities of the required digital infrastructure and resources.

1.2 NATIONAL PERSPECTIVE

In an effort to face the challenge of digital education that focuses on the development of talent and human capital in the 4IR, new policies need to be formulated to align with various national agendas including the Building a Madani Nation, the 12th Malaysia Plan (RMKe12), the Malaysia Digital Economy (MyDIGITAL) Blueprint, National Fourth Industrial Revolution Policy (4IR), National Digital Network (JENDELA), Malaysia Education Blueprint (MEB) 2013–2025 and National Science, Technology and Innovation Policy (NSTIP) 2021–2030 to ensure a structured and planned effort to achieve the same goal.

Building a MADANI Nation: Vision and Reformation Framework Policy

The MADANI framework prioritises the values of sustainability, prosperity, innovation, respect, trust, and compassion. These values have also been integrated into education, with a focus on leveraging the latest technological advancements, fostering competitiveness, and enhancing people's skills in technology and the digital realm.



The 12th Malaysia Plan (RMKe-12)

Aims to regenerate the economy, strengthen safety, well-being, inclusivity and boost sustainability.

The 12th Malaysia Plan for the education sector focuses on strengthening growth catalysts by empowering STEM and TVET education as well as digital education plans. In addition, the 12th Malaysia Plan focuses on eradicating extreme poverty and bridging the income gap.

Malaysia Digital Economy Blueprint (MyDIGITAL)

Aims to set the direction of the digital economy and build the foundation to drive the digitisation of the country.

Thrusts 4 in MyDIGITAL aims to develop agile and competent digital talents.

Thrusts 6 in MyDIGITAL focuses on building a trusted, secure and ethical digital environment.

National Fourth Industrial Revolution Policy (4IR)

Aims to drive integrated efforts to transform the country's socioeconomic development through the ethical use of 4IR technology.

One of the thrusts policies outlined is to prepare the people with knowledge and skill sets related to 4IR.

National Digital Network (JENDELA)

Aims to improve connectivity, networking and sustainable communication.

JENDELA strives for good networking among related party.

Jendela
Jalinan Digital Negara

Malaysia Education Blueprint 2013–2025

Aims to understand the achievements and challenges and to outline a comprehensive transformation of the education system.

Shift 7: Leverage ICT to scale up quality learning across Malaysia

Focuses on enhancing teaching and learning through the use of ICT.

National Science, Technology and Innovation Policy (NSTIP) 2021–2030

The National Science, Technology and Innovation Policy (NSTIP) 2021–2030 emphasises the concept of Science, Technology, Innovation and Economy (STIE) as an important principle in driving the country's economic growth. DEP is developed in line with NSTIP 2021–2030 to make Malaysia a high-tech nation through the upgrading of technological infrastructure, including digital technology and the availability of quality talent as human capital, especially in the fields of Science, Technology, Engineering and Mathematics (STEM). DEP is expected to bridge the digital gap in education in line with NSTIP's Thrusts 4, namely Adaptive Science, Technology and Innovation (STI) Talent, which aims to increase the number of STEM graduates in the workforce.

CHAPTER 2

THE DIGITAL EDUCATION LANDSCAPE IN MALAYSIA

The government's commitment to harness the potential of technology as an enabler in education dates back to the 1980s. Thus, the digital education landscape is a continuation of this initiative, emphasising the optimal use of technology to bring about change and improvement in teaching and learning (TnL). It can also establish a learning environment in line with the 21st century, reflecting the quality of the country's education. However, it is necessary to analyse the current digital education landscape in Malaysia to identify any issues, current status, and challenges in facing the changes brought about by the Fourth Industrial Revolution (4IR).

2.1 DEVELOPMENT OF MOE DIGITAL EDUCATION

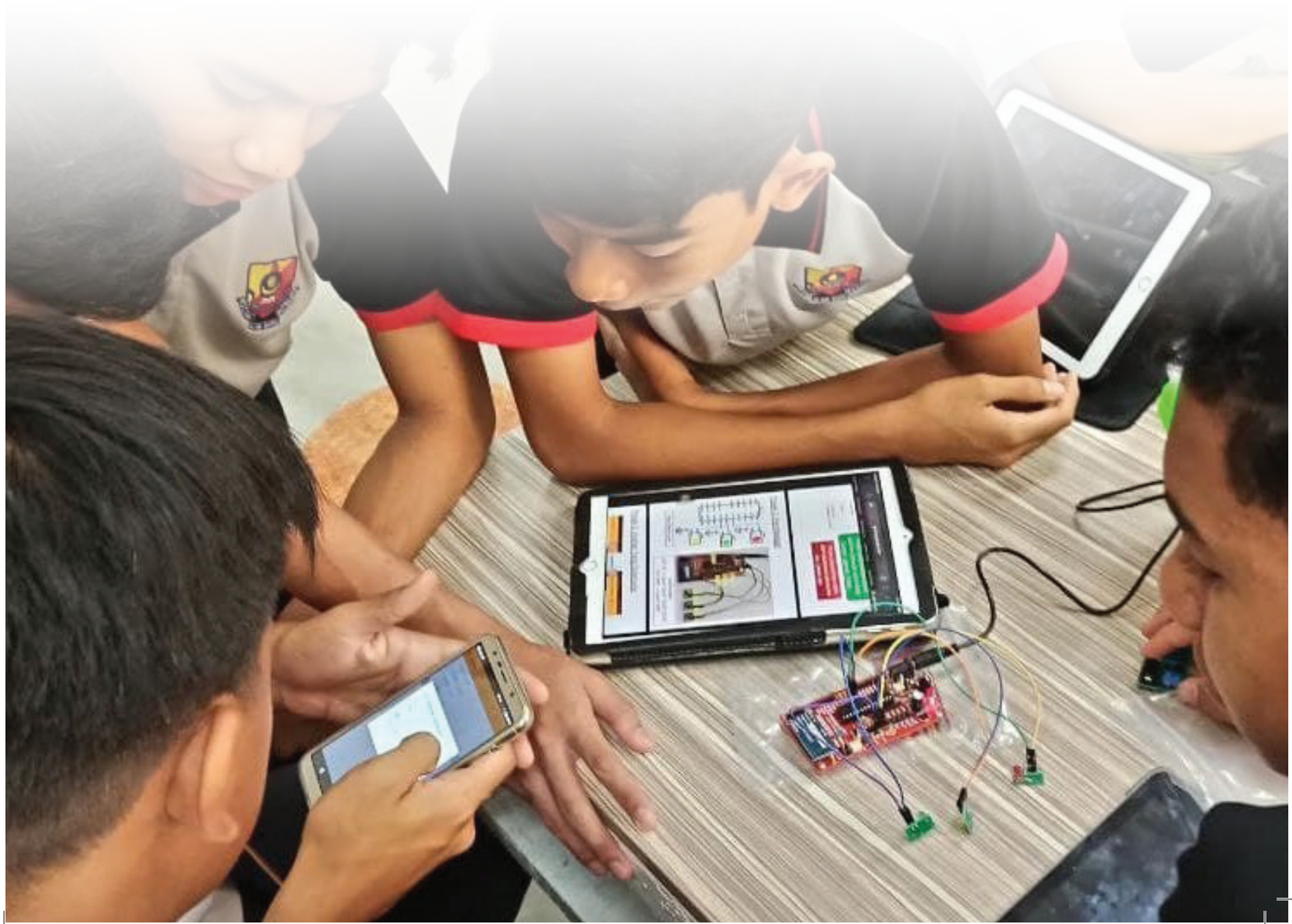
In the 1980s, computers were initially utilised to support school management and administrative duties. Since then, educational technology has evolved, leading to increased utilization of computers for teaching and learning purposes. In 1983, Computer Clubs were established as one of the co-curricular activities. Furthermore, Computer Literacy was integrated into the school curriculum in 1992 to promote awareness and proficiency in computer literacy. Subsequently, the Information Technology subject was introduced in 1999. In 2006, the subject was updated to Information and Communication Technology (ICT), whereas Computer Science became a subject in 2017. Additionally, programming and robotics principles have been incorporated into the Design and Technology subject curriculum content since 2017.

The initiatives implemented in the education sector are in line with the Malaysia Plan and Vision 2020. These include the implementation of the Multimedia Super Corridor (MSC) which was launched in 1996. The Smart School Project is one of MSC's seven flagship applications. It highlights innovation in a comprehensive TnL methodology to prepare students to meet the challenges of the information technology era.

Various initiatives have been taken by the Ministry of Education (MoE) in Malaysia to promote ICT-based education in TnL. These include the Computer Laboratory Project, the SchoolNet Internet Connectivity Project and the School Access Centre. The MoE also provides digital education videos through the EduwebTV portal and creates multimedia course materials. These endeavours are further supported by the digital education enhancements outlined in Platform 7, MEB 2013–2025.

With the advent of 4IR, attention has been directed towards cultivating the talents of students via the Digital Tech@Schools scheme. The programme concentrates on the creation of computational thinking modules, revival of curriculum-related activities through Digital Maker Club modules, and the transformation of Briged Bestari into Digital Maker Ambassadors. Additionally, collaborations were formed with both public and private universities to provide training in computational thinking for teachers and educational leaders. Anugerah Pembestarian Sekolah was launched in 2015 to encourage digital learning initiatives among both students and educators.

In 2019, the ICT Transformation Plan 2019–2023 was developed. Concurrently, the use of Google Classroom application was introduced in TnL. Additionally, a group of dedicated teachers created digital teaching materials on the CikgooTube platform. In 2020, MoE implemented measures to transform digital education in line with 4IR requirements by integrating technology into TnL. As a result, the DELIMa (Digital Educational Learning Initiative Malaysia) Learning Programme was launched alongside the reintroduction of TV Pendidikan on terrestrial networks. The COVID-19 pandemic has accelerated the implementation of digital education as schools were closed and TnL had to be implemented safely. Therefore, it is imperative to establish a comprehensive Digital Education Policy (DEP) to keep pace with future needs and challenges.



Autonomous Robots
Sekolah
Advance simulation
DECISIONS
DECISION MAKING
"VIRTUAL" REALITY
IR 4.0
Digital Career
INT
of
INTERNET
Storage
SETS
PARALLEL
MANAGEMENT
Universal Integration

TIMELINE

THE DEVELOPMENT OF MOE DIGITAL EDUCATION

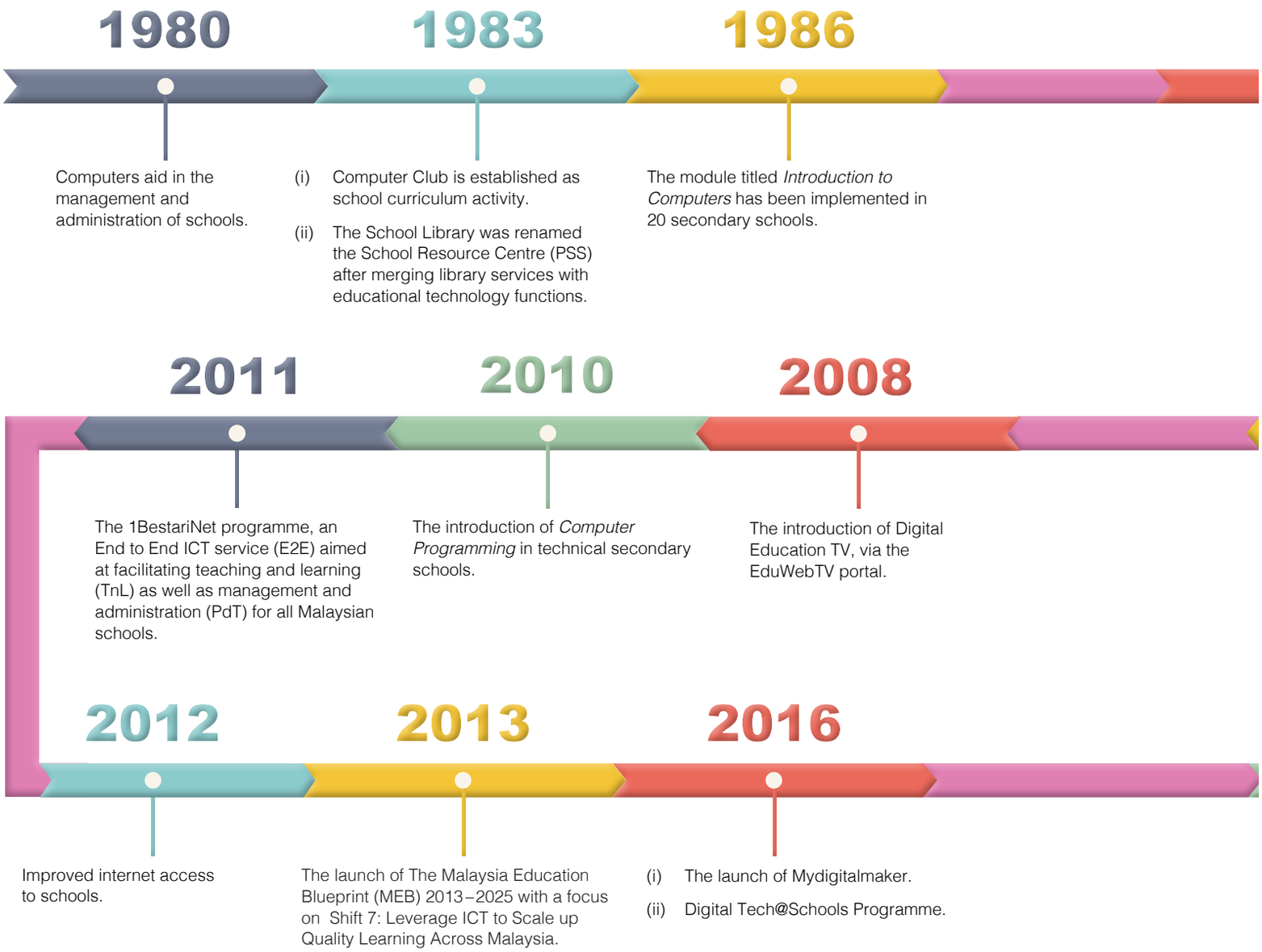


Figure 2.1 Timeline for the implementation of the Digital Education Transformation in Malaysia by the MoE.

1992

The introduction of *Computer Literacy* as a subject in 60 schools.

1994

Computer Assisted Learning Programme was implemented in 15 primary schools in the state of Selangor.

1995

MoE's Education Network Project with the Malaysian Institute of Microelectronic Systems (MIMOS) involving 50 secondary schools.

1996

Launch of Multimedia Super Corridor (MSC).

1997

Launch of Smart Schools.

1999

(i) School Computer Club Project.

(ii) Information and *Communication Technology* subject was introduced.

2000

Educational TV broadcast in collaboration with Astro.

2006

(i) Expansion of the Smart School concept to all schools.

(ii) The School Access Centre (PuAS) project with the concept of cyber cafes.

(iii) The introduction of *Information and Communication Technology* (ICT) as a subject.

2017

(i) Smart School Qualification Standard (SSQS) 3.0.

(ii) The introduction of *Computer Science* and *Design and Technology* as a subject.

2019

(i) ICT Transformational Plan MoE 2019–2023.

(ii) The introduction of Google Classroom and CikgooTube.

2020

(i) DELIMa (Digital Educational Learning Initiative Malaysia) learning platform.

(ii) The reintroduction of Educational TV on a terrestrial transmission.

2021

(i) A dedicated Education TV channel through MoE DidikTV.

(ii) Digital Innovators' Programme.

2022

(i) Phase 1 launch of Applications for Students, Teachers, Institutions and Assessment.

(ii) Provision of digital devices to schools.

(iii) The introduction of DELIMa 2.0.

2023

Implementation of Digital Education Policy.

2.2 CURRENT SITUATION ANALYSIS

2.2.1 Smart School Level

The Smart School Qualification Standards (SSQS) measures the sustainability level of schools using five clusters in the SSQS tool, which focus on ICT culture: insightful leadership, student-centred learning, professional development, curriculum and assessment, and environmental enrichment. The device follows global standards and knowledge, which include the International Society for Technology in Education (ISTE) Standards, Technology Integration Matrix and the International Federation of Library Association and Institution (IFLA)/UNESCO School Library Guidelines.

In general, the report on the level of school excellence measured using the Smart School Qualification Standards (SSQS) from 2011 to 2020 indicated that the level of excellence achieved by schools exceeded 90 percent every year as shown in Figure 2.2.

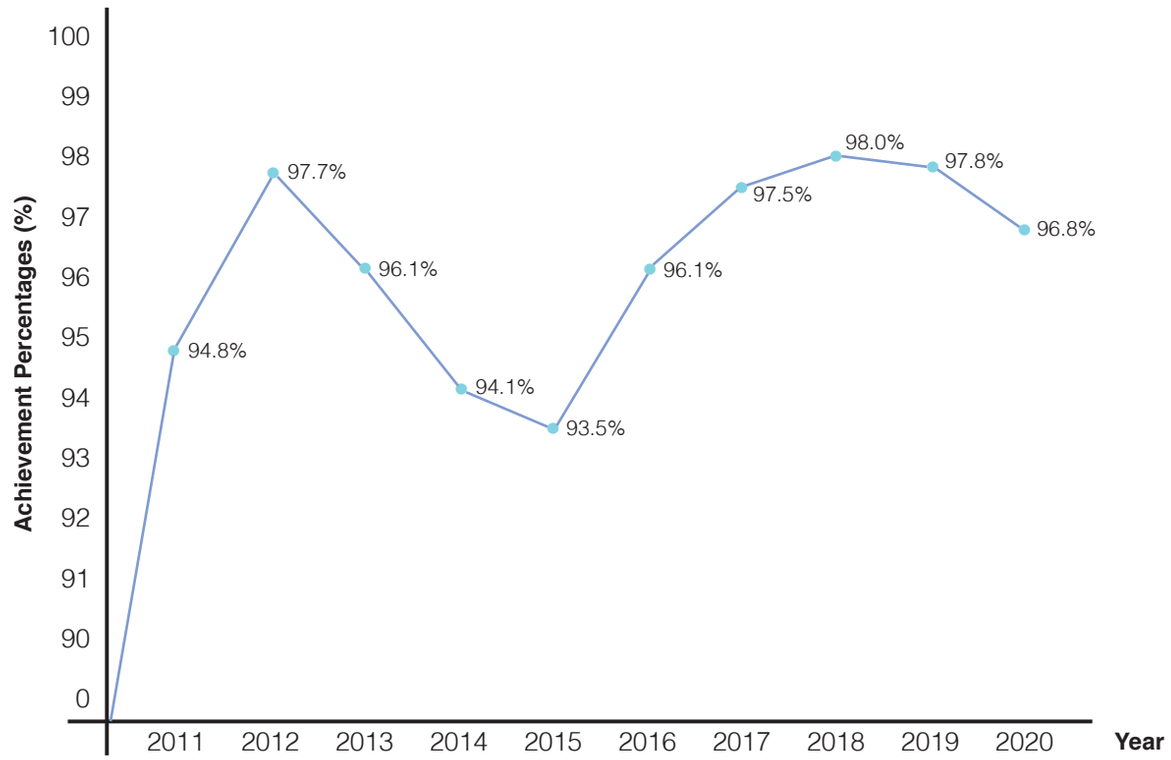


Figure 2.2 SSQS Achievement Report 2011–2020.

Note: Achievement percentages start at 90% and above.

Figure 2.3 illustrates the sustainability level of the school in 2020, based on clusters. There are three clusters that recorded achievements of three stars and below, namely the student-centred learning cluster (97.9%), the visionary leadership cluster (76.2%) and the curriculum and assessment cluster (71.0%). Furthermore, most of the schools that did not achieve the desired performance indicators were in rural and remote areas. This is the result of various factors including geography, infrastructure, technology and local socioeconomic conditions.

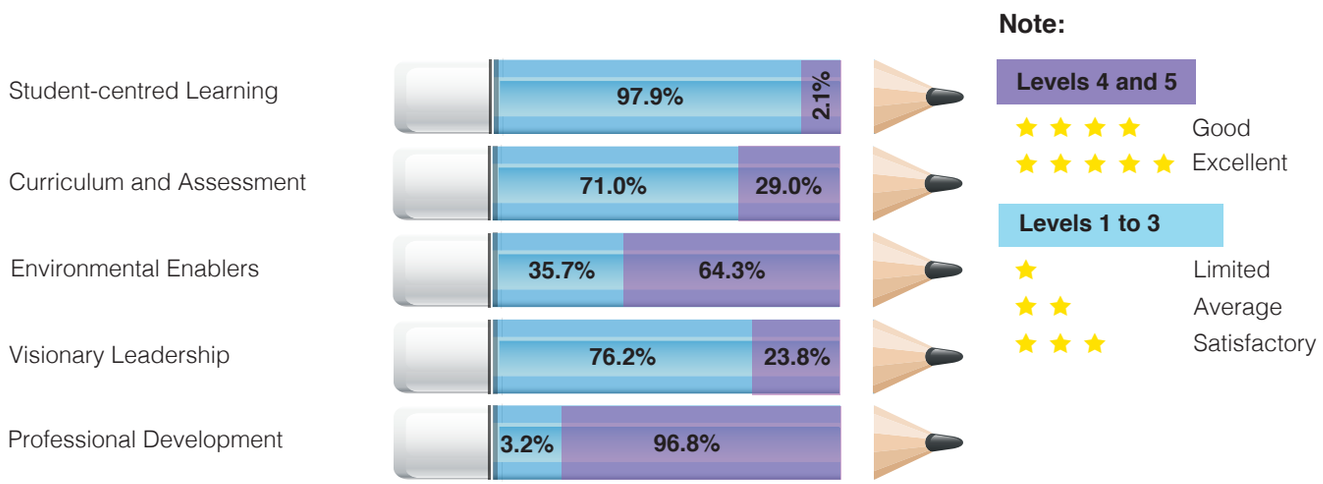


Figure 2.3 School Sustainability Levels by Cluster in 2020.

The expansion of the smart school initiative is dependent on having an agile and dynamic infrastructure. The MoE has made efforts to upgrade the Local Area Network (LAN) and provide Wide Area Network (WAN) connectivity. However, there are still several key issues with the speed and reliability of internet connectivity that have not yet reached the optimum level required to support the digital implementation of TnL and Management and Administration (PdT). Therefore, the development of infrastructure is essential for the implementation of digital education.

2.2.2 Student Digital Competency Score

The MoE has also carried out the measurement of Students' Digital Competency Levels from 2019 to 2022 by using the Digital Competency Score (DCS) instrument.The DCS findings in 2022 showed that as many as 436,073 students out of 437,898 students demonstrated proficiency in digital skills at the Intermediate level (113,776), (279,760) at the Advanced level and (42,537) at the Innovator level. In addition, 1,825 students were evaluated at Beginner (337) and Novice (1,488) levels. On average, Malaysian students attained a score of 3.32 out of 5.0. This indicates they have achieved the Digital Intermediate stage, having basic proficiency in the use of digital technology.

Table 2.1 Report of Students' Digital Competency Level Achievement in 2022.

Digital Competency Mastery Level	Level	Number of Students
Archieved	Innovator	42,537
	Advance	279,760
	Intermediate	113,776
Not Archieved	Novice	1,488
	Beginner	337
Number of Students		437,898

2.2.3 Teacher Digital Competency Level

The Digital Competency of Teachers was evaluated in 2021, with 297,018 teachers participating. Figure 2.4 displays the results, indicating that 6,442 (2.2%) teachers reached the Advanced level, 118,651 (39.9%) reached the Intermediate level and 171,925 (57.9%) reached the Basic level of digital literacy.

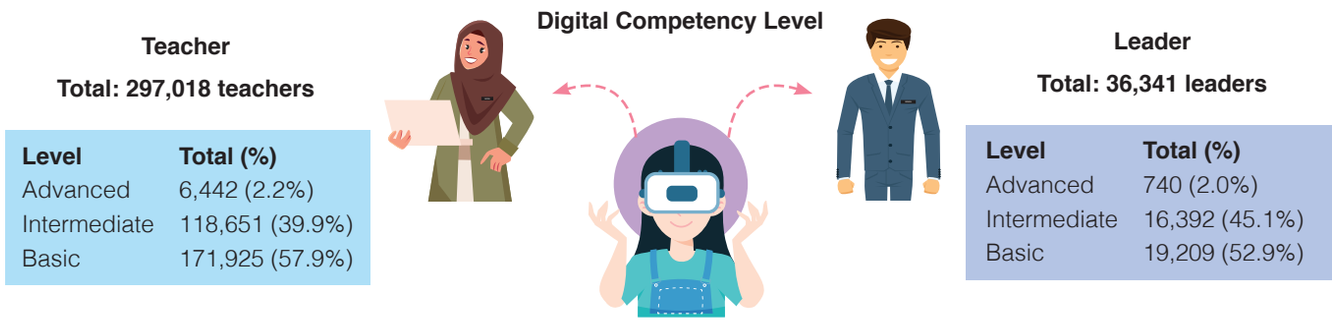


Figure 2.4 Digital Competency Level of Teachers and School Leaders in 2021.

2.2.4 School Leaders Digital Competency Level

Measurements in 2021 with the involvement of 36,341 school leaders showed 19,209 (52.9%) leaders achieved the Basic level, 16,392 (45.1%) achieved the Intermediate level and 740 (2.0%) achieved the Advanced level as shown in Figure 2.4.

2.2.5 International Benchmarking Study

Malaysia has participated in various international benchmarking studies as a way to assess the quality of the country's educational success. These include the Trends in International Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA). In the context of digital education, the TIMSS 2019 study involving a sample of 9,643 respondents from 221 schools showed that the average student score increases if teachers used computers in learning Science and Mathematics more frequently.

Figure 2.5 shows student's perceptions on teacher's use of computers in the TnL of Science and Mathematics. It is reported that 82 percent of Science teachers and 90 percent of Mathematics teachers in Malaysia almost or have never used computers in TnL. This percentage is higher than the average of TIMMS 2019, which is 56 percent for Science and 68 percent for Mathematics.

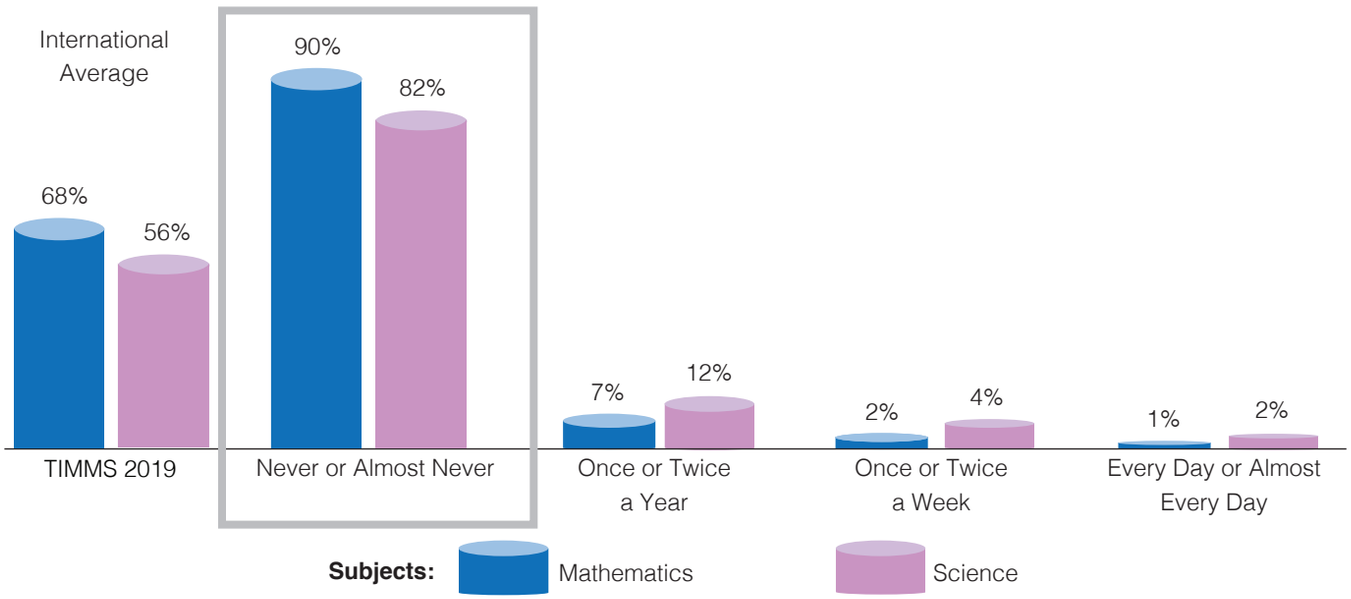


Figure 2.5 Percentage of Teacher Support on the use of Computers in the TnL of Science and Mathematics.

The findings of the 2018 PISA study concerning schools' capacity to enhance TnL using digital devices, based on responses from 6,705 participants aged 15 to 16 across 191 schools, are presented as follows:

Table 2.2 Schools' ability to improve teaching and learning using digital devices.

Items	Malaysia's Score (%)	OECD's Average (%)
Sufficient number of digital devices connected to the Internet.	41.7	67.2
Sufficient Internet speed for broadband in schools.	36.0	67.5
Sufficient number of digital devices for teaching.	31.4	59.0
Sufficient computing capacity of digital devices in the school.	24.4	68.5
Adequate and suitable software readiness.	48.7	71.3

Table 2.2 indicates that the availability of computer equipment, digital devices, software and school broadband services in Malaysia is at a modest level. This is illustrated by Malaysia's score which is below the OECD average.

2.2.6 Challenges in Teaching and Learning During the COVID-19 Pandemic

The COVID-19 pandemic led to the closure of schools, leading to the implementation of home-based teaching and learning (HTnL) to ensure the continuity of TnL. Thus, to ensure the successful implemetation of online learning, attention needs to be given to aspects such as Internet connectivity, device usage and learning spaces.

Learning Method

MoE has conducted a study on the Effectiveness of HTnL during the Movement Control Order (MCO) from the beginning of MCO on March 18th 2020 to the reopening of schools in early July 2020. The respondents includes 39,367 teachers and 59,624 parents or guardians. Figure 2.6 shows the percentage of teachers and parents who chose the online learning mode.

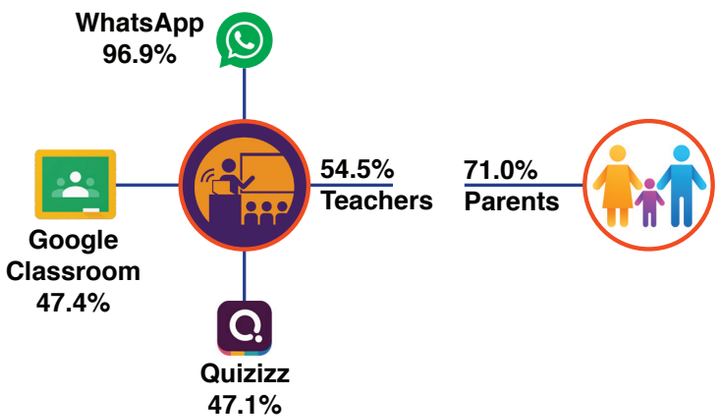


Figure 2.6 Online Learning Mode.

The findings reveal that 54.5 percent of teachers and 71 percent of parents make use of online learning modes. However, because of limited connectivity, educators tend to utilise WhatsApp (96.9%), Google Classroom (47.4%) and Quizizz (47.1%) applications for instruction.

Digital Experience

In the context of digital experience, the study shows that the HTnL experience increased the use of digital technology for teachers and students. Teachers, both in and outside the city, found HTnL to be only moderately effective.

Whereas students both in and outside the city, reported a lower level of effectiveness regarding HTnL. This implies that there exist discrepancies in the understanding of the effectiveness of HTnL between learners and educators that require rectification.

Digital Devices in Learning

In relation to digital devices used by students for HTnL, the Student Willingness to Learn Online Survey was conducted from 28th March to 2nd April 2020, with approximately 900,000 participants.

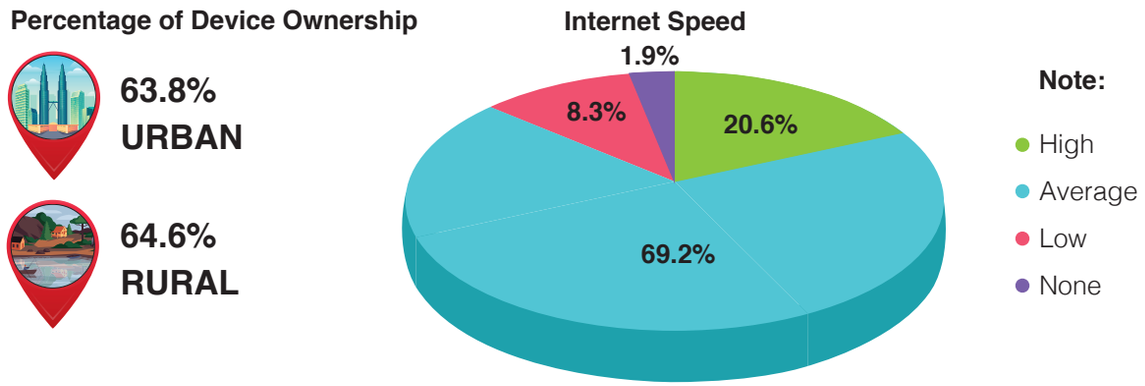


Figure 2.7 Percentage of Device Ownership and Internet Speed Level.

The data indicates that 36.2 percent of students in urban areas and 35.4 percent of students in non-urban areas do not own a device. In regards to Internet speed, more than 69 percent of parents reported that their Internet speed was moderate, with an additional 10 percent stating that it was low or non-existent. This resulted in HTnL facing interruptions and Internet connectivity issues.

2.3 CHALLENGES IN ADAPTING TO CHANGE

The analysis of global and national perspectives supported by the study findings reveals the need to establish a dedicated framework for promoting digital education in Malaysia. Ensuring equality, quality and access to digital education across all communities presents a considerable challenge, requiring unwavering commitment and sustained effort. Three key components are central to establishing an effective learning environment:

1. **The infrastructure and technology components** consist of devices, access, digital interconnectedness and learning spaces, and facilities.

2. **The infostructure component** includes learning content, pedagogy, training, research, applications, and learning platforms.

3. **The stakeholder synergy component** encompasses students, educators, school leaders, parents, communities and strategic partners in both the public and private sectors.

The challenges that require this change are the basis for framing the thrusts, strategies and initiatives in DEP. To meet these challenges, six requisites have been identified, namely:

1. The need to **develop students who are talented** and aspire to use digital technology in an integrated, creative and innovative, responsible and ethical manner, communicate and collaborate effectively, analyse data scientifically and solve problems.

2. The need to **prepare digitally competent teachers** to implement efficient and effective TnL and subsequently cultivate creativity and innovation across the board.

3. The need for **visionary educational institution leadership** that is able to execute the design, monitoring and evaluation of implementation effectiveness Management and Administration (PdT) to ensure complete and available resources, facilities, access and environment to pursue digital education.

4. The need to **create a technology-rich environment** to execute continuous lifelong learning based on the enabling aspects of technology infrastructure and infostructure, in addition to enhancing the efficiency of work processes, productivity and quality of MoE's digital services.

5. The need to **integrate digital technology to develop** a futuristic **curriculum**, adaptive pedagogy, flexible and context-responsive assessment as well as utilising diverse resources to improve the quality of digital education.

6. The need to **strengthen the support of strategic partners** amongst the public sector, private sector, Non-Government Organisations (NGOs), Government Linked Companies (GLCs), communities and parents to support the implementation of digital education including the training aspect, commercialisation and innovation (RDCI), apprenticeship, negotiation and technology transfer.

2.4 STEPS TOWARDS DIGITAL EDUCATION

2.4.1 Student

Digital learning has been implemented for all students, including student with special educational needs (MBPK), from pre-school, primary, secondary, Form 6, Vocational Colleges and Matriculation Colleges. The curriculum related to digital learning is encapsulated in the Science, Technology, Engineering and Mathematics (STEM) and Technical and Vocational Education and Training (TVET) subjects.

To facilitate the transition to digital education, the MoE has developed the Digital Competencies Standard for Student (DCS-S) and incorporated it into the curriculum across all subjects. DCS-S has been developed to measure students' level of digital mastery and to allow interventions for students who have not reached a required level. The ultimate goal of DCS-S is to produce digitally literate students who can apply knowledge and skills in solving problems and creating something novel using the concept of computational thinking.

In order to ensure a more holistic development of students, *Sistem Pentaksiran Aktiviti Jasmani, Sukan dan Kokurikulum* (PAJSK), MoE has taken the initiative to introduce competitions involving digital technology in the cocurriculum, as well as to disseminate ethics and cyber-safety practices to students.

2.4.2 Educator

The strategy for equipping educators with digital skills responds to the government's desire and supports the digital talent cluster initiative to build agile and competent Digital Talent. The focus is on improving the quality of digital education through training and skills as well as strengthening collaboration between training providers, professional bodies and the private sector to develop digitally proficient educators.

In this regard, the Digital Education Strengthening Programme for Pegawai Perkhidmatan Pendidikan (PPP) under the 12th Malaysia Plan has commenced through four (4) phases such as:

i. screening and group reservation of PPP digital literacy;
ii. capacity building of teaching staff;
iii. implementation of digital training in subsequent stages; and
iv. development of experts (jauhari) who can guide other teachers in digital innovation.

The development of educator competency training is delivered at three levels of competence – Basic, Intermediate and Advanced. The levels are measured by the MoE instrument adapted from the Digital Competencies Standard for Educators (DCS-E) instrument. The instrument was developed with reference to several international standards, namely (i) Digital Competence Framework for Educators (DigComEdu); (ii) The International Society for Technology in Education (ISTE) Standards; (iii)

The Internet and Computing Core (IC3) Digital Literacy Certification; and (iv) The Technology Integration Matrix, which have a proven track record in digital learning and are consistent with the context of digital education in Malaysia.

The results of the MoE Administer competency level screening indicate that 53 percent of administrators are in the Basic Level, 45 percent in the Intermediate Level and 2 percent in the Advanced Level. In addition, the results of the teacher competency level screening indicate that 58 percent of teachers are in the Basic Level, 40 percent in the Intermediate Level and 2 percent in the Advanced Level[3]. The results of the study show that there is a need to address the digital literacy gap among teachers through continuous training.

The MoE is also moving towards providing a number of Subject Matter Experts (SMEs) in digital TnL through the Expert Team Building Programme (Jauhari). To achieve this aspiration, the MoE offers specialised training in digital applications to enhance the knowledge and skills of educators in the digital domain, enabling them to mentor fellow teachers.

2.4.3 Educational Leader

Analysis of the Training Needs of Principals and Headmasters based on the 2020 School Leader Competency Standard (KOMPAS 2.0) revealed that most competencies related to the integration of digital ecosystems in schools are at a mean of 2.7, rather than 5.0. These findings suggest that principals and headmasters need to be trained to cultivate digital ecosystems. Furthermore, the study supports the idea that leaders must incorporate digital applications[4] into their leadership styles. A Volatile, Uncertain, Complex and Ambiguous (VUCA) world requires dynamic, efficient, effective and powerful educational leaders to lead digital educators.

2.4.4 Infrastructure dan Infostructure

Shift 7 in MEB 2013–2025 highlights the significance of increasing the use of technology in schools to bridge the digital divide between urban and rural areas. The application of ICT in education involves digital resources, tools and abilities. Currently, education utilising digital technology such as virtual reality (VR), artificial intelligence (AI), augmented reality (AR), big data, and the Internet of Things (IoT) seeks to engage students while diversifying approaches in TnL.

A robust and complementary digital infrastructure is essential for the delivery of effective educational services. Therefore, in an effort to enhance the network infrastructure, the MoE has collaborated with the Ministry of Communications and Digital (MoCD) via JENDELA as a preemptive measure to deliver wider broadband access

3 Findings on MoE Teacher and Administrator Digital Competency Level (2021).

4 Rahayu Ahamad Bahtiar et al., 2020. Peranan dan Cabaran Pemimpin Pendidikan dalam Memastikan Matlamat dan Agenda Pendidikan Dilestari dalam Tempoh Perintah Kawalan Pergerakan (PKP) COVID-19. (https://iab.MoE.edu.my/bahanportal/pemberitahuan/2020/2).

across the country, as well as to benefit schools in and outside the city.

The implementation of DEP is supported by MoCD through the Point of Presence (PoP) Project under the National Digital Networking Plan (JENDELA). JENDELA outlines the installation of PoPs in approximately 4,323 locations near schools, with a phased approach consisting of 630 PoPs for Phase 1 and 3,693 PoPs for Phase 2. The provision of these PoPs can benefit a minimum 10,260 schools within a 2.5 km to 3 km radius of coverage. The introduction of the WINDOW initiative, including the PoPs, will speed up the delivery of broadband infrastructure that underpins the connectivity of Wide Area Network (WAN) in the MoE's educational institutions, as envisaged in the DEP.

To support digital infrastructure and infostructure systems, 2,886 Computer Technician (JTK) positions have been centralised to provide technical assistance to schools and ensure MoE preparedness.

2.4.5 Digital Content

The MoE consistently endeavours to provide access and TnL content for teacher and student use including support materials for MBPK. Moreover, teachers are advised to share their TnL content with the educational community. The use of the DELIMa learning platform received positive feedback from its users.

Access to high-quality digital content can be improved for students by the provision of the DELIMa 2.0 launcher, digital studio equipment, digital maker hub (DMH), intelligent repository systems, and TV and radio programmes. This initiative also aims to foster the creative power to shape quality digital talent. Hence, the act of accessing quality digital content can shape the digital talents of students who are more competent and competitive.

2.4.6 Strategic Partners

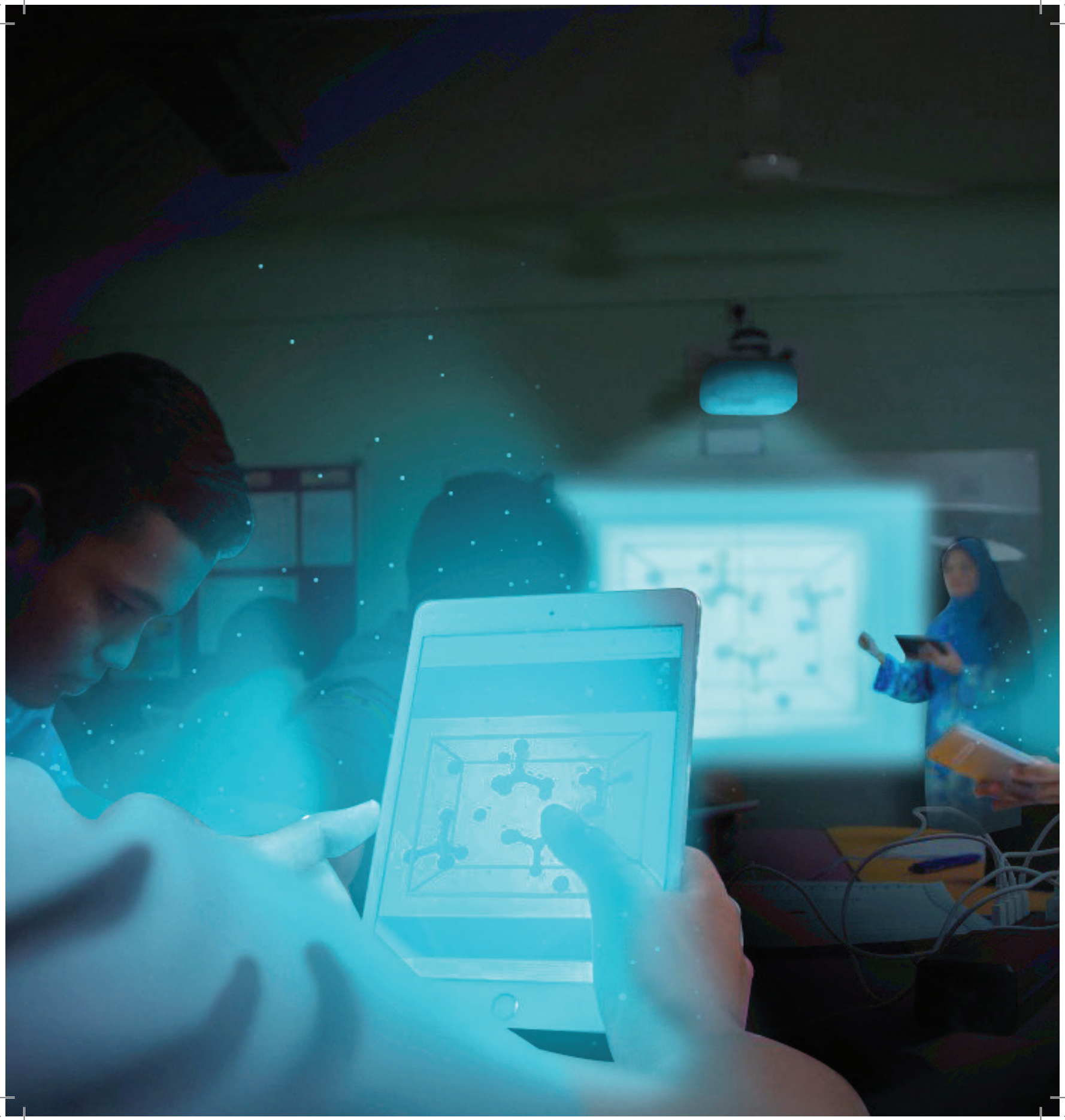
Currently, KPM has also strengthened the involvement of parents, communities, Non-Government Organisations (NGOs), Government-Linked Companies (GLC) and the private sector as stated in Shift 9, MEB 2013–2025, which among others includes school aid donations, motivational programmes and the involvement of volunteers in the classroom. In a situation where the country is dealing with various challenges including the COVID-19 transmission of infectious diseases outbreaks, these strategic partners have played an active role in helping students and teachers implement HTnL more effectively. Contributions in the form of organising activities such as motivational programmes, additional online classes and distribution of printed learning modules have been implemented.

Strategic partners also contributed digital devices and data plans to provide opportunities for students, particularly those from low-income

families. In 2020, only 38 percent of schools engaged in the private sector partnerships, whereas in 2021, it increased to 69 percent.

Additionally, parents, communities, NGOs, GLCs and the private sector also conduct social and volunteer activities by organizing sports, co-curriculum and arts activities. The participation of students in these talent-building activities provides them with opportunities to enhance, reinforce and apply the skills and values they have acquired.

Based on the current digital education landscape, the DEP is developed with a clearly outlined strategy for tackling the challenges of digital education to produce competitive human capital in the future. The aspiration outlined in the DEP and its strategies will be realised through various initiatives that have been identified. Thorough planning, quality implementation and regular monitoring are three crucial components in determining the objectives of DEP. It is imperative to adhere to these elements to successful attain the goals of DEP.



CHAPTER 3
DIGITAL EDUCATION
POLICY

3.1 DIGITAL EDUCATION POLICY STATEMENT

The Digital Education Policy (DEP) aims to create a digitally fluent generation that is competitive by enhancing the knowledge, skills and values of students, educators and educational leaders, providing quality infrastructure, infostructure and content as well as actively involving strategic partners in an integrated and comprehensive manner.

3.1.1 The Digital Education Policy Perspectives

The Digital Education Policy outlines four objectives, six thrusts, 18 strategies and 41 initiatives that set out the goals for achieving transformation in digital education as shown in Figure 3.1.

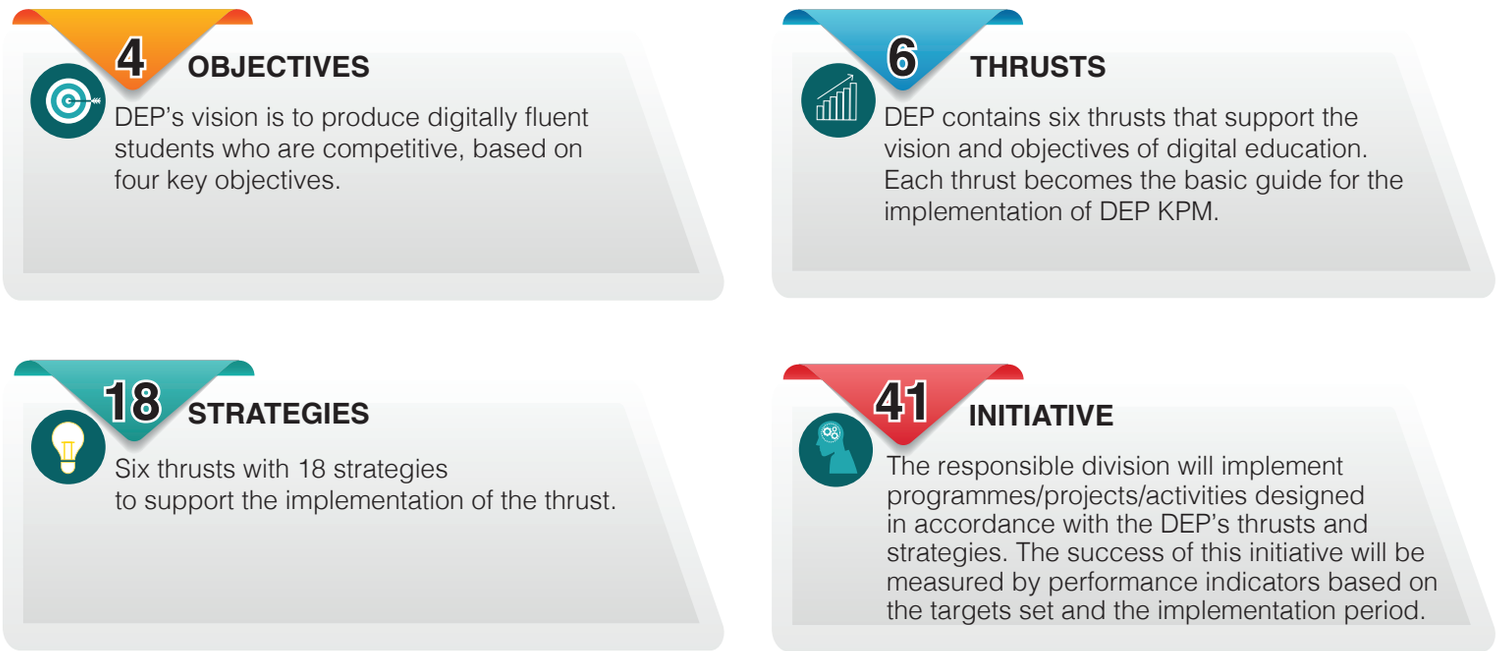


Figure 3.1 The Digital Education Policy Perspectives.

3.1.2 Vision and Objectives of Digital Education Policy

The vision of the Digital Education Policy is to produce a digitally fluent generation that is competitive based on four main objectives, namely:

1. Developing digitally fluent students to meet the demands of the digital era.
2. Enable educators and education leaders to incorporate digital technology into the education system.
3. Strengthening the infrastructure, infostructure and digital educational content.
4. Optimising active engagement of strategic partners as a catalyst for digital education.

3.1.3 Digitally Fluent Students

A digitally fluent student is one who strives to use digital technology in an integrated manner, creatively, innovatively, responsibly and ethically to produce and create innovation, analyse data scientifically, solve problems and communicate and collaborate effectively.

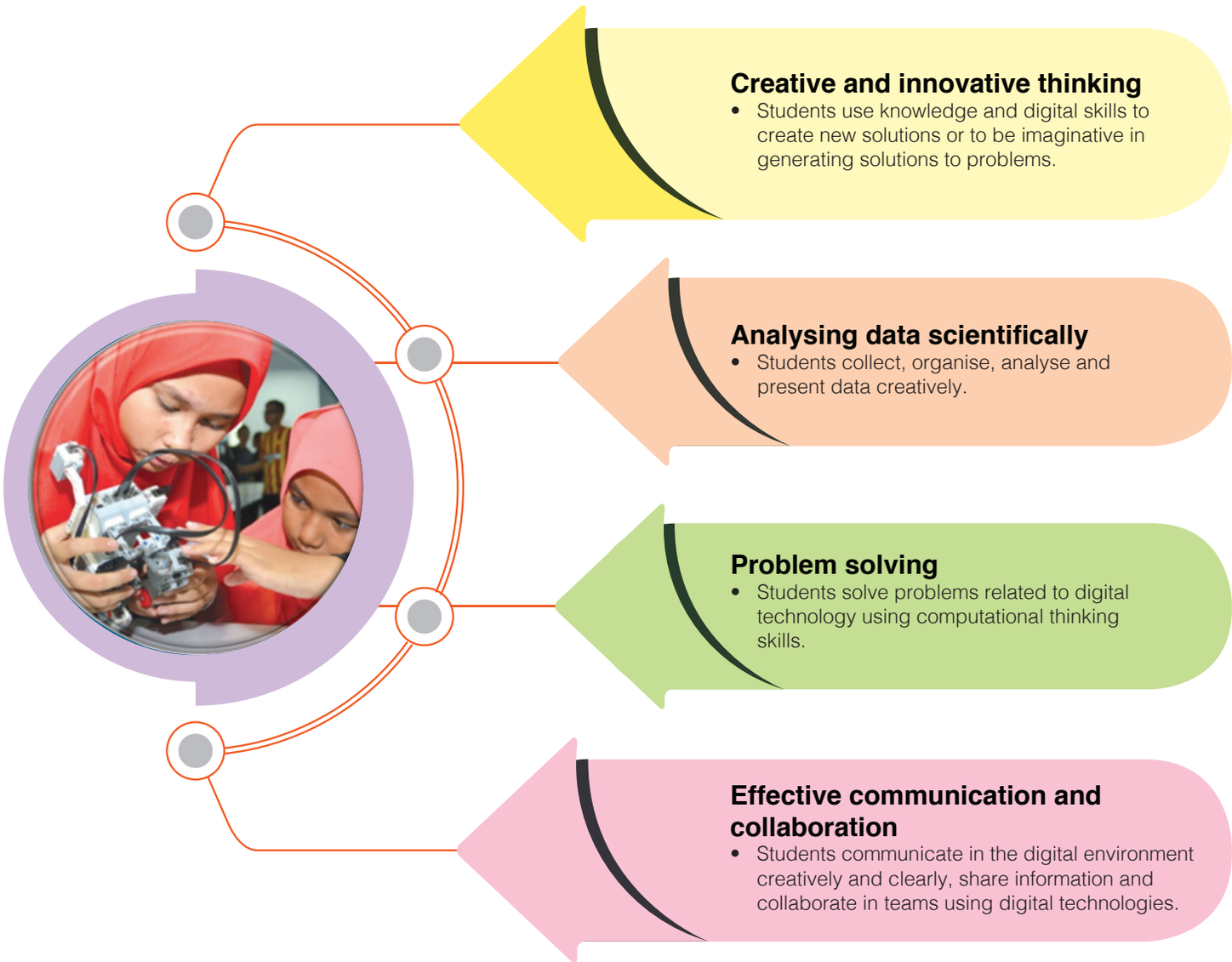


Figure 3.2 Characteristics of a Digitally Fluent Students.

3.1.4 The Thrusts of The Digital Education Policy

The Digital Education Policy has six thrusts areas that support the vision and objectives of digital education. Each thrusts guides the strategic direction of operational plans to address specific issues and challenges that require transformation.The six thrusts are:

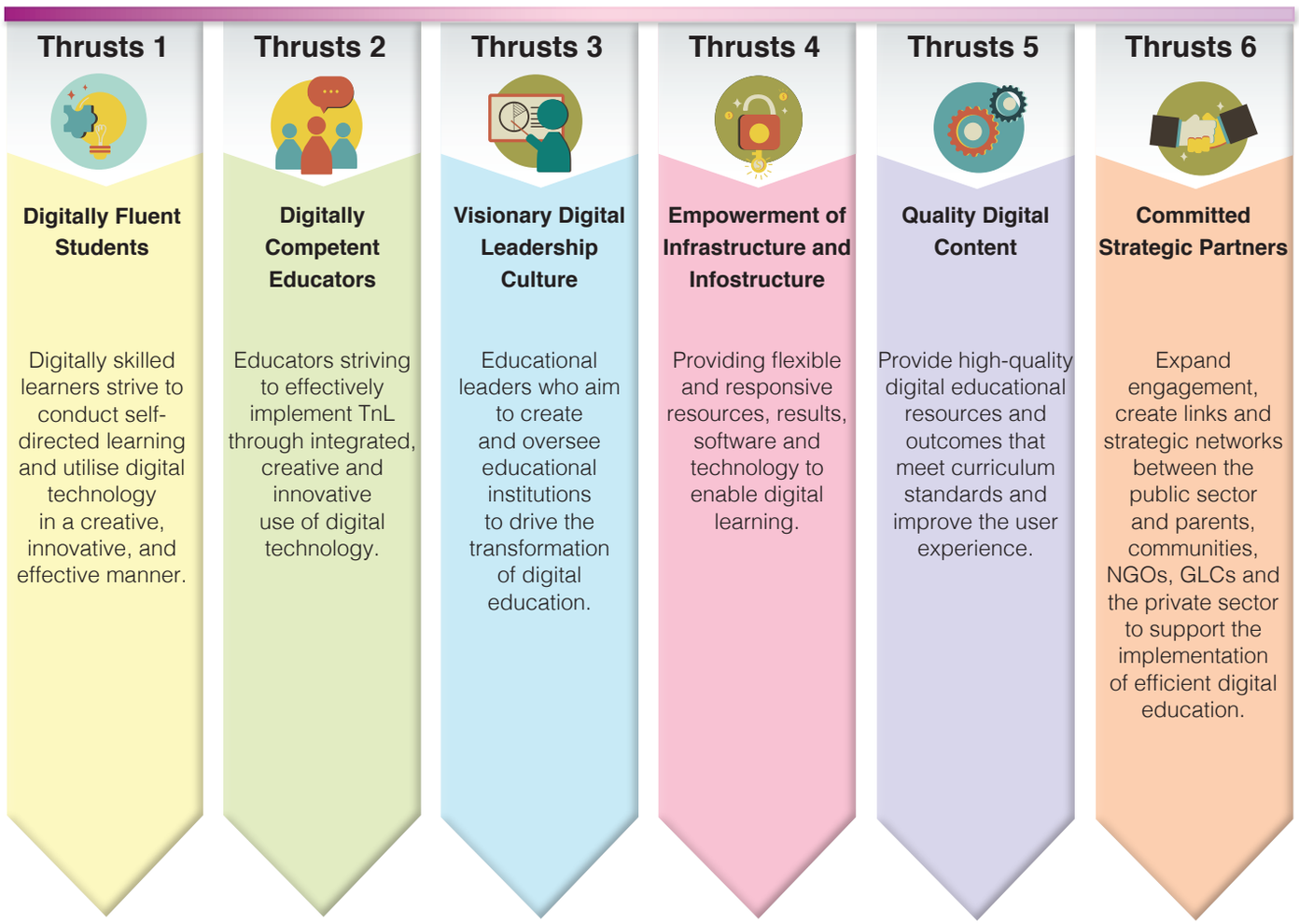


Figure 3.3 The Thrusts of the Digital Education Policy.

DIGITAL EDUCATION POLICY FRAMEWORK

VISION

Fostering a competitive, digitally fluent generation.

OBJECTIVES

Developing digitally fluent students to meet the demands of the digital era.	Enable educators and education leaders to incorporate digital technology into the education system.	Strengthening the infrastructure, infostructure and digital educational content.	Optimising active engagement of strategic partners as a catalyst for digital education.

THRUSTS

T1	T2	T3	T4	T5	T6
DIGITALLY FLUENT STUDENTS	**DIGITALLY COMPETENT EDUCATORS**	**VISIONARY DIGITAL LEADERSHIP CULTURE**	**EMPOWERMENT OF INFRASTRUCTURE AND INFOSTRUCTURE**	**QUALITY DIGITAL CONTENT**	**COMMITTED STRATEGIC PARTNERS**

STRATEGIES

S1.1 Empowering digital education in curriculum and assessment.	**S2.1** Identifying the level of digital competence of educators.	**S3.1** Improving the digital competencies of education leaders.	**S4.1** Providing agile and dynamic digital infrastructure across all MoE institutions.	**S5.1** Empowering digital learning platforms to improve user experience.	**S6.1** Strengthening strategic partnerships with parents, communities, NGOs, GLCs, public and private sectors in digital education.
S1.2 Developing Students' Digital Competency Standard.	**S2.2** Improving the competency level of educators continuously.	**S3.2** Cultivating change in digital education leadership.	**S4.2** Providing access to digital devices and support services for students and educators.	**S5.2** Empowering digital educational resources.	**S6.2** Utilising collaborative partnerships and networks with parents, communities, NGOs, GLCs, public and private sectors in digital education.
S1.3 Cultivating the integrated, creative, innovative and ethical use of digital technology in student-centred learning.	**S2.3** Empowering educators as experts in digital education.		**S4.3** Utilising digital technology in MoE services.		
S1.4 Nurturing students'potentials and talents in digital technology via co-curricular activities.	**S2.4** Cultivating knowledge, creativity and innovation of digital education holistically.		**S4.4** Using data to improve the MoE service and the user experience.		

Figure 3.4 Digital Education Policy Framework.

3.2 ROLES OF THE STAKEHOLDERS

With the implementation of DEP, all students will benefit from the development of digital education, regardless of their background. They will learn in a digitally-enabled environment that facilitates the acquisition of knowledge, skills and ethics. This will create a conducive learning atmosphere for students. By implementing this, students will be more competitive in facing the challenges posed by the 4IR and contribute to the society. However, this objective can only be achieved if all stakeholders actively play their respective roles, provide solid cooperation and understand the benefits.

Educators

Educators should continuously improve their digital knowledge and skills to facilitate and achieve desired student-outcome. Digitally competent educators can create an engaging and supportive learning environment, which can attract students and encourage learning.

Education Leaders

Education leaders play a role as leaders of change who are insightful and able to spur the acculturation of capable digital education. This can be achieved through design, alignment, continuous monitoring and guidance.

Government

The government plays the leading role as an enabler to ensure the digital education agenda is successfully achieved. It does so by setting strategic goals and making decisions on which areas to focus on and actions to take to foster a favourable digital education ecosystem. Additionally, the government must allocate sufficient funds to implement the DEP.

Parents

Parents have a crucial part in supporting their children's education and monitoring their academic progress. It is important for parents to create an effective online learning environment that enables their children to gain knowledge and abilities while also promoting good ethics.

Communities and NGOs

Communities and NGOs have a crucial role to play in promoting awareness and encouraging readiness for embracing changes in digital education. The roles of communities and NGOs also include providing both moral and material support, as well as encouraging the use of technologies that can improve digital education outcomes.

GLCs and Private Sectors

GLCs and the private sector play a crucial role in supporting digital education by sharing a range of new and effective technologies that offer opportunities and solutions in the field. They can also contribute through training, research, development, commercialisation, innovation, apprenticeships and consultancy as well as technology transfer to advance digital education.

CHAPTER 4

THRUSTS, STRATEGIES AND INITIATIVES

THRUSTS 1 - DIGITALLY FLUENT STUDENTS

A digitally literate generation is a key catalyst for transforming Malaysia into a high-income nation. Students with digital literacy possess the ability to regulate, construct, evaluate, and determine the digital skills required. This can be accomplished through lifelong learning and ultimately contributes to the development of the country.

There are four (4) strategies and eight (8) initiatives underpinning Thrusts 1 as follows:

Table 4.1 Thrusts 1 Strategies and Initiatives: Digitally Fluent Students.

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
1.1 Empowering digital education in **curriculum and assessment**.	**1.1.1** Refining the subject **curriculum** to conform to the needs of the digital era.	• Students are able to apply digital skills in real life. • A curriculum subject that integrates digital education.	2023–2030
	1.1.2 Refining **integrated assessments** to use digital technology.	• Unified assessment system adopted by all schools, vocational colleges and matriculation colleges. • Students are channelled to the appropriate academic or vocational pathways based on their potential, interests and inclinations.	
1.2 Developing **Student's Digital Competency Standard**.	**1.2.1** Constructing student's digital competency **standards**.	Students achieve the level of digital competency according to the levels found in the Student's Digital Competency Standards.	2023–2030
	1.2.2 Preparing **instrument** to measure student's level of digital competency.	Student's level of digital competency can be measured and reported for interventions to be carried out.	
	1.2.3 Implementing focussed **intervention plans** that focuses on student's digital competency standards.	Students have the opportunity to attain the level of digital competency set out in the Student's Digital Competency Standard.	
1.3 Cultivating the integrated, creative, innovative and ethical use of digital technology in **student-centred learning**.	**1.3.1** Strengthening student's understanding through the **deep learning** approach.	Students independently and ethically apply their knowledge and skills by exploring and investigating across curriculum using digital technology.	2023–2030
	1.3.2 Implementing and practising the **ethical** use of digital technology amongst students.	Students will become responsible, ethical cyber citizens who practise the safe use of the Internet.	
1.4 Nurturing student's **potentials and talents** in digital technology via co-curricular activities.	**1.4.1** Increasing student engagement in digital-based **co-curricular activities** by incorporating entrepreneurial elements.	Students can adapt the knowledge, skills and value of the digital education they have acquired to advance their talents and careers.	2023–2030

THRUSTS 2 - DIGITALLY COMPETENT EDUCATORS

Educators with digital expertise, skills and innovativeness can add value to support effective teaching and learning (TnL) processes, especially in 21st Century Learning. By recognizing this importance, efforts are made to enhance the digital skills of educators through blended training or self-learning practices, so that they endeavour to integrate digital technology into the educational ecosystem. This empowering educators to manage and perform both TnL, as well as management and administrative (PdT) tasks efficiently and effectively. The lack of digital knowledge will limit educator's efforts to provide quality education to students.

There are four (4) strategies and five (5) initiatives underpinning Thrusts 2 as follows:

Table 4.2 Thrusts 2 Strategies and Initiatives: Digitally Competent Educators.

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
2.1 Identifying the **level of** digital **competence** of educators.	**2.1.1** Providing the **instrument** and administer the Educator's Digital Competency Standard evaluation to educators (PPP) based on their respective career pathways.	The level of digital proficiency among educators can be determined in to provide appropriate training.	2023
2.2 Improving the **competency level** of educators continuously.	**2.2.1** Implementing **training** programmes to enhance the digital **competence** of educators.	Educator's digital competence can be improved.	2023–2025
	2.2.2 Enhancing the **curriculum of the education programme** for teacher trainees.	Novice teachers equipped with a comprehensive set of digital skills to improve the delivery of educational services.	
2.3 Empowering educators as **experts in digital education**.	**2.3.1** Creating a **panel of digital education experts**.	Educators who are the primary authority on digital education.	2023–2025
2.4 **Cultivating** knowledge, creativity and innovation of digital education holistically.	**2.4.1** Inculcating a **culture of creativity and innovation** throughout digital education.	Increased practice of creativity and innovation related to digital education in TnL and PdT.	2023–2025

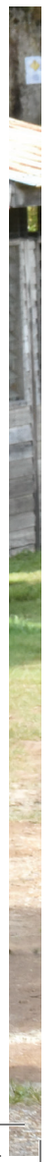
THRUSTS 3 - VISIONARY DIGITAL LEADERSHIP CULTURE

Visionary digital leadership harnesses all education leaders to ensure that digital competency standards are fully achieved. Digital education leaders who are proficient and competent are able to mobilise educators to integrate digital technology in the educational ecosystem based on the Standard School Leader Competencies (KOMPAS 2.0), professional development and transformation of educational leadership. This feature is important to ensure education leaders have the potential to create a conducive digital ecosystem in their respective organisations.

There are two (2) strategies and five (5) initiatives underpinning Thrusts 3 as follows:

Table 4.3 Thrusts 3 Strategies and Initiatives: Visionary Digital Leadership Culture.

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
3.1 Improving the digital **competencies** of education leaders.	**3.1.1** Improving the training curriculum.	Improvement of the quality and effectiveness of professional development programmes of digital education leaders.	2023–2025
	3.1.2 Implementing **digital training for educational leaders**.	Increased competence of educational leaders in digital leadership in the Ministry of Education (MoE) educational institutions.	
	3.1.3 Implementing **training to lead trainers** among Institut Aminuddin Baki (IAB) lecturers.	Increased competency of IAB lecturers in coaching and mentoring skills.	
3.2 Cultivating **change** in digital education **leadership**.	**3.2.1** Implementing **change management** for education leaders.	Empowering education leaders as leaders of change in sustaining digital transformation leadership.	2023–2025
	3.2.2 Conducting **mentoring** to education leaders. • Follow-up Follow-through (FUFT) instrument developed. • Training of Trainers (ToT) or Mentor Training Course to 40 percent of IAB lecturers is conducted. • FUFT mentoring programme to all selected education leaders is implemented.	Creating leaders who can cultivate digital education culture in MoE educational institutions.	



THRUSTS 4 - EMPOWERMENT OF INFRASTRUCTURE AND INFOSTRUCTURE

The provision of good infrastructure and infostructure is one of the major drivers in efforts to transform education. Infrastructure plays an essential role in supporting and enabling curriculum delivery, student learning, skills development and teacher training. Therefore, agile digital developments and capabilities need to be leveraged in the delivery system of public services, including education.

As such, it is imperative to strengthen the present technological landscape and digital capabilities in terms of procurement, expertise and collaboration with stakeholders. This will ensure MoE's readiness towards realising the nation's digital education goals.

There are four (4) strategies and fifteen (15) initiatives underpinning Thrusts 4 as follows:

Table 4.4 Thrusts 4 Strategies and Initiatives: Empowerment of Infrastructure and Infostructure.

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
4.1 Providing agile and dynamic digital **infrastructure** across all MoE institutions.	**4.1.1** Providing **Wide Area Network** (WAN) connectivity in MoE institutions.	Improved quality of digital education delivery through the utilisation of high-speed Internet access in all MoE institutions.	2023 – 2030
	4.1.2 Upgrading the **Local Area Network** (LAN) in MoE institutions.	Improved quality of digital education delivery through the utilisation of high-speed Internet access in all MoE institutions.	
	4.1.3 Increasing the **uptake** of digital **technologies** in MoE educational institutions.	Improved quality of digital education delivery through the adoption of digital technologies in TnL.	
	4.1.4 Increasing the use of **cloud computing** services.	Improved quality and conservation of resource in the delivery of educational services.	
	4.1.5 Enabling **Software as a service** (SaaS) as a centralised service.	Increased user productivity by facilitating digital TnL.	
4.2 Providing **access to digital devices and support services** for students and educators.	**4.2.1** Providing access to **digital devices for each student** through various mechanisms.	• Reduction of the digital divide among students. • Increased use of digital technology in learning.	2023 – 2030
	4.2.2 Providing **digital devices for each educator**.	Increased use of digital technology and teaching quality.	
	4.2.3 Implementing the **centralised service** of Information and Communication Technology (ICT) technical assistance in State Education Departments (JPN) and District Education Offices (PPD).	Optimisation of technical manpower (technicians) for the implementation of ICT technical support services in JPN and PPD.	

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
4.3 Utilising digital technology in **MoE services**.	**4.3.1** Providing integrated, seamless and secure **MoE key services**.	Improved delivery of key services to MoE stakeholders and the public.	2022–2030
	4.3.2 Increasing the use of digital technologies in **MoE shared and support services**.	Improved delivery of shared and support services to MoE stakeholders and the public.	2023–2030
	4.3.3 Upgrading the **TnL platform** across key MoE services.	Improved service delivery for the need and availability of digital learning platforms to stakeholders.	2023–2025
	4.3.4 Improving digital knowledge and skills among non-teaching personnel as MoE's digital **transformation advocates**.	• Empowerment of ICT-skilled non-teaching personnel to drive digital transformation. • Reduced dependence on third-party providers or professional services.	
4.4 Utilising **data** to improve the MoE service and the user experience.	**4.4.1** Standardising MoE data and applications through improved use of **MoE models and data dictionaries**.	• Improved data reliability. • Elimination of data source overlap.	2022–2030
	4.4.2 Creating a **data warehouse** that centralises all MoE data.	Effective data-driven decision making can be made.	
	4.4.3 Establishing a **big data analytics** platform as a single source of MoE data.	Enhanced MoE service capability that enables accurate prediction and rapid reaction to facilitate informed decision-making and exploitation of emerging prospects.	

THRUSTS 5 - QUALITY DIGITAL CONTENT

Quality digital content has a key role in improving students' mastery of knowledge and skills, along with nurturing their moral values and attitudes. Providing a range of interactive and enjoyable activities can broaden the opportunities for students to learn, increase motivation, and help them unlock their full potential and talents.

The use of digital technology can contribute to enhancing the user experience towards meaningful learning. Hence it can allow space and opportunities for students to determine their learning according to their abilities and inclinations. The teacher, meanwhile, acts as a facilitator and motivator of student learning.

There are two (2) strategies and five (5) initiatives underpinning Thrusts 5 as follows:

Table 4.5 Thrusts 5 Strategies and Initiatives: Quality Digital Content.

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
5.1 Empowering **digital learning platforms** to improve user experience.	**5.1.1** **Improving the Digital Educational Learning Initiatives Malaysia (DELIMa) platform** from the aspects of user experience, data analytics and personalised learning.	Students and teachers can access a variety of relevant and quality digital resources whilst actively strengthening the TnL process.	2023 – 2025
5.2 Empowering digital **educational resources**.	**5.2.1** Integrating **digital content repositories** in a structured, efficient and user-friendly manner.	Expanded access to digital resources to empower TnL.	2023 – 2025
	5.2.2 Enhancing **digital content** in various formats.	Students and teachers have access to a diverse and quality educational resources for meaningful teaching and learning.	
	5.2.3 Developing **centralised educational resources** in a structured manner.	Students and teachers gain access to centralised educational resources for meaningful teaching and learning.	
	5.2.4 Developing multimedia **digital resource materials** in textbooks.	Expanded access to digital resources to empower teaching and learning.	

THRUSTS 6 - COMMITTED STRATEGIC PARTNERS

The involvement and commitment of strategic partners within government agencies, communities, non-governmental organisations (NGOs), Government-Linked Companies (GLCs) and the private sector are crucial to support the implementation of digital education. This collaboration can be achieved through knowledge and skills transfer, training programmes, digital infrastructure support, and entrepreneurial activities, as well as research, development, commercialisation and innovation (RDCI). Therefore, greater involvement of strategic partners is called for to sustain the country's digital education agenda into the future. This strategic cooperation can also ensure efficient delivery of the service. The MoE will work with strategic partners to improve services and optimise human capital development.

This collaboration will expedite the process of digitalising education, in line with the rapid development of digital technology and industry. Furthermore, this endeavour will increase the MoE's ability to bridge the digital divide in education.

There are two (2) strategies and three (3) initiatives underpinning Thrusts 6 as follows:

Table 4.6 Thrusts 6 Strategies and Initiatives: Committed Strategic Partners.

STRATEGY	INITIATIVE	OUTCOME	TIMELINE
6.1 Strengthening **strategic partnerships** with parents, communities, NGOs, GLCs, public and private sectors in digital education.	**6.1.1** Facilitating **collaboration** with parents, communities, NGOs, GLCs, public and private sectors for the implementation of digital education.	Increased strategic collaboration and networking with parents, communities, NGOs, GLCs, public and private sectors.	2023–2025
6.2 Utilising **collaborative partnerships and networks** with parents, communities, NGOs, GLCs, public and private sectors in digital education.	**6.2.1** Expanding industrial **training**, apprenticeship, support strategy and cadre programs related to digital education.	• Increased digital knowledge and skills among students and having high marketability. • Improved quality of the teaching staff and technical officers in digital education.	2023–2025
	6.2.2 Improving **cooperation** with parents, communities, NGOs, GLCs, public and private sectors including negotiation activities, RDCI, digital technology transfer and digital entrepreneurship.	• Students have the ability to engage in digital entrepreneurship. • Enrichment of work experience of instructors and technical officers in digital education.	2023–2030

CHAPTER 5

GOVERNANCE STRUCTURE

5.1 OPTIMISING ALIGNMENT

DEP is a step forward in preparing a digitally literate generation to raise the quality of the country's education to be among the best in the world. This policy aligns with the efforts to strengthen the digital economy, achieving inclusive, balanced and stable economic growth with the active involvement of both the public and private sectors.

The six foundational Thrusts within the DEP correspond to two thematic clusters in the Economic Council Digital and National 4IR (MED4IRN), namely: (i) digital skills; and (ii) digital and data infrastructure. The focus of the National 4IR Policy is (i) preparing the people with knowledge and skill sets related to 4IR; and (ii) nation building which has connectivity through the development of digital infrastructure. Hence, this governance structure requires strong collaboration among stakeholders in the public and private sectors to improve the efficiency and accountability of DEP implementation.

5.2 GOVERNANCE STRUCTURE

A specialized governance structure was established to promote the efficient integration, execution and supervision of DEP. This structure comprises three key elements, namely:

1. **The Main Committee** is responsible for establishing goals and making relevant decisions.
2. **The Working Committee** plays a role in reviewing, monitoring and ensuring policy implementation meets the established scope and schedule.
3. **The Custodian of each Thrust** plays a role in the design and alignment of the initiatives implemented.

This structure aims to ensure accountability, efficiency and effectiveness when implementing DEP as outlined in Schedule 5.1.

Table 5.1 The Governance Structure of Digital Education Policy.

MAIN COMMITTEE **Chairman: Secretary-General MoE** **Committee**: KPPM, TKSU (P), TKSU (P&P), TKPPM (SDK), TKPPM (SOS), TKPPM (SPP), Pengarah BSTP, SUB BPM, SUB BKew and PUU * The Main Committee may invite any relevant External Departments or Agencies of MoE as necessary.					
WORK COMMITTEE **Co-chairman: TKSU (P), TKPPM (SDK)** **Working Committee**: BPPDP, BPK, BSTP, BPSH, BPG, IAB, BP, BPerolehan, BPSHA, BPM, BKew and UKK * The Working Committee may invite any relevant External Departments or Agencies of MoE as necessary.					
THRUSTS LEADERS					
THRUSTS 1: **DIGITALLY FLUENT STUDENTS**	**THRUSTS 2:** **DIGITALLY COMPETENT EDUCATORS**	**THRUSTS 3:** **VISIONARY DIGITAL LEADERSHIP CULTURE**	**THRUSTS 4:** **EMPOWERMENT OF INFRASTRUCTURE AND INFOSTRUCTURE**	**THRUSTS 5:** **QUALITY DIGITAL CONTENT**	**THRUSTS 6:** **COMMITTED STRATEGIC PARTNERS**
Leader: BPK	**Leader:** BPG	**Leader:** IAB	**Leader:** BPM	**Leader:** BSTP	**Leader:** BPSH
Members: BSTP, BPSH, BPKhas, BPSBP, BSKK, BPG, BPI, LP, JN, BM, BPLTV, BGENIUS, BPM and MPM	**Members:** BSTP, IPGM, IAB, BM and BPLTV	**Members:** BSTP, BPSH, BPSBP, BPG, IPGM, BPI, BM and BPLTV	**Members:** BPPDP, BPK, BSTP, BPSH, LP, BM, BPLTV, BP, BPerolehan, BPSM and BKew	**Members:** BPPDP, IPGM, BM, BPLTV, BPM and ELTC	**Members:** BPPDP, BSTP, BPKhas, BPSBP, BSKK, IPGM, IAB, BPI, BM, BPLTV, BGENIUS, BPSHA, BPM, UKK and UUU
Government agencies, NGOs, GLCs and local communities (where applicable)					
The telecommunications industry, digital technology providers, IPT, trainers and industries with growth potential (as required and appropriate)					
Secretariat: BPK	**Secretariat:** BPG	**Secretariat:** IAB	**Secretariat:** BPM	**Secretariat:** BSTP	**Secretariat:** BPSH

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OMG SPM

CLOSING

Digital Education Policy (DEP) is a commitment by the government to develop an education that promotes the use of digital technology in a creative, innovative and responsible manner, while maintaining ethical standards from preschool to post-secondary education.

The successful implementation of DEP is also in support with the aspiration of Shift 9: “Globalised Online Learning” under the Malaysia Education Blueprint 2013–2025 (Higher Education) which refers to the blended learning model as a main pedagogical approach for all higher education institutions.

It is essential to have stakeholder collaboration to maximise the advantages of digital education. Moreover, personnel training needs to be enhanced to promote, revive and enrich digital education. The aim is for the digital education ecosystem to create a digitally fluent generation that can compete successfully in the future.

GLOSSARY

agile the readiness and speed of resources that can be applied anytime and in every situation.

artificial intelligence (AI) the simulation of human intelligence in machines that are programmed to think and act like humans.

asynchronous learning online learning activities taking place not in person or in real time.

attachment programme competency development programme for staff placed at external agencies to enhance knowledge, skills, abilities and work experience in a planned manner.

augmented reality (AR) virtual information that is visual, comprising of pictures, animations or videos that are superimposed on physical reality using computer devices.

B40 the Bottom 40% of the Malaysian household income that earns less than RM4850 per month (2021).

big data is extremely large data sets that may be analysed computationally to help future decision-making.

cader specialists who are deployed to enhance organizational quality.

change leadership model role model or best practices to lead organizational change.

cloud computing the development and use of Internet-based computer technology that involves resources such as servers, storage, databases and software that can be obtained dynamically, i.e. faster, easier, controlled and flexible.

competency the ability to apply a set of knowledge, skills and attitude in order to effectively accomplish a given task.

computational thinking the thought processes involved in defining a problem and its solution across various disciplines based on computer programming. Computational problem solving techniques can be practiced in various situations even without using a computer.

curriculum an educational program including co-curricular activities, that encompasses all knowledge, skills, norms, values, cultural elements and beliefs to nurture students' development intellectually, spiritually, emotionally and physically.

data analytics systematically programmed collection of data, statistics and analysis to increase understanding and knowledge utilised in problem solving and decision making.

data dictionary a repository of information about data such as the name of the data, its meaning, its size, and format.

data warehouse stores data from various separate systems transactions in a predefined and fixed schema for the purpose of making strategic and effective decisions.

deep learning a meaningful learning approach that uses inquiry and project-based learning in problem solving and decision-making, whilst applying HOTS/ Higher Order Thinking Skills elements.

digital adoption the ability to adapt to new digital technologies.

digital citizenship people who develop the skills and knowledge to effectively use the Internet and digital technologies for social interaction and information purpose.

digital competence the confident, critical, responsible and ethical usage of digital technologies for information, communication and basic problem-solving.

digital device electronic equipment containing digital systems such as laptops.

digital ecosystem an interconnected socio-technological environment to create digitally literate generation.

digital entrepreneurial activities online businesses using various digital applications and platforms accessible via the Internet.

digital leadership leadership skill that utilize digital assets and resources strategically to achieve organizational goals.

digital leadership expert leaders who are certified digital experts and persons of reference to guide and sustain digital education.

digital literacy the ability to use digital technology effectively, responsibly and ethically to deliver ideas, solve problems and create new knowledge and experiences critically, creatively and innovatively.

digital transformation the changing process that intergrates digital technology in organisational affairs.

educators encompass of teachers at MoE institutions, education officers at District Education Offices, State Education Offices and MoE Divisions.

emerging new digital entrepreneurs a new digital-based company or project that seeks to find, develop, and validate the potential of its entrepreneurs to suceed.

end-to-end digital services a work process that is implemented entirely online from start to end.

Follow-up Follow-through (FUFT) reinforcing and refining actions for a closure via effective communication and support.

gamification an approach to increase students' interest, motivation and involvement by applying game-design elements in educational surroundings.

Govenment-Linked Company (GLC) corporate entities (private or public) that carry out commercial and investment activities on behalf of the government to generate profit for national development.

holistic a comprehensive integrated system interconnected with each other.

ICT Service Desk is provided to MoE personnel to address issues and to request for specific ICT-related services.

interconnectedness an extensive social connectivity in relation to better communication system due to infrastructure provision and effective bandwidth services.

Internet ethics codes of conducts or acceptable behaviour when interacting on the Internet.

Internet of Things (IoT) objects that are enabled to send data and information through the Internet connectivity without the need for human-to-human interaction or the intermediary of a computer to ease daily life.

infostructure consists of IT software, systems, applications, data, information and services.

infrastructure includes computers, servers, networks, data centers, backup and restore and other hardware.

jauhari digital experts among education officers who have surpassed advanced competency level.

learning objects a collection of content, exercises, and assessments that are put together to achieve learning objectives.

local area network (LAN) a computer network that is limited to connecting a group of computers and software that are within the same network.

mentee a person with lesser work experience who needs support and guidance.

mentor someone who provides work-related supports and advices focusing on the growth and development of the mentee.

MoE Data Model structured, criterion-referenced and interconnected data by definition and standard formats under three main domains; students, teachers and MoE institutions.

Non-Governmental Organisations (NGO) non-commercial voluntary groups established to stand up for public interests.

Organisation for Economic Co-operation and Development (OECD) an international organisation which serves as a knowledge hub for data analysis, exchange of experiences, best practices, and advising on general policing and international standard setting for advancements of economy, provision of employment opportunities and to cultivate a strong foundation of education system.

personalized learning a meaningful learning approach that gives students autonomy through active involvement at every level.

SDG4 (Sustainable Development Goal 4) the fourth goal established by the United Nations to ensure

DIGITAL
EDUCATION POLICY

inclusivity and equitable education that is of quality and to promote lifelong learning for all.

smart school a learning institution that is systematically redesigned in terms of teaching and learning as well as management and administration practices to prepare students to face the challenges of the information era.

software as services software delivery and licensing services that allow users to access software online.

strategic partner individuals, communities, NGOs, Government-Linked Companies (GLCs) and private sectors who are working together in the sharing of expertise, resources or competencies for a mutual benefit.

student a person regardless of age to whom education or training is being given at an educational institution.

sustainable the ability to continuously develop and achieve better performance level.

synchronous learning digital teaching and learning activities in real time.

teacher a person who (i) teaches in a particular educational institution; and (ii) creates or publishes learning materials or asseses returned papers at, for or by means of distance education centers.

terrestrial a signal sent in the form of radio waves from a television station (TV) through a terrestrial (earth) transmitter to the receiving TV that has an antenna.

user experience the overall perception and satisfaction a user feels as he/she interacts with certain content.

virtual learning platform a virtual platform designed to help teaching and learning process.

virtual reality (VR) interactive information based on graphic images in three dimensions (3D) that is generated by computers to provide an immersive real-context/real-life experience to users.

wide area network (WAN) a computer network that covers a large geographical area to connect computers at a distant away from each other and a network to enable wider Internet access.