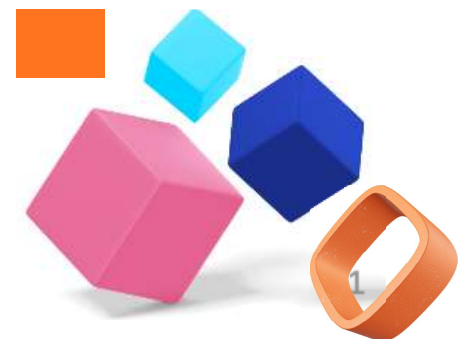




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FAKULTI SAINS KOMPUTER DAN MATEMATIK  
UNIVERSITI TEKNOLOGI MARA  
CAWANGAN JOHOR



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# PREFACE

Praise be to Allah SWT, with His will, this eBook, ICT Trends that Matter, has been successfully compiled to capture some of the most relevant and transformative discussions in the world of Information and Communication Technology (ICT).

The work is a compilation of various views of the different practitioners, scholars, and professionals who have contributed their ideas and thoughts regarding the emerging technologies and their influence. The chapters provide just a few examples of how cybersecurity, big data harmonisation, artificial intelligence, novel learning tools, and social media analytics demonstrate the extent to which ICT has permeated our everyday worlds, our classrooms, workplaces, and communities.

ICT Trends that Matter offers readers a comprehensive exploration of 14 contemporary ICT themes that are shaping education, industry, and society. The eBook covers a wide spectrum of topics such as Big Data & AI, Digital Learning & Tools, Practical ICT Applications, Social Media & Communication and Smart Campus Initiatives highlighting UiTM Johor's experience in developing a data-driven digital ecosystem.

This eBook is informative and inspirational, with contributions that combine theory, research, and practical work. It makes the readers consider the existing ICT issues and opportunities and provides practical knowledge on personal, educational, and professional development. I would like to say that I am very grateful as the chief editor to all the contributors whose commitment, professionalism, and innovativeness have added value to the contents of this eBook. I believe ICT Trends that Matter will be useful to academicians and students, as well as any industry professional, policymaker and those who are keen to learn more about the dynamic ICT environment.

Whether you are an academic, student, or industry professional, ICT Trends that Matter provides valuable insights into the technologies that are redefining our world today. May this work inspire further dialogue, innovation, and collaboration toward building a smarter and more sustainable digital future.

Dr. Shamsatun Nahar Ahmad  
Chief Editor  
Brain Hub: ICT Trends that Matter

# SYNOPSIS

ICT Trends that Matter is a compilation of 14 thought-provoking chapters, which discuss the most significant trends in Information and Communication Technology (ICT) and their implications on education, industry, and society.

The elements cut across essential areas of the digital world. Discussions about the harmonisation of big data and artificial intelligence to fight cybersecurity and comparative studies concerning popular AI tools will be available to the readers. The eBook also highlights innovative approaches to teaching and learning, such as Easymath2U and V-CCMPedia, to improve conceptual learning in calculus, and AI-assisted tools to improve student engagement.

The useful experience is presented with the help of the following topics: computer tips and tricks, free e-learning applications used by children, and the successful utilisation of social media analytics tools. The role of contemporary communication mediums such as Telegram and the global presence of TikTok are also discussed in the chapters, as well as reflections on institutional work towards data-driven digital ecosystems, such as the UiTM Johor RSP16 experience.

This eBook contains the work of numerous scholars and researchers and offers both theoretical insights and practical solutions, which is why it can be of interest to academics, students, practitioners in the industry, or policymakers. ICT Trends that Matter is not merely an anthology of articles but rather is a convenient way to learn about the latest trends in ICT and predict what to expect and what to take advantage of in the digital age.

# ACKNOWLEDGEMENT

The Editorial Board of ICT Trends that Matter would like to thank everyone whose assistance and commitment enabled us to make this publication possible.

We would like to thank the Department of Linkage Industry and Alumni, UiTM Johor, Segamat Campus, for enabling the acquisition of eISBN and subsequent guidance throughout the publication process.

A special mention of gratitude belongs to all contributors, whose skills, knowledge and dedication have been instrumental in the content of this eBook. Every chapter is an embodiment of how well, creatively, and committed our writers were to delivering substantial discussions on the current issues in ICT.

We also recognise the unwearying efforts on the part of the Editorial Board, which have been tireless from the very beginning of the conception to the final production of this eBook, which makes it and guarantees its success.

We are most thankful to all who have assisted this undertaking either directly or indirectly. May Allah SWT bless this endeavour and enable it to do good for the readers and the community at large.

# FUN & FREE E-LEARNING APPS FOR KIDS: MAKING LEARNING AN ADVENTURE!

WAN NOR HAFIDZAH WAN MOHD, CHE' KHALILAH MAHMOOD

The time has changed when the word “education” is limited to books and blackboards. Today, kids are learning in an entirely new way, thanks to an innovative model of education that makes lessons feel like playing, turns homework into interactive games and even makes study periods a blast! The development of technology today makes access to quality education easier. We can see an increase in the trend of using educational apps in Malaysia from 2020 to 2024. Children these days explore math, science, languages and even coding through the engaging opportunities afforded by free e-learning apps. This article will share five free applications for school students and will focus on the advantages of using them based on engagement and accessibility.



## i.Khan Academy

Khan Academy has a very comprehensive module and offers free resources covering many subjects, including mathematics, science, history, and many more; yet the curriculum still aligns with Malaysian standards (KSSR/KSSM). The users can keep track of their progress, and it also provides personal recommendations based on it. Khan Academy has the most common features, such as video lessons, exercises and quizzes; and interestingly, it is available in multiple languages, including Bahasa Melayu.



## ii. Duolingo

Learning a language is no longer boring and dry. Duolingo is a free language learning platform with wide variety of courses offered, such as English, Arabic, Korean, Japanese, French, Spanish, and many more. It offers engaging, gamified lessons, which are bonus points for kids to stay focused on game-based points, levels and rewards. It also provides interactive exercises for speaking, listening, writing and reading. You can access this application not only through mobile and web-based platforms, but it also provides offline access.



## iii. Quizlet

Quizlet is a platform where teachers can help by generating flashcards and study sets for various subjects, which can be accessed by their students at any time and repeatedly. It offers several types of study modes, including learning, spelling, writing, testing, and matching. Additionally, users can engage in collaborative learning by sharing and studying with their classmates. Users can access Quizlet both online and offline, and it offers millions of study sets for their use.



## iv. Scratch

If the kids love to learn about coding, Scratch is one of the best applications with the concept of learning through a drag-and-drop interface. The visual programming language is developed by the MIT team. It's worthwhile investigating its appealing features, which include the capacity to produce interactive narratives, games, and animations. Since Scratch is an open-source application, it has an online community where the user can share and collaborate with other developers as well.



**v. Photomath**

This application solves math problems by scanning them with a camera and uploading them through the app. It will then provide step-by-step explanations and solutions, which will help the user have better understanding. This application covers many mathematics areas, such as arithmetic, trigonometry, algebra, calculus, and so on. Although this application is very useful for assisting users with their homework and self-study, it also has limitations that may make it unsuitable for certain types of mathematical problems.



**Challenges and Ethical Considerations in Kids' E-Learning Apps**

We celebrated the evolution of education into a fun and engaging experience for children with e-learning apps like Khan Academy, Duolingo and Scratch. But like all technology, these digital aids have their challenges and ethical dilemmas. Though they can be game changers, it's important to confront the potential hitches so they can be used safely, effectively and equitably. Let's delve into these considerations to maintain focus on creating a healthy and responsible learning environment for children.



### **i) Screen Time: Finding the Right Balance**

One of the most immediate concerns with e-learning apps is screen time. While apps like Khan Academy and Duolingo make learning fun, excessive screen exposure can lead to eye strain, reduced physical activity, and difficulty concentrating on non-digital tasks. Children need a healthy mix of screen-based and offline activities to develop holistically. Ethically, developers bear the responsibility of designing apps that encourage moderation. Features like Duolingo's short, gamified lessons or Scratch's creative projects that can be completed in bursts to help prevent overuse. Parents can also play a role by setting rules, for instance, following the 20-20-20 rule to reduce eye strain or balancing screen time with outdoor play. The goal is to harness the benefits of these apps without letting them overshadow other critical aspects of a child's development.

### **ii) Privacy and Data Security: Protecting Young Users**

Another pressing issue is the collection and use of children's data. Many e-learning apps track progress, record voices for language exercises, or even gather location data for personalised ads. While such data collection can enhance the learning experience, it also raises significant concerns. Opting for apps like Khan Academy and Scratch, which are ad-free and prioritise user privacy, can provide peace of mind. Transparency from developers about data usage and robust security measures are essential to building trust and safeguarding young learners.

### **iii) Accessibility: Ensuring Equal Opportunities for All**

Not all children have equal access to technology or the internet. High-quality devices, stable internet connections, and apps designed for diverse learning needs are not universally available. This digital divide can leave some students at a disadvantage, particularly those in rural areas or from low-income families. Ethical app development must include features that bridge these gaps. Offline modes, like those offered by Duolingo and Quizlet, allow learning to continue without an internet connection. Additionally, incorporating accessibility tools—such as text-to-speech for dyslexic learners or simplified interfaces for younger children—ensures that e-learning apps are inclusive. Developers and educators must work together to make these tools accessible to every child, regardless of their circumstances.

### **iv) Quality and Misinformation: Upholding Educational Standards**

With the abundance of e-learning apps available, not all maintain the same standards of accuracy and educational value. Some may contain outdated information, overly simplistic content, or excessive gamification that distracts from real learning. Choosing reputable apps vetted by educators, like Khan Academy or Photomath, can mitigate this risk. These platforms are known for their rigorous content reviews and alignment with school curricula. Parents and teachers should critically evaluate apps before recommending them, making sure they prioritise learning outcomes over flashy

features. By supporting high-quality, evidence-based tools, we can foster a more effective and trustworthy e-learning ecosystem.

### **v) Social Interaction: Fostering Collaboration without Isolation**

While e-learning apps offer convenience, they can sometimes reduce opportunities for face-to-face interaction, which is vital for developing social skills. Apps like Quizlet and Scratch encourage collaboration through shared projects and study groups, but they shouldn't replace human connection entirely. Striking a balance is key. Encouraging group study sessions, family participation in language learning with Duolingo, or collaborative coding projects on Scratch can help maintain social engagement. These educational apps are viewed as a supplement to traditional learning and interpersonal interactions, rather than as a replacement.

### **Conclusion**

These innovative educational apps demonstrate that learning doesn't have to be a chore. By combining education with entertainment, they help children explore new subjects, overcome academic challenges, and even discover hidden talents. The key to maximising their benefits lies in their careful implementation. Parents and teachers can start by setting achievable daily goals, like completing one Duolingo lesson or designing a simple Scratch animation for weekly goals. Making apps exploration as a family activity enhances learning and creates valuable bonding moments.

The most exciting revelation from these apps is how they naturally spark children's curiosity. When education is presented in an engaging, interactive format, kids develop a genuine enthusiasm for learning that extends beyond the classroom. This positive attitude towards education might be the most valuable lesson of all. By embracing these resources while maintaining balance and supervision, we can help children develop a lifelong love for learning that will serve them well in all their future endeavours.

E-learning apps have the potential to revolutionise education, but their success hinges on carefully addressing these challenges. Parents, teachers, and developers all have roles to play in ensuring these tools are used responsibly. By setting healthy boundaries, prioritising privacy and accessibility, selecting high-quality content, and fostering social connections, we can create a digital learning environment that is effective and ethical. The future of education is undoubtedly digital, but it must also be inclusive, safe, and balanced. With careful consideration and collaboration, we can empower children to learn, grow, and thrive in the digital age—without compromising their well-being or potential.

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