Education in the Asia-Pacific Region:
Issues, Concerns and Prospects 40

Angela Murphy
Helen Farley
Laurel Evelyn Dyson
Hazel Jones *Editors*

Mobile Learning in Higher Education in the Asia-Pacific Region

Harnessing Trends and Challenging Orthodoxies

UNESCO UNEVOC INTERNATIONAL CENTRE
ASIA-PACIFIC EDUCATIONAL RESEARCH ASSOCIATION
Springer

EDUCATION IN THE ASIA-PACIFIC REGION: ISSUES, CONCERNS AND PROSPECTS

Volume 40

More information about this series at http://www.springer.com/series/5888

Angela Murphy • Helen Farley
Laurel Evelyn Dyson • Hazel Jones
Editors

Mobile Learning in Higher Education in the Asia-Pacific Region

Harnessing Trends and Challenging Orthodoxies

Springer

Editors
Angela Murphy
University of Southern Queensland
Toowoomba, Queensland, Australia

Helen Farley
University of Southern Queensland
Toowoomba, Queensland, Australia

Laurel Evelyn Dyson
University of Technology Sydney
Kirribilli, New South Wales, Australia

Hazel Jones
University of Southern Queensland
Toowoomba, Queensland, Australia

ISSN 1573-5397 ISSN 2214-9791 (electronic)
Education in the Asia-Pacific Region: Issues, Concerns and Prospects
ISBN 978-981-10-4943-9 ISBN 978-981-10-4944-6 (eBook)
DOI 10.1007/978-981-10-4944-6

Library of Congress Control Number: 2017941248

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Series Editors' Introduction

This edited volume by Angela Murphy, Helen Farley, Laurel Evelyn Dyson and Hazel Jones, on *Mobile Learning in Higher Education in the Asia-Pacific Region: Harnessing Trends and Challenging Orthodoxies*, is the latest volume to be published in the long-standing Springer book series "Education in the Asia-Pacific Region: Issues, Concerns and Prospects". The first book in this Springer series was published in 2002, with this volume by Angela Murphy et al. being the 40th volume to be published to date.

Mobile devices have rapidly become a key part of social media. As such, they have become an indispensable part of life with regard to enabling individuals and groups to keep in touch with family and friends, listen to music, watch videos, read newspapers and engage in Internet banking. In fact, mobile devices have become an indispensable part of the economic, social and political life of billions of people worldwide, in developed, developing and transition countries.

Mobile devices have important applications that go well beyond the area of social media, and if utilised effectively, they can have major applications in the areas of education and schooling. The use of mobile technologies, including mobile phones, is also an indispensable part of lifelong learning.

This volume provides a comprehensive overview, based on the latest available research evidence, of how best to achieve affordable and sustainable implementation of mobile learning for higher education in the Asia-Pacific region. It addresses important considerations such as shifting attitudes towards mobile devices as indispensable tools for teaching and learning; changes in teaching practices to support young people as self-managed learners; problems faced concerning the inappropriate use of technologies including how mobile technologies can be disruptive technologies, depending upon how they are used; and the use of mobile technologies in support of group learning.

In terms of this Springer book series, in which this volume is published, the various topics dealt with in the series are wide ranging and varied in coverage, with an emphasis on cutting-edge developments, best practices and education innovations for development. Topics examined include environmental education and education for sustainable development; the interaction between technology and education; the

reform of primary, secondary and teacher education; innovative approaches to education assessment; alternative education; most effective ways to achieve quality and highly relevant education for all; active ageing through active learning; case studies of education and schooling systems in various countries in the region; cross-country and cross-cultural studies of education and schooling; and the sociology of teachers as an occupational group, to mention just a few. More information about this series is available at http://www.springer.com/series/6969.

All volumes in this book series aim to meet the interests and priorities of a diverse education audience including researchers, policy makers and practitioners, tertiary students, teachers at all levels within education systems and members of the public who are interested in better understanding cutting-edge developments in education and schooling in the Asia-Pacific.

The reason why this book series has been devoted exclusively to examining various aspects of education and schooling in the Asia-Pacific region is that this is a particularly challenging region which is renowned for its size, diversity and complexity, whether it be geographical, socio-economic, cultural, political or developmental. Education and schooling in countries throughout the region impact on every aspect of people's lives, including employment, labour force considerations, education and training, cultural orientation and attitudes and values. The Asia-Pacific is home to some 63 % of the world's population of seven billion. Countries with the largest populations (China, 1.4 billion; India, 1.3 billion) and the most rapidly growing megacities are to be found in the region, as are countries with relatively small populations (Bhutan, 755,000; the island of Niue, 1,600).

Levels of economic and socio-political development vary widely, with some of the richest countries (such as Japan) and some of the poorest countries on Earth (such as Bangladesh). Asia contains the largest number of poor of any region in the world, the incidence of those living below the poverty line remaining as high as 40 % in some countries in Asia. At the same time, many countries in Asia are experiencing a period of great economic growth and social development. However, inclusive growth remains elusive, as does growth that is sustainable and does not destroy the quality of the environment. The growing prominence of Asian economies and corporations, together with globalisation and technological innovation, is leading to long-term changes in trade, business and labour markets, to the sociology of populations within (and between) countries. There is a rebalancing of power, centred on the Asia-Pacific region, with the Asian Development Bank in Manila declaring that the twenty-first century will be "the century of the Asia-Pacific".

We believe that this book series makes a useful contribution to knowledge sharing about education and schooling in the Asia-Pacific. Any readers of this or other volumes in the series who have an idea for writing their own book (or editing a book) on any aspect of education and/or schooling, which is relevant to the region, are enthusiastically encouraged to approach the series editors either direct or through Springer to publish their own volume in the series, since we are always willing to assist prospective authors shape their manuscripts in ways that make them suitable for publication in this series.

Office of Applied Research and Innovation
College of the North Atlantic – Qatar
Doha, Qatar
Rupert Maclean

Centre for Research in International
and Comparative Education
University of Malaya
Kuala Lumpur, Malaysia
Lorraine Symaco

March 2017

Foreword

In 1999, a team of students at the University of Birmingham in the UK that I supervised strapped a Kodak digital camera to an early tablet computer, added a mobile phone card, wrote software to tie all the devices together and demonstrated on BBC television what was the world's first multimedia smartphone.[1] Today, there are an estimated 2.3 billion smartphone users worldwide.[2] That staggering number is still small compared to the total number of mobile phone users, estimated at 4.8 billion[3] out of a world population of 7.4 billion.

For many, the mobile phone is an indispensable tool to communicate with friends and family, organise a social life, listen to music and watch videos. The WeChat mobile app has over one billion accounts and has become the ubiquitous platform in China for messaging, talking by voice and video, sending money to friends, reading news, ordering taxis and paying for goods in stores. Yet the mobile phone has still not become the universal means of lifelong learning envisaged in that student project 20 years ago (Sharples 2000). What more is needed for the mobile phone to become an indispensable tool for learning?

First, phones and other personal mobile devices need to be accepted into classrooms. In technologically developed countries, the arguments of cost have disappeared – tablet computers are cheaper than pocket calculators were when those became widely adopted in the 1980s. The main problem is that tablets and smartphones are disruptive technologies. They break out of the carefully regulated environment of the classroom and allow students to connect to a world of information and distracting entertainment. They can send offensive messages and take unflattering photos. But the solution to inappropriate use of personal devices is not to ban the technologies but manage their use. Schools and colleges are starting to adopt acceptable use policies for students bringing their own technologies (TeachThought 2014),

[1] Phones with email capabilities were available in 1999, but the first commercial camera phones were introduced in Japan in 2000: http://www.nytimes.com/2009/07/20/technology/20cell.html.

[2] https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

[3] https://www.statista.com/statistics/274774/forecast-of-mobile-phone-users-worldwide/

and some large school districts have adopted a successful Bring Your Own Device strategy (Ullman 2016).

That requires a shift in attitude to see mobile devices as tools for learning and changes in teaching practice to support young people as self-managed learners, carrying out group projects, researching online and connecting with educational resources at home or outdoors. Research evidence for the benefits of mobile devices as tools for learning is still scarce but promising. A meta-analysis by Sung, Chang and Liu (2016) of 110 published journal articles on integrating mobile devices with teaching and learning showed a moderate positive effect (an effect size of 0.5). Greater effects were found for learning in informal settings and for inquiry-led learning. The analysis indicated an urgent need to improve teachers' professional development to help them cope with mobile hardware and software and develop new methods for teaching and assessment with mobile devices.

Second, as well as developing apps that exploit the latest generation of smartphones, there is a need to offer effective education for the more than 2.5 billion people with older non-Internet phones. One successful example is English in Action (EIA), a 9-year project that started in May 2008 and has provided professional development to 51,000 teachers in Bangladesh. The project is a partnership between the Bangladesh government and the UK Department for International Development (DFID). It also involves the Open University, Cambridge Education and the BBC. Teachers are sent multimedia learning materials on micro-SD cards for their low-cost mobile phones, so they can watch demonstrations of good classroom practice and try out communicative methods of teaching English (English in Action, n.d.a). An early evaluation of the project found that teachers' competence in English language improved, they used English most of the time for classroom conversation and they preferred the new communicative classroom activities to traditional English teaching through grammar lessons (Walsh et al. 2012).

Another part of English in Action, BBC Janala, provides adults with daily 3-min audio lessons to improve their English language skills. Anyone with a standard mobile phone can call a short code to hear the lesson, for the cost of 50 paisa (half a penny) a minute. More than seven million Bangladeshis have accessed the audio teaching media on their phones (English in Action, n.d.b).

This project shows it is possible to provide effective teaching on standard non-Internet mobile phones. But it takes a coordinated effort to achieve such success. In Bangladesh, the team had active support from the Ministry of Primary and Mass Education and also negotiated with mobile phone companies for low-cost access to the audio lesson service. As more people gain access to smartphones and fast mobile Internet, they will be able to engage with massive open online courses (MOOCs). The FutureLearn platform[4], based on a pedagogy of learning through conversation, has over 5.6 million learners registered worldwide, with 25 % of them accessing the free courses on mobile devices. There is a wealth of learning available online but only for those who know where to find it, can understand English, and have unrestricted access to the Internet. For others, the journey has not yet begun.

[4] https://www.futurelearn.com/

Third, technology and pedagogy are developing rapidly. New mobile devices include virtual reality headsets and mixed reality glasses (that overlay information on the visual world around), wearable body monitors and devices that sit in the ear and can translate spoken languages. New forms of mobile pedagogy include spaced repetition (where content such as foreign language vocabulary is delivered at timed intervals to reinforce learning), flipped classrooms (with students accessing content online then engaging in problem solving in the classroom), adaptive tutoring (with content matched to the learner's needs and activity), conversational learning (where learners worldwide engage in constructive discussion and facilitated debate), geo-learning about landscape and surroundings (for students on field trips) and citizen inquiry that combines citizen science and inquiry-led learning by exploiting the sensors and media tools in mobile phones.[5]

The author William Gibson is quoted as saying "The future is already here – it's just not very evenly distributed". That is especially true for mobile learning. Those labs that are developing the latest mobile technologies do not necessarily understand how best to use them to support effective learning; conversely, schools and universities that pioneer new modes of teaching have little influence on the design of technologies in research centres and companies. Yet, these technologies will disrupt education.

Consider the emerging technology of in-ear devices. Already, the Waverly Labs Company is developing a "smart earpiece" that will translate between users speaking different languages.[6] Similar technologies could offer a personal audio assistant that adapts to the preferences, behaviour and location of the user. It could whisper information about who or what a person is looking at (by detecting the user's location and head position), enhance a conversation by offering relevant up-to-date information or track head gestures such as nodding to provide feedback to a teacher. Yet, a company (which I shall not name) is marketing similar technology in the form of a tiny invisible earpiece which it claims is "designed to cheat on tests and exams … Go to your exam and once there, call the person that'll give you a helping hand with your test. You'll follow the conversation through the earpiece hidden in your ear, and speak into the microphone in a quiet whisper".

Every mobile device can be used to enhance learning or upset it. Just because mobile phones can now track when, where and how students learn outside class does not mean it is appropriate to do so. Just because students could wear "smart earpieces" that feed them information and detect whether they are nodding or shaking their heads in response does not imply they should be used in that way. As more countries in the Asia-Pacific region gain widespread Internet access, so there is a growing cottage industry of entrepreneurs producing mobile software. Many thousands of educational apps are being developed worldwide for mobile devices, most by people with no expertise in the science of learning or knowledge of effective methods of teaching.

[5] See www.open.ac.uk/innovating

[6] http://www.waverlylabs.com/pilot-translation-kit/

As educators, learning scientists and educational technologists, we have a responsibility to influence the development of mobile learning. We should show the evidence that engaging in active learning is more effective than watching lectures (Freeman et al. 2014), that working together is better than working alone (Johnson and Johnson 2009), that timely feedback can assist learning (Shute 2008) and that all these can be delivered on mobile devices. We should take a stance on the benefits of bringing personally owned devices to connect learning between informal and formal settings. We should engage with leaders in schools, colleges and universities and in government to develop digital learning strategies that are informed by the best evidence of how new technologies can benefit learning. We should propose professional development of teachers and lecturers in how mobile technology can support the future-oriented skills of problem solving, critical thinking, teamwork, global awareness and social responsibility. Most of all, we should work with developers of mobile technology to design new and effective tools for learning, based on deep insights into how people learn in different cultures and settings.

Smartphones and tablets combine computation and connectivity in a powerful portable package. New pedagogies emphasise active, personalised and cooperative learning. Mobile learning has the potential to bring these together for lifelong education. Research has shown that students do not want a "mobile learning organiser" separate from their familiar social and productivity tools (Corlett et al. 2005; see also Chap. 29). How can we enable learning that blends seamlessly into everyday life? The first generation of mobile learning was about exploring what is possible, in delivering content to mobile devices and exploring context-sensitive learning experiences. The second generation has shown how personal devices can support a continuity of learning in classrooms, homes, museums and outdoors. The opportunity now is to offer mobile learning at scale, for millions of people in ways that match their needs, lifestyles, cultures and national resources.

Institute of Educational Technology
The Open University
Milton Keynes, UK

Mike Sharples

References

Corlett, D., Sharples, M., Chan, T., Bull, S. (2005) Evaluation of a mobile learning organiser for university students. *Journal of Computer Assisted Learning, 21*, 162–170.

English in Action (n.d.a). *Trainer in the hand*. Available at https://www.eiabd.com/trainer-in-the-hand.html.

English in Action (n.d.b). EIA introduction. Available at https://www.eiabd.com/about-eia/eia-introduction.html.

Freeman, S., Eddy, S.L., McDonough, M., Smith, M.K., Okoroafor, N., Jordt, H., & Wenderoth, M.P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, *111*(23), 8410–8415.

Johnson, D.W., & Johnson, R.T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher*, 38(5), 365–379.

Sharples, M. (2000). The design of personal mobile technologies for lifelong learning. *Computers and Education*, 34, 177–193.

Review of research on feedback, with advice on how to design effective feedback:

Shute, V.J. (2008). Focus on formative feedback. *Review of Educational Research*, 78(1), 153–189.

Sung, Y.-T., Change, K.-E., & Liu, T.-C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers and Education*, 94, 252–275.

TeachThought. (2014). 11 sample education BYOT policies to help you create your own. *TeachThought blog*. September 14, 2014. Available at http://www.teachthought.com/uncategorized/11-sample-education-byot-policies-to-help-you-create-your-own/.

Ullman, E. (2016). BYOD + district-provided devices = a winning solution in Wake County. *K-12 Blueprint*. Available at https://www.k12blueprint.com/success-stories/byod-district-provided-devices-winning-solution-wake-county.

Walsh, C.S., Shaheen, R., Power, T., Hedges, C., Katoon, M., & Mondol, S. (2012). Low cost mobile phones for large scale teacher professional development in Bangladesh. In: *11th World Conference on Mobile and Contextual Learning* (*mLearn 2012*). 16–18 October 2012. Helsinki, Finland.

Preface

Higher education in the Asia-Pacific region is experiencing exciting change and unprecedented growth due to the pressures of internationalisation and ambitious targets set by governments in the region to succeed in the global, digital economy. Students are increasingly mobile within and outside Asia-Pacific borders with more than half of cross-border students originating from Asian countries. Innovation in mobile learning has the potential to support student access to quality learning experiences anywhere and anytime. The aim of this handbook is to support educators and policy makers who are investing in innovations in digital education to develop effective and sustainable mobile learning solutions for higher education environments. Authors from 16 countries across the Asia-Pacific region have collaborated to share their experiences with developing and implementing mobile learning initiatives. These projects focus on a variety of aspects of mobile learning innovation from the trial adoption of existing social media platforms on mobile devices and development of specialised applications or mobile learning systems to large-scale cross-university implementation of technologies and pedagogies to support mobile learning. Each chapter addresses challenges and solutions at one or more levels of mobile learning innovation within the education system: the student perspective, the educator perspective, technical processes and policies and organisational strategy or leadership. The book also offers a unique perspective on the integration of mobile learning innovations within the educational, political and cultural environments of Asia-Pacific countries.

Toowoomba, Australia — Angela Murphy
Toowoomba, Australia — Helen Farley
Sydney, Australia — Laurel Evelyn Dyson
Toowoomba, Australia — Hazel Jones

Contents

Part I Asia-Pacific Regional Perspectives

1 Introduction: Supporting the Sustainable Implementation of Mobile Learning for Higher Education in the Asia-Pacific Region 3
Angela Murphy and Helen Farley

2 A Framework for Designing Transformative Mobile Learning 25
Thomas Cochrane, Laurent Antonczak, Matthew Guinibert, Danni Mulrennan, Vernon Rive, and Andrew Withell

3 Ethical Issues Surrounding the Adoption of Mobile Learning in the Asia-Pacific Region 45
Laurel Evelyn Dyson, Jocelyn Wishart, and Trish Andrews

Part II East Asia

4 Electronic Schoolbag and Mobile Learning in China: Design Principles and Educational Innovations 69
Xiang Ren

5 Implementing Sustainable Mobile Learning Initiatives for Ubiquitous Learning Log System Called SCROLL 89
Noriko Uosaki, Hiroaki Ogata, Kousuke Mouri, and Mahdi Choyekh

6 Mobile Instant Messaging (MIM) for Intercultural Communication: A Qualitative Study of International Students in the Republic of Korea 115
Aaron W. Pooley

Part III South-East Asia

7 A Historical Review of Mobile Learning Research in Malaysia and Its Implications for Malaysia and the Asia-Pacific Region 137
Norazah Mohd Nordin, Mohamed Amin Embi, Helmi Norman, and Ebrahim Panah

8 Investigating Mobile Learning in Higher Education in Lao PDR and Cambodia 151
Ann Starasts, Maiyer Xiong, and Tyneth Ly

9 The State of Practice of Mobile Learning in Universitas Terbuka Indonesia 173
Dewi Padmo, Tian Belawati, Olivia Idrus, and Lidwina Sri Ardiasih

10 Analysing Mobile Learning Acceptance in the World Heritage Town of Luang Prabang, Lao PDR 191
Yew Siang Poong, Shinobu Yume Yamaguchi, and Jun-ichi Takada

11 Creating Apps: A Non-IT Educator's Journey Within a Higher Education Landscape 213
Emelyn Sue Qing Tan and Yuen Jien Soo

12 Facebook on Mobile Phones: A Match Made in the Cloud? 239
Serge Gabarre, Cécile Gabarre, and Rosseni Din

13 Authentic Mobile Application for Enhancing the Value of Mobile Learning in Organic Chemistry and Its Pedagogical Implications 255
Othman Talib, Tenku Putri Norishah Tenku Shariman, and Azraai Othman

14 The Use of Structured Academic Controversy in a Mobile Environment to Broaden Student Perspectives and Understanding in the Social Sciences 279
Kenneth Y. T. Lim and Horn Mun Cheah

15 Enhancing Oral Communication Skills Using Mobile Phones Among Undergraduate English Language Learners in Malaysia 297
Ramiza Darmi and Peter Albion

16 Mobile Learning Student-Generated Activities from Students' Perspectives: Malaysian Context 315
Shamsul Arrieya Ariffin

17 Personalising Mobile Learning Spaces in Higher Education: A Case Study of a Malaysian Student with Learning Difficulties 341
Helena Song

18 Teachers' Use of Facebook Motivating Vietnamese Students to Improve Their English Language Learning 359
Henriette van Rensburg and Triet La Thanh

Part IV North and South-West Asia

19 Mobile Learning Implementation in University Environments: Implications on Practice for University Leadership Stakeholders 379
Umera Imtinan

20 Mobile Voting Tools for Creating a New Educational Design of the Traditional University Lecture in Russia 401
Titova Svetlana

Part V Australia and New Zealand

21 Mobile Learning Policy Formulation and Enactment in New Zealand 423
David Parsons

22 Growing a Mobile Learning Ecology: A Systemic University-Wide Strategy 443
Carol Russell

23 Rethinking BYOD Models and Student's Control 473
Boris Handal, David Marcovitz, Robert Ritter, and Daniel Madigan

24 Aboriginal and Torres Strait Islander Pre-service Teachers' Views on Using Mobile Devices for Tertiary Study in Very Remote Communities 495
Philip Townsend

25 Enabling Effective Mobile Language Learning: Students' Perspectives, Wants and Needs 523
Caroline H. Steel

26 Improving Student Language Learning in Adult Education Through the Use of Mobile Learning: Barriers, Challenges and Ways to Move Forward 541
Chris Campbell and Martie Geertsema

Part VI Oceania and Pacific Islands

27 A Pilot Study of Mobile Learning in Higher Education in Samoa 557
Satoru Ozawa and Edna Temese Ualesi

28 A Mobile Learning Journey in Pacific Education 581
Bibhya Sharma, Raneel Kumar, Varunesh Rao, Rona Finiasi, Sanjeet Chand, Vineet Singh, and Ravishel Naicker

29 Usability Study of Mobile Learning Application in Higher Education Context: An Example from Fiji National University 607
Bimal Aklesh Kumar and Priya Mohite

30 SMS Story: A Case Study of a Controlled Trial in Papua New Guinea 623
Nasiib Kaleebu, Alison Gee, Amanda H.A. Watson, Richard Jones, and Marshall Jauk

Index 647

About the Editors and Contributors

Editors

Angela Murphy is the learning analytics manager at the University of Southern Queensland (USQ), Australia. She has been employed at USQ as a research fellow in the Australian Digital Futures Institute since 2011 (now Digital Life Lab). Her work included a 3-year USQ-led Collaborative Research Network (CRN) project with the Australian National University and the University of South Australia to develop an evaluation framework for sustainable mobile learning initiatives in higher education environments. Her research involved exploring the experiences of students, educators and leaders in the Asia-Pacific region who were actively engaged in mobile learning or mobile learning innovation.

Helen Farley is an associate professor within the Digital Life Lab at the University of Southern Queensland. Her research interests include investigating the affordances of emerging digital technologies, including virtual worlds, augmented reality and mobile technologies, in formal and informal learning. She led the CRN-funded project to develop a Mobile Learning Evaluation Framework, working with Dr. Angela Murphy. She is passionate about digital inclusion and leads the $4.4 million *Making the Connection* project which recently received an Australian Award for University Teaching for Programs that Enhance Learning. Associate Professor Farley has published extensively and is a featured speaker at both educational technology and corrections conferences. She is also on the ASCILITE executive committee and chairs the community mentoring portfolio.

Laurel Evelyn Dyson is an honorary associate in information technology at the University of Technology, Sydney, and founding president of anzMLearn (the Australian and New Zealand Mobile Learning Group), established in 2009. She has published over 75 papers and books, which include research into the innovative use of mobile technology to enhance student learning and the adoption of mobile technologies by Indigenous people. She has three decades of experience teaching in the university and adult education sector and is the recipient of five faculty, university

and national teaching awards, three best paper awards and two Reconciliation awards. Her most recent book is *Indigenous People and Mobile Technologies*.

Hazel Jones is currently an educational designer and a PhD candidate at the University of Southern Queensland, Australia. Her research interests are in higher education and learning analytics, with an emphasis on support for online learning and teaching and for working with academics to provide quality learning environments for their students. She has worked in educational design and development roles at universities around Australia for over 15 years.

Contributors

Peter Albion is professor of educational technology in the School of Teacher Education and Early Childhood within the Faculty of Business, Education, Law and Arts at the University of Southern Queensland, Australia. His teaching and research is in areas related to online learning and the integration of ICT in teacher education. His doctoral work investigated the development of interactive multimedia with a problem-based learning design using materials built around simulated school contexts and delivered in a web browser. More recently, he has worked in online and mobile learning, virtual worlds and technology education. Prior to joining USQ in 1991, he was a teacher and principal in secondary schools for 17 years.

Trish Andrews is the director of Emerging Learning Environments, an educational consultancy based in Brisbane, Australia, and formerly a senior lecturer in higher education (eLearning) and manager of the Technology-Enhanced Learning Group in the Teaching and Educational Development Institute (TEDI) at the University of Queensland. Trish has extensive experience in leading and supporting the innovative use of technology for teaching and learning in higher education. This work includes curriculum development, learning spaces, research, evaluation and capacity building. Trish has been awarded two ALTC awards for programmes that enhance learning. Trish has successfully completed a number of national teaching projects and has a particular interest in the adoption and use of mobile technologies to support everyday teaching and learning activities.

Laurent Antonczak is a multicultural entrepreneur specialising in digital strategies (branding, visual communication, social media, transmedia, information architecture) and emerging technologies (web and mobile phones). He is one of the cofounders of MINA (Mobile Innovation Network Aotearoa), which aims to explore the possibilities of interaction between people, content and the emerging mobile industry. He lectures and supervises students in new media and visual communication mainly at postgraduate level (on-campus and online delivery) at AUT University.

Lidwina Sri Ardiasih is a lecturer in the Faculty of Education and Teacher Training of Universitas Terbuka. She holds a bachelor's degree in English language education from Sanata Dharma University, Yogyakarta, Indonesia. In 2011, she pursued her master's degree in education at the University of Western Australia, with the scholarship from the Directorate General of Higher Education. Her research interests include English language education, eLearning and ODL.

Shamsul Arrieya Ariffin is a senior lecturer in the Faculty of Art, Computing and Creative Industries and also holds an administration post as a deputy director of the International Affairs Division at Sultan Idris Education University (UPSI), Tanjung Malim, Perak, Malaysia. He has also 20 years of working experience in various ICT fields. Prior to joining UPSI, he worked with various international companies, including software engineering, system engineering and IT training in Malaysia. He received his PhD from the University of Technology, Sydney, Australia. His research specialises in mobile learning with the aim being to bridge the digital gap between the cultural and technology aspects in which ICT is involved.

Tian Belawati holds a doctor of philosophy in adult education (University of British Columbia, Canada) and a master of education in management of distance education (Simon Fraser University, Canada). She has served lifetime professional contributions to open and distance learning (ODL) and is currently serving her second term of office as the rector of UT. Her professional achievements have led to her appointments as secretary general (2007–2009) and then president (2009–2010) of the Asian Association of Open Universities (AAOU) and as president (2010–2015) and then member of the board of trustees of the International Council for Open and Distance Education (ICDE) starting in 2017.

Chris Campbell lectures in learning innovation in the Centre for Learning Futures at Griffith University, Brisbane, Australia. As an emerging research leader, she has been involved in numerous grants and projects around digital technologies and mobile learning. Her skills in implementing and trialling new technologies are documented in over 60 publications where she has conducted research in online tools in educational settings, including LAMS, Second Life and Assistive eXtra Learning Environments as well as research in technology integration, mobile learning and augmented reality. In 2016, Chris was awarded a Queensland-Smithsonian Fellowship where she investigated the Smithsonian Learning Lab and implications for teachers. Chris has a keen interest in mobile learning and has published various papers pertaining to TPACK and mathematics education.

Sanjeet Chand is an assistant learning system developer in the Centre for Flexible and Distance Learning at the University of the South Pacific. His interests are in the areas of eLearning, mLearning and web and mobile applications.

Horn Mun Cheah is currently the Dean, School of Human Development and Social Services at the Singapore University of Social Sciences. He was Director of the Educational Technology Division at the Ministry of Education, Singapore, from 2008 to 2013. His then responsibilities included planning and implementation of the 3rd ICT Masterplan for Education. Prior to this, he was Dean of Foundation Programmes at the National Institute of Education, taking charge of all initial teacher preparation programmes. He received his PhD for research work on high-temperature superconductivity from Cambridge University. His present research interests include the effective integration of ICT into education and assessment of twenty-first-century skills. He was a member of the Horizon K12 advisory board, the ATC21S executive board and the NEXT-TELL International advisory panel.

Mahdi Choyekh is currently a third-year doctoral student at the Department of Naval Architecture and Ocean Engineering, Graduate School of Engineering, Osaka University, Japan. His research is about the development of an autonomous underwater robot called SOTAB-I for tracking and monitoring spilled oil and gas from seabed.

Thomas Cochrane is an academic advisor and senior lecturer in educational technology at AUT University's Centre for Learning and Teaching (CfLAT). His research interests include mobile learning, web 2.0 and communities of practice. Thomas has managed and implemented over 45 mobile learning projects, with a recent focus on Android and iOSsmartphones and the iPad as catalysts to enable student-generated content and student-generated learning contexts, bridging formal and informal learning environments.

Ramiza Darmi is a senior lecturer in the Department of English within the Faculty of Modern Languages and Communication at Universiti Putra Malaysia since 2015. She obtained her PhD from the University of Southern Queensland, Australia. She teaches undergraduate and postgraduate courses for bachelor of arts in English language, master in English language and master in applied linguistics. Her research interests include English language learning, second language learners/learning and technology-enhanced language learning. Currently, she is a member of the Mobile Learning Association of Malaysia, the Australian and New Zealand Mobile Learning Group (anzMLearn), the Asia-Pacific Association for Computer-Assisted Language Learning (APACALL), the Asia Association of Computer-Assisted Language Learning (Asia CALL), the Malaysian English Language Teaching Association (MELTA) and Asia Teaching English as a Foreign Language (Asia TEFL).

Rosseni Din is currently an associate professor of eLearning and computer education with Universiti Kebangsaan Malaysia where she teaches technology and education as well as instructional design. Her fields of research include developmental research method, structural equation modelling, eLearning and computer in education. Rosseni Din is also the deputy director of the university's information and technology centre.

Mohamed Amin Embi is a professor of technology-enhanced learning at the Faculty of Education, Universiti Kebangsaan Malaysia. He is well known in Malaysia as a professional educator, academic leader and innovator in teaching and learning especially in the area of eLearning and mobile learning. He is the recipient of the distinguished ISESCO Science Laureate 2010 for his contributions to technology (eLearning). He is also the first recipient of the most prestigious National Academic Award 2006 for Teaching introduced by the Ministry of Higher Education, Malaysia. Professor Amin is also the president of the Mobile Learning Association of Malaysia.

Rona Finiasi is a multimedia developer in the Centre for Flexible and Distance Learning at the University of the South Pacific (USP). He has a bachelor's degree in computing science and information systems and is currently pursuing his postgraduate diploma in information systems.

Cécile Gabarre is currently an assistant professor with the University of Nizwa (Oman). Her dual field of expertise in instructional design and language teaching led her to develop MALL environments supporting immersive and personalised learning. Her current interests include pedagogical approaches for MALL, teacher training, action research, technological literacies, language classroom management, engagement dynamics and language acquisition.

Serge Gabarre is an assistant professor with the University of Nizwa (Oman). His research interest focuses on the integration of social networking sites with mobile devices in French as a foreign language classroom. His previous publications deal with mLearning, eLearning, language acquisition and online collaborative tasks. Together with Cécile Gabarre, Serge has conducted several teacher training seminars across Asia with a focus on incorporating technologies in the language classroom.

Alison Gee is with Voluntary Service Overseas (VSO) working in partnership with UNICEF in Bangladesh. She was formerly with SMS Story, VSO India, and before that was a volunteer on the SMS Story project with VSO in Papua New Guinea.

Martie Geertsema has been teaching English for the last 16 years and has worked with adult learners in the UK, Turkey and Australia. She has extensive experience in teaching English for general and for academic purposes. Since 2007, she has been working as a Cambridge CELTA trainer and has also worked on TKT courses with a wide variety of colleagues from different countries, cultures and linguistic backgrounds. In 2013, she completed her master of educational studies at the University of Queensland with a double major in leadership and literacy. She loves working with novice teachers and takes a special interest in finding ways to increase digital literacy in English language classrooms.

Matthew Guinibert has been an educator for 8 years working in various roles as a lecturer, supervisor, consultant, curriculum writer and course supervisor. Presently Matt is exploring the potential of mobile HUDs such as Google Glass as an augmented reality mLearning tool for learning visual literacy competencies.

Boris Handal is an associate professor in ICT in education at the University of Notre Dame, Australia, where he is also higher degree by research coordinator in the School of Education. Prior to entering academia, Boris was a classroom teacher and worked as a senior learning design officer at the NSW Centre for Learning Innovation producing interactive web-based resources in science and mathematics. Coming from this background, Boris' research naturally focuses on the interface between delivering the curriculum and eLearning technologies. Boris has published over 60 papers, conference articles and book chapters. In 2005, he was awarded the NSW Minister of Education's "Excellence in the Integration of Information and Communication Technologies" award and in 2010 was the recipient of the Macquarie University vice-chancellor's "Award for Programs that Enhance Student Learning".

Olivia Idrus is a lecturer in the Economics Faculty of Universitas Terbuka. She holds a bachelor's degree in accounting from the University of Trisakti, Jakarta, Indonesia. In 2008, she received a scholarship from the Ministry of Communication and Information of the Republic of Indonesia to pursue her master's degree in management in the University of Groningen, the Netherlands. Her research interests include accounting, management and ODL.

Umera Imtinan is a PhD graduate from the School of Information Systems, Curtin University, Australia. She has been working in COMSATS Institute of Information Technology, Lahore, Pakistan, as assistant professor for 10 years. Currently, she is working as sessional academic in the University of Western Australia and Curtin University. Her research interests include mobile learning, eLearning, blended learning, design and development of educational technologies, gamified mobile learning, MALL, information systems, human-computer interaction, and technology innovation in education. During her PhD, Umera worked on developing a mobile learning framework for universities of Pakistan. She has published in peer-reviewed journals and conference proceedings in the field of mobile learning, blended learning, and education technologies.

Marshall Jauk is a senior staff member with Voluntary Service Overseas in Papua New Guinea in the education programme. He contributed ideas into the design of SMS Story, assisted with sending out daily text messages and led a team of researchers in the field.

Soo Yuen Jien received his PhD degree from NUS in 2006 and since joined the School of Computing, NUS, as an educator track staff. He has received a number of teaching excellence awards at the faculty and university level. In 2012, he was inducted into the NUS Teaching Academy. His research interests are in computer

architecture and technology-aided teaching. Yuen Jien is currently actively involved in the development of a number of web-based/mobile-based teaching systems in the area of technology-aided mastery learning and large-scale classroom response.

Richard Jones is an international education and development consultant who specialises in teacher education, curriculum development and education programme design. From 2010 to 2015, he was the senior education programme manager with VSO in Papua New Guinea and designed and managed SMS Story.

Nasiib Kaleebu is a programme officer (monitoring and evaluation) with the United Nations Development Programme, Uganda Country Office. He was formerly a volunteer researcher on the SMS Story project with Voluntary Service Overseas (VSO) in Papua New Guinea. He is an economist with cutting-edge knowledge of programme design and evaluation.

Bimal Aklesh Kumar is the head of the Department of Computer Science and Information Systems at Fiji National University. He graduated with MSc, PGDip and BSc from the University of the South Pacific. He has more than 12 years of work experience both in industry and academia. He is an active researcher in the field of mobile computing and has published a number of research articles.

Raneel Kumar is a user consultant for the School of Computing, Information and Mathematical Sciences at the University of the South Pacific in Fiji. His research interests are in the areas of eLearning, mLearning, cloud computing and cyber security. He is currently pursuing his master of science degree in computing science.

Kenneth Y.T. Lim works within the intersection of cultural anthropology, the learning sciences and cognitive psychology. He conceptualised the Six Learnings framework of curriculum design for fictive worlds and virtual environments. Most recently, he has edited a book on maker culture and makerspaces, which was published in 2017. In relation to this work, his team has designed a field-based inquiry curriculum, called Maker Motes, and they are translating this approach to urban and peri-urban schools in the Association of Southeast Asian Nations (ASEAN) region. Kenneth has been a visiting scholar at the Hong Kong Institute of Education and was invited as a plenary speaker at the 2016 United Nations Educational, Scientific and Cultural Organization (UNESCO) Conference of the Asia-Pacific Programme of Educational Innovation for Development. His work has helped him posit a theory of learning around the notion of disciplinary intuitions, which he discusses in his book, *Disciplinary Intuitions and the Design of Learning* (2015).

Tyneth Ly is a soil and water science researcher at the Cambodian Agricultural Research and Development Institute. He lectures in soil science at the Royal University of Agriculture, Cambodia.

Daniel Madigan taught science for many years, both in NSW and Mexico, with a special interest in the use of technology in the teaching of physics and chemistry. He currently lectures future secondary school teachers at the University of Notre Dame, Australia. His research interests range over areas as diverse as theology and science, including participation in a project using technology in the study of cosmic rays entering the Earth's atmosphere conducted through the University of Sydney.

David Marcovitz is an associate professor in the School of Education and director of graduate programmes in educational technology at Loyola University Maryland. Prior to coming to Loyola University, Dr. Marcovitz taught in the educational technology programme at Florida Atlantic University. He was hired by Loyola College in 1997 to develop a master's programme in educational technology, the programme which he coordinates and for which he teaches many of the classes. His scholarly interests include support for technology in the schools and multimedia design by teachers and students.

Priya Mohite obtained her MTech degree from Gogte Institute of Technology, Belgaum, India, in 2013. She is currently working as a lecturer in the Department of Computing Science at Fiji National University. Her research interests include mobile computing and other related fields.

Kousuke Mouri is currently an assistant professor at Department of Computer and Information Sciences, Tokyo University of Agriculture and Technology, Japan. He received the PhD degree from the Graduate School of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan. His research interests include computer-supported ubiquitous and mobile learning, language learning, learning analytics and educational data mining. For more details, please visit https://sites.google.com/site/mourikousuke.

Danielle (Danni) Mulrennan is a lecturer in journalism at Auckland University of Technology. Her research interests are in journalism studies where she is particularly interested in the application of mobile social media within journalism education and the relationship between the culturally deaf and the television broadcast news media.

Ravishel Naicker is a graduate programmer at the Faculty of Science, Technology and Environment at the University of the South Pacific. His interest is in the areas of mLearning, cloud computing and network security.

Norazah Nordin is currently the dean of the Faculty of Education, Universiti Kebangsaan Malaysia (UKM) (Malaysia National University). Her research areas include mobile learning, integrating ICT in education and lifelong learning and instructional design in online learning. At the national level, she is a committee member of the Critical Agenda Project (CAP) (eLearning), Ministry of Education, Malaysia, and also a member of the Council of the Malaysian Public HEIs e-Learning

Coordinators. Her latest projects with the ministry include the development of a prototype of massive online open courses (MOOCs) and its guidelines, development of the blended learning standard and rubrics and review of the National e-Learning Policy. She is also one of the co-founders and the honorary secretary of the Mobile Learning Association of Malaysia. At the university level, she is one of the UKM ICT Council members, who are responsible for promoting mobile learning, blended learning and flipped classroom at the university. Her current projects are iTunesU and iBook initiatives with Apple Education Development, Malaysia.

Helmi Norman is a senior lecturer at the Department of Teaching and Learning Innovations, Faculty of Education, Universiti Kebangsaan Malaysia (UKM). He is also an associate research fellow at the Centre for Teaching and Learning Technologies, UKM. He is currently on the board of directors of the International Association for Blended Learning, where the association aspires to transform global education through blended learning. He was previously appointed as a visiting scholar at the Swartz Center for Computational Neuroscience, University of California, San Diego, and has been awarded a visiting postdoctoral fellowship by Erasmus Mundus at the Faculty of Science and Technology, Bournemouth University. During his PhD, he was also awarded the Global Student Mobility Partnerships programme for a research attachment at the e-Learning Lab, Center for User Driven Innovation, Learning and Design (eLL), Aalborg University, Denmark. His latest projects include cross-continental projects such as learning spaces with Australia's Innovative Research Universities and national projects such as the Malaysia Massive Open Online Courses Initiative. He is also an educational technology consultant for Apple where he is involved in projects for higher and secondary education in promoting 1:1 pedagogical and learning approaches using the Apple ecosystem.

Hiroaki Ogata is a full professor at the Academic Center for Computing and Media Studies and Graduate School of Informatics (Social informatics) at Kyoto University, Japan. His research interests include computer-supported ubiquitous and mobile learning, CSCL (computer-supported collaborative learning), CSCW (computer-supported collaborative writing), CALL (computer-assisted language learning), CSSN (computer-supported social networking), knowledge awareness, mobile learning analytics and computer-human interaction. For more details, please visit https://sites.google.com/site/hiroakiogata.

Azraai Othman is a PhD candidate at Universiti Putra Malaysia.

Satoru Ozawa was born in Tokyo in 1948. After finishing his doctorate in physics at the Optical Research Institute, Tokyo University of Education, in 1977, he obtained an academic position at Ibaraki University. He was an invited professor at the University of Heidelberg (1993–1994) and a visiting professor at the University of Leeds. He also worked as a JICA expert (1998–2003) and contributed to JICA projects in Poland and the Ukraine. He conducted several projects including the

KISSEL project which is now running. He has published many journal papers and books concerning computational physics, eLearning, computational sociology and so on. He has organised international symposia and seminars on these topics.

Dewi Padmo is currently vice rector for finance and general affairs of Universitas Terbuka (UT). Her career at UT started in 1987 as a lecturer in the Faculty of Education. She got her master of arts in educational technology at Concordia University, Montreal, Canada. Upon her return to UT in Indonesia in 1992, she was appointed as head of Multimedia Production Center – UT. Following from her work at the Multimedia Production Center, Padmo served as head of the Institute for Learning Material Development, Examination, and Information System in 2005–2008. Padmo got her doctor of philosophy in instructional system at Florida State University, USA, in 2012. Upon returning to Indonesia, Dewi was assigned as the head of the Institute for Research and Community Services of UT.

Ebrahim Panah is currently a PhD candidate in TESOL at the Faculty of Education, Universiti Kebangsaan Malaysia (UKM) (Malaysia National University). He obtained his master's degree in TEFL from the University of Guilan and bachelor's degree in English literature from the University of Shiraz, Iran. His research interest is in the areas of mobile learning, flipped classroom, blended learning, Google-informed learning and massive online open courses (MOOCs) with many book chapters on blended learning, flipped classroom and MOOCs and articles on Google-informed language learning. His current project is on Google Scholar--informed writing improvement.

David Parsons is the national postgraduate director at The Mind Lab by Unitec, Auckland, New Zealand. He holds a PhD in information technology and a master's degree in computer science and has wide experience in both academia and the IT industry. He is the founding editor in chief of the *International Journal of Mobile and Blended Learning* (IJMBL) and author of a number of texts on computer programming, web application development and mobile learning. His work has been published in many international journals, including *Computers & Education*, *IEEE Transactions on Learning Technologies* and *Software: Practice and Experience*. He chaired the Conference on Mobile Learning Technologies and Applications in 2007 and was co-editor of *Innovative Mobile Learning: Techniques and Technologies* (Information Science Reference, 2009). He also edits the annual compilations of papers from IJMBL that are published as a regular series of books. He is a member of the International Association for Mobile Learning and a professional member of the British Computer Society.

Aaron W. Pooley is a PhD candidate in the field of linguistics at the University of Southern Queensland, Australia. He is currently a lecturer in the department of English language and literature at Soonchunhyang University in the Republic of Korea. His research interests include sociolinguistics, global mobility, language contact, mobile technologies and mobile instant messaging.

Yew Siang Poong is a researcher in the Global Scientific Information and Computing Center in Tokyo Institute of Technology (Tokyo Tech). He received a doctor of engineering degree in international development engineering from Tokyo Tech in 2016. His research interests include information technology management, technology for sustainable development in developing countries and application of mobile technology for learning, education and health promotion. He holds a master of engineering degree in international development engineering from Tokyo Tech, a master of philosophy degree and a bachelor's degree in information systems engineering from Multimedia University, Malaysia. He has 10 years of research experience, in addition to 5 years of teaching experience in computer science and IT management domains in Multimedia University and Taylor's University, Malaysia. His current research focuses on technology implementation to promote World Heritage Site preservation under the collaboration between Japan and Laos.

Varunesh Rao is a learning systems administrator based with the Centre for Flexible Learning (CFL) at the University of the South Pacific. His role in CFL is around the administration of USP's eLearning and mLearning services. His interest and research areas are around learning management systems, mobile learning and data analytics. Varunesh is part of the USP mLearning team which seeks to investigate and promote the use of mobile devices in flexible learning methods. He is also a committee member of the South Pacific Computer Society (SPaCS), a society which seeks to promote ICT capacity building in the South Pacific.

Xiang Ren is a research fellow in the Australia-China Institute for Arts and Culture and a member of the Institute for Culture and Society at Western Sydney University. His research interests include digital/open publishing, open access, eLearning and Chinese digital media. He has published widely in these areas in both international scholarly journals and leading Chinese media outlets. Xiang completed his PhD at Queensland University of Technology in 2013, receiving the university's outstanding doctoral thesis award. Prior to his academic career, he has spent more than a decade working in the Chinese publishing industry, including involvement in the electronic schoolbag projects as an educational publisher.

Robert Ritter is the director of the Centre for Mathematics, Science and Technology Education at the University of Alberta, Canada.

Vernon Rive joined the Auckland University of Technology Law Faculty in 2009 after over 14 years of private practice, latterly as a partner in the environmental/resource management team at the national law firm Chapman Tripp.

Carol Russell is a senior lecturer in higher education at the University of Western Sydney (UWS). She has 15 years of experience in Australian campus universities, supporting academic staff in using learning technologies. Carol has been coordinating the evaluation of UWS's blended and mobile learning initiatives and providing support for curriculum development around this. Carol's first degree was in applied

physics, and she worked for several years in engineering before moving into higher education – initially in distance education, with the UK's Open University (1988–2000), throughout the shift from print resources to digital media and online study. She also studied for an MBA at the Open University Business School. One of her enduring interests has been in systems thinking and in particular how human--technological systems develop and evolve. Her PhD (2008) was in eLearning adoption in campus universities – focusing on how discipline and institutional contexts influence teachers' decisions about using learning technologies.

Tenku Putri Norishah Tenku Shariman is a lecturer on media art studies in the Faculty of Creative Multimedia at Multimedia University, Malaysia. She has published articles on digital literacy and its relevance to learning, whether in formal or informal contexts. She is the deputy chairperson of the Centre of Interactive Media, Multimedia University, which focuses on pursuing creative, critical and experimental practices in research that employ the use of technologies in interactive environments besides being a member of the Mobile Learning Association of Malaysia. Her research and publication interests include the impact of new technologies on literacy and learning and the development of interactive applications that have an impact on the lives of individuals.

Bibhya Sharma is an associate professor of mathematics at the University of the South Pacific (USP). He has also been the associate dean for learning and teaching within the Faculty of Science, Technology and Environment at USP since 2010. He is a member of a number of professional mathematics societies and unions and has published more than 70 articles and book chapters in the fields of mathematics education, robotics, biologically inspired processes and the TLPs of higher education. He champions adaptive works and innovations in the areas of eLearning and mLearning for higher education.

Vineet Singh is an assistant programmer at the Faculty of Science, Technology and Environment at the University of the South Pacific. His interest is in the areas of eLearning, mLearning, web/mobile applications and artificial intelligence. He is currently managing all the ICT-driven projects of the faculty and is part of the mLearning team of the university.

Helena Song is an academic lecturer at the Faculty of Creative Multimedia, Multimedia University, Malaysia, and has been actively involved in several research projects in emerging technologies including mobile technology for teaching and learning. Helena's research interests include empowering disabled persons with emerging technologies, technology-enhanced teaching and learning in higher education and interactive and expressive digital art.

Ann Starasts is a research fellow with the National Centre for Engineering in Agriculture at the University of Southern Queensland. Her research explores how digital technologies and science outputs can be better integrated into rural and