

ICCE

INTERNATIONAL CONFERENCE
ON CHRISTIAN EDUCATION



Christian Education in Digital Technology Era: Challenges and Opportunities

June 4th, 2022



UPH PRESS

ISBN : 978 - 602 - 5859 - 17 - 5 (PDF)

ICCE
INTERNATIONAL CONFERENCE
ON CHRISTIAN EDUCATION



**Christian Education in
Digital Technology Era:
Challenges and
Opportunities**

June 4th, 2022



UPH
UNIVERSITAS PELITA HARAPAN

FAKULTAS
ILMU PENDIDIKAN



sttb
Bandung Theological Seminary

ACSI 
²
STRONGER TOGETHER
INDONESIA

ACSI 
Association of Christian Schools International
AUSTRALIA

ICCE 
INTERNATIONAL CONFERENCE
ON CHRISTIAN EDUCATION

Christian Education in Digital Technology Era: Challenges and Opportunities

Copyright © 2022 by UPH Press. All rights reserved.

ISBN: 978-602-5859-17-5 (PDF)

Editors:

Dr. Yohanes Edi Gunanto, M.Si.

Henni Sitompul, M.Si.

Additional copies of this publication are available from

UPH Press
Building C, 3rd floor
Universitas Pelita Harapan
Lippo Village, Karawaci
Tangerang 15811
Indonesia
+6221 5460901
+6221 5460908 (Fax)

Table of Contents

LIST OF COMMITTEES	7
Welcome from the Rector of Universitas Pelita Harapan	9
Welcome from the Dean of Faculty of Education, UPH	10
Welcome from the Head of Bandung Theological Seminary	11
Welcome from the ACSI Indonesia National Director	12
Welcome from the Chairman of the 1 st ICCE UPH 2022 Committee	13
A. Keynote Sessions	15
Home-Coming: Restoring a Theology of Place within Christian Education	15
<i>Darren Iselin</i>	
B. Paralell Session	29
Application of Reinforcement to Improve Students' Activity during Online Learning in the Biblical Worldview	29
<i>Inggrit Priscilya Samada, Yohanes Edi Gunanto</i>	
University Students' Responses toward Lecturers' Usage of Speech Acts on Planning Assessment for Learning Course	38
<i>Wiputra Cendana, Elisabet Dewi Rumanti, Yemima Handoyo</i>	
The role of Christian teachers during the COVID-19 Pandemic is Based on The Study of Teleological Philosophy Within The Framework of Reformed Theology	49
<i>Siti Arisa, Debora Suryani Sitinjak</i>	
Measuring The Readiness Level of the School as a Resolution to Learning Lost issue During the Pandemi	59
<i>Seri Damarwanti, Anthoneta Ratu Pa</i>	
Students' Views on Educational Videos about Anti-Corruption Value Education in Online Service-Learning Projects	69
<i>Juliana Tirza, Wiputra Cendana, Steven Setiadi</i>	
BYOD (Bring Your Own Devices) Policy Implementation in Secondary School: The Advantages and Drawbacks	78
<i>Kalvin Sandabunga</i>	
The Role of Christian Teacher as "in loco parentis" in Digital-Based Educational World according to Anthropological View	89
<i>Imanuela Izaabel Izaac, Wiputra Cendana</i>	
CEKristal : Collaborative Digital Module for Character Education for Christian Schools in Indonesian Contexts	99

<i>Heriyanto, Wemmy Prayogo</i>	
Interactive and Multimodal Learning of Hermeneutics Courses with Hermes AI Chatbot	109
<i>Arianto Pakaang</i>	
A Review of Augmented Reality, Its Advantages and Usages in Education in Indonesia	122
<i>Carlos Camelo, Dessy Rahmawati, Elvin Krismaswati Mendrofa</i>	
Information and communication technology (ICT) subject as a tool for students to preach the gospel	136
<i>Gerald Yohanes Meyners, Lastiar Roselyna Sitompul, Vallery Valencia Pasanea</i>	
Implementation of the Synchronous Learning Method in Intra-Curricular Activities in CTLS at UPH Medan Campus	149
<i>Danny Philipe Bukidz, Daniel Cassa Augustinus</i>	
The Development of Hybrid Learning Scenario in Satya Wacana Christian University: Opportunities and Challenges	158
<i>Christian Bernard Nichols Djami, Tri Nugroho Budi Santoso, Herry Sanoto</i>	
Online Shopping Decisions Towards Consumptive Behavior in A Christian Perspective: Case Study Cohort 2019 Economic Education and Primary Teacher Education	168
<i>Selvi Esther Suwu, Musa Sinar Tarigan</i>	
The Ways Technology Fulfilled The Traditional Forms of Education : <i>A Case Study of Moodle Learning Management System</i>	179
<i>Azalia Yisrael, Mira Oktri Yanti Brahmana</i>	
Christian Epistemological Study of Enduring Understanding as a Result of Meaningful Online Learning	192
<i>Tabitha Grace Larasati, Pingkan Imelda Wuisan</i>	
Recommended Learning Methods for Teachers to Forming Students' Critical Mindset in Globalization Era	203
<i>Andre Wilianto, Elisa Hermina, Marisa Milenia, Mona Prischilla, Henni Sitompul, Kurniawati Martha</i>	
Servant Leadership Informed by Christian Worldview: A Case Study in Lentera Harapan Schools	211
<i>Yonathan Winardi, Oh Yen Nie, Wiputra Cendana, Christina Dwi Putri</i>	
Student Teachers' Critical Reflection towards Online Microteaching.....	221
<i>Atalya Agustin, Destya Waty Silalahi</i>	
Quality Distance Learning in the Era of the Covid-19 Pandemic.....	228

Herry Sanoto, Dani Kusuma, Mila Chrismawati Paseleng
Addressing Collaboration Needs In The Middle Isolation of the Digital Era Based On a
Christian Perspective 239

Bernard W. Napitupulu
Basic Christian Leadership Training Implementation Need Analysis for Teachers College
Indonesia..... 248

Juniriang Zandrato
A Christian Perspective: On Becoming Reflective in Search of a Meaningful Life 259

R. A. Trisnowati
The Application of Guided Inquiry Learning Model to Strive for the Activeness of High
School Students in Online Learning 267

Elisabeth Pracilia Zega, Candra Yulius Tahya
Roles of Christian Teachers: The Use of Literature to Guide Students in Confronting
Issues in Digital Technology Era..... 278

C Kiky Puspita Anggraeni, Debora Pratiwi Sibarani
Academic servant leadership in lockdown: a case study of digital teaching-learning
during the Pandemic Covid-19 in a Christian school in Indonesia 289

Ricky, Natha Bella Angella

LIST OF COMMITTEES
INTERNATIONAL CONFERENCE ON CHRISTIAN EDUCATION (ICCE)
Saturday, June 4, 2022, 08.00-15.15 WIB

Advisory Board :
1. Dr. (Hon.) Jonathan L. Parapak, M.Eng.Sc. (Rector of UPH).
2. Sutrisna Harjanto, S.Si., M.Div., Ph.D. (Chairman of STT Bandung).
3. Agus Susanto, Ph.D. (Director of ACSI Indonesia).
4. Oh Yen Nie, S.E., M.Ed. (Dean of FIP-TC, UPH).

Person-in-Charge : Oh Yen Nie, S.E., M.Ed.

Steering Committee :
1. Dr. Budi Wibawanta, S.Sos., M.Si. (Vice Dean of FIP-TC, UPH).
2. Prof. Dr. Niko Sudibjo, S.Psi., M.A. (Departement Chair of Master of Education Program, UPH).
3. Sarinah Lo, Ph.D. (Lecturer of STT Bandung).

Chairperson : Imanuel Adhitya Wulanata Christmastianto, S.E., M.Pd.

Vice Chairperson : Lastiar Roselyna Sitompul, S.Si., M.Pd.

Secretary : Krisnajanti

Treasurer : Kristina Indiah R. Undari, S.E.

1st Division: EVENT

Coordinator : **Billy Mumu, M.Pd.**

Members :
1. Candra Yulius Tahya, M.Si.
2. Iko Agustina Boangmanalu, M.Pd.
3. Yanti, S.I.P., M.Sc., M.Th.

2nd Division: PUBLIC RELATION

Coordinator : **Yogi Saputra, S.Pd.**

Members :
1. Neneng Andriani, S.Sn., M.Pd.
2. Lygia Priscilla Tambunan, S.Psi.

3rd Division: REVIEWER & PROCEEDINGS

Coordinator : **Henni Sitompul, M.Si.**

Members :
1. Darren Iselin, Ph.D.
2. Dr. Ashiong Parhehean Munthe, M.Pd.

3. Dr. Collin Beaton
4. Dr. Janine F. Allen
5. Dr. Pamela Harvey
6. Dr. Pingkan Imelda Wuisan, S.IK., M.Pd.
7. Dr. Ir. Wahyu Irawati, M.Si.
8. Dr. Yohanes Edi Gunanto, M.Si.
9. Dr. Yonathan Winardi, M.Pd.
10. Abednego Tri Gumono, M.Pd.
11. Asih Enggar Susanti, M.Pd.
12. Atalya Agustin, M.Pd.
13. Chandra Han, S.T., M.Div., Th.M.
14. Imanuel Adhitya Wulanata Christmastianto, S.E., M.Pd.
15. Juniriang Zandrato, M.Pd., M.Ed.
16. Lastiar Roselyna Sitompul, S.Si., M.Pd.
17. Meicky Shoreamanis Panggabean, S.S., M.Pd.
18. Michael Recard, S.S., M.Hum.
19. Neng PriYanti, S.Pd., M.Ed., M.A.
20. Sandra Scott
21. Selvi Esther Suwu, S.E., M.M.
22. Siane Indriani, M.Pd.
23. Wiputra Cendana, B.Sc., M.Pd.

4th Division: MULTIMEDIA, TECHNOLOGY, AND DOCUMENTATION

Coordinator : **Wiputra Cendana, B.Sc., M.Pd.**

Members :

1. Michael Recard, S.S., M.Hum.
2. Meicky Shoreamanis Panggabean, S.S., M.Pd.
3. Jessica Elfani Bermuli, S.Pd., M.Si.

5th Division: REGISTRATION AND ADMINISTRATION

Coordinator : **Robert Harry Soesanto, M.Pd.**

Members :

1. Indra Praja Kusumah, M.Pd.
2. Jessica Florensia Irene, S.I.Kom
3. Ganda Sari, S.T., M.A.

Welcome from the Rector of Universitas Pelita Harapan



Shalom and gratitude be to our Lord Jesus Christ! It is because of His love and mercy; we can gather together here in this event.

We are now in the end of the pandemic, where more than two years unprecedentedly we were forced to move to virtual education and embrace digital technology. Out of the millions of educators in Indonesia, both in primary, secondary, and higher education, quickly must learn and implement online teaching and learning. Every educator is required to adapt to various digital learning media, suddenly digital technology is not only a tool but the environment where we are living and interacting with one another.

Not only do the schools have to provide the system to support virtual learning, but educators also have to be equipped to design instructions that fit with the virtual setting. This need eventually triggers various parties to adapt, move, and innovate. Educators use a variety of media as a virtual meeting bridge with students. Not satisfied with just meeting virtual, educators also make some innovations by using other features and exploring any applications that will help provide creative materials and teaching materials.

However, despite of all the improvements and innovations in delivering teaching and learning in digital technology setting, there are many obstacles and challenges. The question remains, are students learning effectively? Especially for Christian educators, we need to keep asking the question, whether we have faithfully and effectively carried the mission of Christ-centered education, facilitating holistic transformational education in this digital technology era?

Christian education must consciously be aware of the current educational challenges while embracing the opportunities through the rapid development of digital technology. We should continuously ponder how to be faithful to our calling as Christian educators in this era of disruption. We should strive to be an exemplary institution in presenting Christian education during the fast-changed of digital technology. We believe that every technological progress is the fruit of cultural mandate to advance humans' life, fostering life given by God. On the other hand, Christians are also aware with our fallen nature, that there is a possibility of missing the point in any good effort that we are trying to do. Further as human beings, are we going to develop holistically if education is reduced by totally virtual learning? These are some questions that we need to keep thinking and discussing.

UPH, especially Teachers College, is grateful that we can host the first International Conference of Christian Education, especially inviting best panelist speakers to inspire us. We hope that through the ICCE event, there will be a forum for us, educators and practitioners of Christian education, to discuss the opportunity and challenges of doing our mission in the midst of such rapid technological advances. We also hope that this event will encourage us that amid various challenges that exist, God is faithful in sustaining us thus giving us hope to embrace the opportunities that are wide open to further our service to provide a quality, holistic, and transformational education.

Finally, enjoy the conference, Lord Jesus bless you.

Dr. (Hon.) Jonathan L. Parapak, M.Eng.Sc.

Welcome from the Dean of Faculty of Education, UPH



Today what is happening in the classroom is different from practices before the pandemic. Changes will continue to occur, especially with the advancement of digital technology, which will become increasingly sophisticated. The interaction of education with technology is inevitable. As Christian educators, we embrace digital technology development. We believe students as the Image of God, and the purpose of educating them is to see them flourish with creativity and innovation for the development of human civilization. However, every technological development that brings about good changes may unwittingly change something essential. For example, now we cannot escape from digital technology. It is ubiquitous; from communication, working, shopping, and many more, all are on the digital platform. It has changed the way we interact with one another. To what extent has it changed us? How can Christian education embrace but also be aware of these?

That is the background of the International Conference on Christian Education with the theme, Christian Education in Digital Technology Era: Challenges and Opportunities. Christian educators must continue discussing this topic to carry out our mission faithfully. Continuously we need to learn and relearn to prepare our students well and be ready to embrace their future as disciples of Christ.

UPH Teachers College is very grateful for the cooperation with various parties, ACSI Indonesia and Australia, and Bandung Theological College, which made this first international conference possible. Likewise, we are blessed with the plenary speakers who are experts in their fields and will share their research and insights. We hope that all the presenters and participants will benefit most from this event. The committee has worked very hard to prepare for this event and we hope that by the end of the conference, the conversation will not stop. Let us continue strengthening Christian education in Indonesia through this forum, and we will meet again at the following conferences.

In the end, as our God has led all the preparation for this conference to take place, let His wisdom guide our conversation! All praise and glory be to God alone!
God bless.

Oh Yen Nie, S.E., M.Ed.

Welcome from the Head of Bandung Theological Seminary



The ever-evolving world is a part of the Cultural Mandate or the Creation Mandate, which is revealed in Genesis 1:28. Therefore, we should respond to the development of digital technology critically and positively for Christian education in various contexts.

We are grateful for the first International Conference on Christian Education (ICCE) today, June 4, 2022, as the result of the collaboration between the Faculty of Education UPH, ACSI Indonesia, ACSI Australia, Indonesian Christian Education Council, and Bandung Theological Seminary (STTB), to study the opportunities and the challenges of Christian education in digital era, by involving the experts from within and outside the country as the speakers.

Thank you, especially for the willingness of Mr. David Smith (from Calvin University, US), Mr. Darren Iselin (from ACSI Australia), and Mr. Agus Susanto (from ACSI Indonesia), as the speakers, and for all the committee from the Faculty of Education UPH who has been working hard to prepare this conference.

Hopefully, all the opportunities and the challenges in Christian education in the digital era that are studied through this conference will equip fellow educators with more comprehensive and sharper insights from the biblical point of view, so that the purpose of Christian education which is to produce Christian leaders who have a good spirituality, high competence, and strong dedication, can be more realized through this conference.

Welcome to this conference. God bless you!

Sutrisna Harjanto, Ph.D.

Welcome from the ACSI Indonesia National Director



Dear ICCE presenters and participants.

The development of digital technology is rapidly changing the order of human life—which is also developing so swiftly as well. There are those who agree and follow the speed of development, accept it for granted, and even get involved in the development. Still, not a few are also indifferent to it, disagree and refuse to use digital technology for all kinds of reasons that are indeed or are made in accordance with their choice of decision. In addition, there are those who try to be neutral ("wise"), by looking at digital technology such as a double-edged sword or fire which can be used either for good or evil purposes. We have already seen practical examples of these two possible uses of digital technology everywhere.

What about us as Christians? Specifically Christian educators? The term of Christian educator, this can be viewed narrowly or broadly. In a narrow sense, some categorize Christian educators as those who work as teachers or lecturers. But we can also see it from a broad sense, that Christian educators are anyone who has the responsibility to educate, direct, and give vision to other people or the surrounding community. And this means that all Christians are actually educators, because Christians are followers of Christ, and Christ has assigned a role to us, Christians, as salt and light of the world. This means that we as Christians must be a flavor for the world and be a statement of God's truth to the world as well.

I represent Christian schools and Christian educators who are members of the ACSI Indonesia organization. I herewith also welcome all the speakers and participants of 2022 International Conference on Christian Education. This conference is organized by Universitas Pelita Harapan in collaboration with several Christian education organizations including ACSI. I hope that this conference can continue in the future and there will be more Christian educational organizations including churches, and synods, to be able to collaborate, like what is stated by ACSI's motto: Stronger Together, for us to be strong together, as one body of Christ. Let's salt the world more and bring light to the world. I hope that through this ICCE more and more people who work as Christian educators will grow and more Christians in general will be more aware of their calling and will realize that we are all educators, tasters, and proclaimers of God's truth, who need to be equipped and strengthened at all times. Especially through the theme of the 2022 ICCE: "Challenges and Opportunities for Christian Education in Digital Technology Era."

Finally, congratulations to UPH for initiating the first ICCE in 2022. Let us be those who wait on the Lord so that we may gain new strength, like an eagle that soars with the power of its wings, we run and do not become listless, we walk and do not grow weary (Isaiah 40:31).

Thank you, God bless us all.

Agus Susanto, Ph.D.

Welcome from the Chairman of the 1st ICCE UPH 2022 Committee



Shalom Aleichem, gratitude be to our Lord Jesus Christ, because of His love and favor, we can gather in this conference. It is such an honor for me to welcome you to the 1st International Conference on Christian Education (ICCE) UPH 2022, with the main topic, “Christian Education in Digital Technology Era: Challenges and Opportunities.”

The rapid development of science and technology in today’s digital technology era encourages the emergence of various educational innovations based on learning technology, making it easier for educators and students to access multiple educational contents. This is marked by the ease of obtaining access to information and internet connection speeds. The Covid-19 pandemic has increasingly encouraged the emergence of various forms of digital learning media globally. This unavoidable pandemic requires school administrators’, education providers, educators, and students to be able to adapt to changes in learning patterns from face-to-face learning to online learning. An education system that combines digital technology with the learning process will open opportunities and challenges as real implications of the transformation and paradigm shift of education in the digital technology era, including Christian education in it. Therefore, the 1st ICCE UPH 2022 aims to 1) Explain the implementation of digital technology in learning and its implications for students' faith formation; 2) Discuss digital technology development in learning and its implications and influence on the way we communicate and relate to others in Christian educational context an excellent, holistic, and transformational; 3) Enrich understanding to Christian educators regarding the calling response to teach in digital technology era by looking at the opportunities and challenges.

For organizing the 1st ICCE UPH 2022, allow me, as the chairman of the organizing committee, to express my deep gratitude and appreciation to the Keynoted Speakers, Mr. David I. Smith, Ph.D. (Professor from Calvin University, USA), Mr. Darren Iselin, Ph.D. (Director of Research and Innovation Christians School Australia), and Mr. Agus Susanto, Ph.D. (ACSI Indonesia Director) for each conference material presented. We also express our gratitude and most profound appreciation to the Advisory Boards and the organizing partner, Mr. Dr. (Hon). Jonathan L. Parapak, M.Eng.Sc. (UPH Rector), Mr. Sutrisna Harjanto, S.Si., M.Div., Ph.D. (Chairman of Bandung Theological Seminary), Mr. Agus Susanto, Ph.D. (Director of ACSI Indonesia), Mrs. Sandra Scott (Executive Officer of International Partnerships and Service Christian Schools Australia) and Mr. Marks Spencer (Director of Public Policy Christian Schools Australia). Likewise, we would like to express our gratitude and most profound appreciation to the Supervisory Board, Mrs. Oh Yen Nie, S.E., M.Ed. (Dean of the Faculty of Education, UPH) and Mrs. Sarinah Lo, Ph.D. (Senior lecturer of Bandung Theological Seminary) and to the Steering Committee Mr. Dr. Budi Wibawanta, S.Sos., M.Si. (Vice Dean of the Faculty of Education, UPH) and Prof. Dr. Niko Sudibjo, S.Psi., M.A. (Department Chair of Educational Technology, Faculty of Education, UPH). Expressions of gratitude and highest appreciation are

conveyed to the entire organizing committee team, who have worked tirelessly to prepare for this conference so that it can be organized successfully. We also express our gratitude and appreciation to the presenters who have shared articles and published works in the form of proceedings and the participants who have involved in this conference.

Finally, we hope through the organizing of the 1st ICCE UPH 2022, as educators and leaders of Christian educational institutions, we can collaborate to do concrete works in the area where God has entrusted us in responding to the opportunities and challenges in the digital technology. We will appreciate constructive suggestions and criticisms to improve the quality of future conferences. To God be the Glory.

For we are his workmanship, created in Christ Jesus for good works, which God prepared beforehand, that we should walk in them. - Ephesians 2:10 (ESV)

Immanuel Adhitya Wulanata Chrismastianto, S.E., M.Pd.

BYOD (Bring Your Own Devices) Policy Implementation in Secondary School: The Advantages and Drawbacks

Kalvin Sandabunga

Sekolah Dian Harapan Makassar, Yayasan Pendidikan Pelita Harapan

e-mail: kalvinsandabunga@gmail.com, kalvin.sandabunga@sdh.or.id

Abstract

The ownership of mobile devices among teenagers has increased distinctly during the COVID-19 pandemic. Looking at this phenomenon, its influence is inevitable in educational policymaking. While some are still reluctant to utilize the ownership of mobile devices as students learning support, some parties have begun to take advantage of this momentum by enacting the Bring Your Own Devices (BYOD) policy. The BYOD policy, which was initially implemented at the company, has become a trend in many schools. This study aims to discover teachers' perceptions in one of the private schools in Makassar on the BYOD policy implementation for secondary school students. For the semi-structured interviews, nine secondary school teachers were selected as the participants. The transcripts were analyzed using thematic analysis, enabling the researcher to identify three emerging themes including (1) transformation in teaching and learning, (2) students' behavior, and (3) the regulation of BYOD implementation. The results reveal that the participants perceived the implementation of the BYOD policy has positive and negative impacts on students' learning, achievement, and behavior. At the end of this article, some recommendations for the better of BYOD policy implementation are presented.

Keywords: BYOD Policy, Mobile Devices, Secondary School, Teachers' Perspectives

1. Introduction

In this digital era, the use of technology in teaching and learning has become a basic need for teachers and students. These activities certainly require the provision of digital devices. Several years before the COVID-19 pandemic, teachers and students had started using digital devices to do both individual and group assignments. During the outbreak of COVID-19, most teachers and students utilized digital devices for online learning. This momentum accelerates the use and mastery of technology in the teaching and learning process (Masilo, Simelane-Mnisi, Mji, & Mokgubu, 2020). Post-pandemic, the ownership of digital devices by students has increased significantly when they returned to school. Then, this phenomenon is used as an opportunity for the school to maximize the use of technology in the teaching and learning process (Simelane -Mnisi & Mji, 2020).

Realizing that the students have become more attached to their devices, many schools introduced this strategy to allow students to bring their devices to school (Hung, 2017, Simelane-Mnisi, Mji, & Mokgubu, 2020). Some studies showed that this strategy successfully increases the effectiveness of the teaching and learning process meanwhile some others still doubt it (Adhikari, Mathrani, & Scogings, 2016; Pegrum, Oakley, & Faulkner, 2013). Upon the enforcement of this strategy in Indonesian schools, more

evidence is needed from the lens of teachers' perceptions.

This study aimed to critically discover the perceptions of teachers in one of the private schools in Makassar on the BYOD policy implementation for secondary school. Firstly, it will discover teachers' perceptions of the advantages and shortcomings that appeared when students were allowed to bring their own devices. Secondly, this research will uncover whether the teachers support the implementation of BYOD in secondary school. Thus, this research is based on the stated problem with the following research questions:

1. What are teachers' perceptions of the advantages and shortcomings of the implementation of the BYOD policy in a secondary school?
2. To what extent do teachers support the implementation of BYOD policy in a secondary school?

2. Literature review

2.1 Bring Your Own Devices Policy

In this twenty-first century, digital technology is ubiquitous and developed massively. One of the phenomena in our society is the rapid increase in the ownership of mobile devices, especially among teenagers (Hopkins, Tate, Sylvester, & Johnstone, 2017). Bring Your Own Devices better known as BYOD is a policy that has been used in many companies for years and now has become the strategy used by several educational institutions to harness mobile devices' ownership of school aged-children (Johnson, Adams-Becker, Estrada, & Freeman, 2014).

The BYOD policy is a practice in which students bring their laptops, tablets, smartphones, or other mobile devices to school for learning (Alexander, Barnett, Mann, Mackay, Selinger, & Whitby, 2013; Janssen & Phillipson, 2015). With the development of various educational Apps and cutting-edge devices, BYOD implementation in secondary schools is expected to create a conducive learning environment and attractive learning methods as well as promote students' academic and non-academic achievement.

2.2 BYOD Implementation and School Curriculum

The current debate about whether the BYOD policy has transformed secondary schools identifies an interesting viewpoint on the school curriculum. Some opponents consider that the integration of BYOD policy in the school curriculum has not brought a transformation in secondary school because this program encounters problems in its planning and implementation. Janssen and Phillipson (2015) stated that BYOD policy is difficult to maintain in the school curriculum because there is no clarity on the sustainability of this program in the future.

Furthermore, the use of personal mobile devices both inside and outside the classroom and the freedom of using Apps and accessing information from the Internet has not been regulated in many schools' curricula. The absence of clear regulation in the school curriculum governing the use of personal devices in schools provides freedom and flexibility for the students to search and process the information directly from their devices (Thomas

& O'Bannon, 2014). This has led to a teacher's lack of authority in monitoring and controlling the content that students may use and access (Burns-Sardone, 2014). Also, another consequence that arises is the blurring of personal mobile devices' functions as learning technology and living technology (Pegrum et al., 2013). Since the curriculum has not regulated the use of Apps and search engines, students can take the opportunity to use their mobile devices for purposes that are not related to learning.

However, on the other side, some studies showed that implementing the BYOD policy has brought significant changes. Echols and Tripton (2012) argued that BYOD policy has created some transformations in the learning approach, learning standard, and learning objectives. Since the BYOD policy utilizes the use of personal mobile devices, this policy has promoted a student-centered learning approach. There has been a shift from a teacher-centered learning approach to being more student-centered where the students can learn anywhere, anytime at any path and pace (Adhikari et al., 2016).

Moreover, BYOD policy has influenced the assessment as part of the school curriculum. Cristol and Gimbert (2013) state that by using students' mobile devices, the assessment should not solely be centered on student performance in the knowledge aspect, but also skills. Additionally, having excellent performance concerning knowledge is not enough; the ability to comprehend digital technology also becomes one of the essential components of demand for the workforce in the future (Adhikari et al., 2016). Implementing the BYOD policy has fundamentally modified the learning objectives of secondary schools' curricula in preparing students to be global citizens who can compete in the digital world (Parsons & Adhikari, 2016).

2.3 BYOD Implementation, Pedagogy, and Teaching Instruction

While the curriculum is an essential aspect to be considered related to BYOD implementation, pedagogy and teaching instruction are equally important. Since the BYOD policy has been introduced in secondary schools, there has been a considerable transformation in pedagogy. The use of personal devices has developed teachers' technological pedagogical content knowledge (TPACK) throughout these previous years (Rae, 2017). Integrating TPACK in learning means teachers can combine their technological knowledge with appropriate teaching methods to teach particular subjects (Koh, Chai, Benjamin, & Hong, 2015). TPACK encourages the teachers to shift their teaching methods from the traditional ones to be more modern and diverse (Adhikari et al., 2016). Utilizing students' devices in learning creates interactive, attractive, and innovative teaching methods (Hung, 2017). What is more, Ackerman and Krupp (2012) stated that BYOD implementation has changed the atmosphere of learning, from both traditional and monotonous to more engaging and enjoyable learning.

Additionally, looking at the current global development and learning theories, 21st-century learning (21CL) should be able to facilitate the students to construct their understanding (Cochrane, Antonczak, Keegan, & Narayan, 2014). The implementation of the BYOD policy is believed to have supported constructivist learning where students not only absorb knowledge, but they have the opportunity to build or create their understanding through their experiences of interacting with their environment (Churchill, Godinho, Johnson, & Keddie, 2015). In this case, BYOD policy accommodates the use of personal devices to amplify constructivist pedagogy. Constructivist pedagogy such as experiments, small group discussion, projects, and inquiry-based learning will trigger the

students to develop 21st-century competencies (21CC) such as communication and collaboration skills, discovery, problem-solving, and research skills (Ackerman & Krupp, 2012; Hopkins et al., 2013; Hung, 2017; Maher & Twining, 2017). Using personal devices, the students will be actively initiated exploring and applying their 21CC without waiting for instruction from the teachers (Hill, 2016). Students will have the authority over their learning and the teachers become the facilitators of learning rather than direct resources of information (Adhikari et al., 2017).

2.4 Students' Behavior towards BYOD Implementation

One aspect that illustrates whether BYOD policy has a significant impact can be identified from students' behavior. Some claims questioned the effectiveness of BYOD policy implementation in secondary schools (Adhikari et al., 2017). Imazeki (2014) stated that mobile devices are the biggest distraction for students in these last decades. Mobile devices often keep students from focusing on learning, as they are more interested in social media compared to educational Apps (Parsons & Adhikari, 2016). Instead of using devices as learning media, students will tend to use their devices to play games, watch videos, and chat in the classroom. Similarly, the implementation of the BYOD policy also leads to students violating ethics and norms in schools. The implementation of the BYOD policy will bring up a social and economic status division based on devices that students brought to school. Pegrum and colleagues (2013) maintained that this phenomenon can lead to exclusivity, bullying, and even theft. The increasing use of social media such as Instagram among secondary school students makes bullying begin to penetrate the virtual world.

However, it is important to note, that not all research shows that the BYOD policy harms students' behavior. It is believed that BYOD implementation also encouraged the students to possess a constructive attitude. Currently, in the 21CL framework, four objectives have been highlighted which are critical thinking, creativity, communication, and collaboration (Koh et al., 2015). It is believed that the implementation of the BYOD policy has promoted students' critical thinking skills (Adhikarie et al., 2016; Lee, 2014). Also, O'Bannon and Thomas (2015) asserted when students could use their own devices, they can be more creative and innovative. Also, personal devices can make it easier for students to practice their communication and collaboration skills both written and oral. Under the supervision and monitoring of the teachers, students can enrich their ideas and sources of information by collaborating with professionals through their mobile devices (Cochrane et al., 2014; Kay & Schellenberg, 2017).

3. Research Methodology

3.1 Case study methodology

This study uses a case study methodology by investigating teachers' perceptions of the advantages and shortcomings of the BYOD policy and whether they support its implementation in secondary school. The use of case studies in social research has become widespread predominantly within small-scale research (Denscombe, 2007). Using a case study, a researcher can address descriptive and explanatory questions that require in-

depth investigation (Gay, Mills & Airasian, 2012). Concerning this research, the findings are not intended to generalize all teachers' perceptions in Indonesia, but the insights from this case study can be used for the assessment of the implications of the findings for other similar cases.

3.2 Data generation

Yin (2014) stated that it is essential to use appropriate techniques to construct a robust case study. Therefore, the method of the interview was considered to explore the complexity and particular nature of the case (Bryman, 2016; Stake, 1995). This study used a semi-structured interview due to its flexibility (Bryman, 2016). In a semi-structured interview, the researcher poses a set of questions, and the participants provide the answers based on their life experiences and understanding; the researcher may further explore the answers given by eliciting reformulations (Scott & Usher, 2011).

3.3 Data analysis

Qualitative research involves more diverse and creative processes (Denzin & Lincoln, 2000). Esterberg (2002) stated that the initial step in data analysis is to be fully immersed in the data by transcribing the interview, analyzing the transcription line-by-line, identifying the patterns by coding, and finally determining the themes. Considering these ideas, this small-scale research employed thematic analysis, as recommended by Bryman (2016) and Creswell and Creswell (2018).

Before data analysis, the researcher prepared and read all interview transcripts thoroughly. Then, the coding process was initiated to analyze the data. Upon completion of the coding process, the common elements of codes were grouped into several emerging themes representing the teachers' voices and perceptions (Bryman, 2016). To manage the codes and avoid the repetition of themes based on the quotations of the teachers, a matrix of emerging themes was prepared. Finally, the relationships between the themes represented in the case study were examined by looking at the interconnection between the themes and research questions (Bryman, 2016; Creswell & Creswell, 2018).

3.4 Research site and participants

A private school in Makassar was chosen as the research site. The selection process of the participants was designed purposely to meet the requirements and research standards (Merriam, 2002). Nine teachers were employed in this research which consisted of 5 females and 4 males with diverse teaching experiences from 1 to 19 years.

4. Results and Discussion

Upon the data analysis, three themes emerged: (1) transformation in teaching and learning, (2) the implication of device ownership towards students' behaviors, and (3) the establishment of rigorous and robust regulation of BYOD implementation. These findings which correlated to the teachers' perception of the advantages and shortcomings of BYOD and to what extent the teachers support the implementation of BYOD will be discussed in this chapter by integrating them with the literature review. The emerging themes are presented by incorporating the actual words of the teachers to maximize the presentation of findings from their point of view.

4.1 Transformation in teaching and learning

The interview depicted that there were transformations in teaching and learning when BYOD was implemented. When asked whether BYOD supports the teachers in teaching and learning processes, a teacher mentioned that:

The implementation of BYOD helps me to innovate and be creative with my teaching. I swift my teaching method from a very conventional and monotone one to become a more diverse and up-to-date teaching approach. Now, I use various online Apps to support my teaching, for example, I use GeoGebra when teaching some math topics.

In line with this, Rae (2017) once claimed that the use of personal devices at school has advanced teachers' technological pedagogical content knowledge (TPACK). When harnessing students' gadgets in the classroom, teachers can combine technological knowledge with appropriate teaching methods in particular subjects (Koh, Chai, Benjamin, & Hong, 2015). Teachers will motivate their selves to upgrade their teaching and build more state-of-the-art activities that are engaging and inclusive (Ackerman & Krupp, 2012; Adhikari et al., 2016; Hung, 2017). Another teacher's viewpoint also supports BYOD implementation because it is considered to follow the times. By bringing their own devices to school, the learning becomes more student-centered based. Most participants maintained that when students bring their devices, they can ask the students to work in a group while the teachers facilitate and guide them. BYOD implementation gives a wide range option of learning where students can own their learning (Adhikari et al., 2016)

Furthermore, concerning the level of urgency and the importance of implementing BYOD in the teaching and learning process, a teacher argues that:

The current learning context seems to force the schools towards digital learning, especially in the post-pandemic period. Indeed, global education will lead to learning that utilizes more use of technology in the classroom.

Also, most teachers said that when students bring and use their own devices, the teaching and learning process becomes more effective, time and money-saving. A teacher stated that:

In the past, students used to use the library's computers to look for assignment-related information on the internet but now it is very easy for them to browse the information on their own devices in the classroom.

When searching for information on the internet using their own devices, compared to devices provided by the school, it is very clear that students are very quick because they have familiar with their devices. Additionally, BYOD implementation is indeed aimed not only at using students' devices as a tool but also to cultivate their competencies which require for the future workforce (Adhikari et al., 2016; Cristol & Gimbert, 2013; Parsons & Adhikari, 2016).

In conclusion, almost all teachers agree that although the implementation of BYOD is not urgent, this policy is very contextual and essential for teachers and students to be more innovative and creative. Even though many things can still be accomplished conventionally in the learning and teaching process, the use of personal devices at school will greatly

provide convenience and add value.

4.2 Implication of devices ownership toward students' behaviors

The implication of device ownership towards students' behaviors has become a significant concern when discussing BYOD implementation. Most of the participants agreed that even though BYOD implementation has many positive results, it also brings a negative impact on students' behaviors. A teacher explained her struggle when dealing with students who are distracted and did not focus on the lesson:

Often the devices they bring become big distractions while learning. I have noticed that children take time to open their cellphones or tablets to check social media or messaging Apps.

The participants involved in this study conveyed their observations that the increasing use of personal devices was accompanied by an increase in social media use. Similar to the previous research run by Imazeki (2014), Parson and Adhikari (2016) revealed that social media has become the biggest distraction when students were allowed to bring their devices to school.

Moreover, implementing BYOD is also very risky to appear some challenges in schools. Misuse and dependence on personal devices may exceed the advantages of implementing BYOD. Most participants found that students are likely to misuse the devices they brought to school. Not only checking their social media frequently but bringing devices to school provides them opportunities to access and disseminate contents that are not appropriate for their age. A teacher expressed his fears about being dependent on personal devices that they bring to school:

I worry that when my students bring their devices to school, it will encourage them to always rely on their devices. Even for counting simple math problems, they need to use a calculator on their devices.

Supporting these findings, previous research also found that BYOD implementation indeed will result in some violations of ethics and norms in school (Pegrum et al., 2013). As such a domino effect, distraction and dependence on personal devices will cause new problems. For instance, students become less socialized in class and the emergence of a social gap between the haves and have-nots.

Due to the prolonged COVID-19 pandemic, where students have to practice social distancing, new habits have emerged. Nowadays, students are more comfortable interacting in the virtual world rather than in the real one. One participant shared her observations:

From what I have observed, children now prefer socializing in cyberspace compared to having direct conversations with their friends. It can be seen during break time when most students look down and pay attention to the screen of their devices. I have to force them to keep their devices so they can socialize with at least their classmates.

The issues related to children's skills in socializing are not stopped there. Another issue that needs extra attention is the emergence of social gaps among the students. A participant said that:

When students start comparing their devices with each other, I take over the conversation and explain how a function is more important than appearance. Also, I warn them that this behavior is not permissible and is not accepted at

school.

When the students bring their devices to school, they will tend to compare the brands of personal devices to their friends and this will lead to exclusivity or even bullying (Pegrum et al., 2013). Therefore, the teacher should handle these issues by monitoring and having a strong authority over the students. Teachers should be able to take control so that the objectives of implementing BYOD can be accomplished without creating new problems.

4.3 The establishment of rigorous and robust regulation of BYOD implementation

Reflecting on teachers' voices regarding the BYOD implementation, a rigorous and robust regulation is the highlight and main point of the recommendation offered. Based on the interview, all participants agree that upon the implementation of BYOD, a school should have a firm policy. A teacher recommended that:

I think there should be written rules and procedures that have to be followed by the students. For every infringement, there should be a penalty.

The enforcement of rules and procedures is expected to bring clarity and regulate the use of personal devices at school. The policy should standardize when, where and for what particular purpose students can use their devices. Thus, the BYOD policy should be clear, consistent, and can be applied to the whole school community. As Thomas and O'Bannon (2004) proposed, a school that implements BYOD should have a guideline that oversees the freedom and flexibility of using personal devices. The policy should set the limitation and boundaries so that the violation should result in consequences. Also, following up the rigorous and robust regulation, the assertiveness of the teacher in enforcing policies, rules, or procedures was believed by all participants as the main determinant of the success of implementing BYOD in schools. Teachers must have the authority and control over the devices brought by students (Burns-Sardone, 2014). Teachers must be firm in setting limits on when they can use and when they should keep their devices.

Moreover, giving understanding to students and parents about the main purpose of being allowed to bring devices to school also needs to be scheduled at the beginning of the school year. One teacher said:

I believe that we not only need to educate children about the BYOD program, but we also need to provide an explanation to parents about the importance of digital literacy at home.

Fundamentally, devices that students own can be very beneficial for learning. Nonetheless, it is the absence of strong regulation, lack of teachers' authority, and lack of understanding of the purpose of using personal devices at school that makes the students often misuse the devices they bring. When these three aspects are combined, the implementation of BYOD will ultimately achieve its goals and the use of digital technology can be utilized according to its objectives.

5. Conclusion

The outbreak of COVID-19 has changed the face of education worldwide. Nowadays, digital technology has become a daily need in the teaching and learning process.

Students' ownership of digital devices also contributes to the transformation of education in Indonesia. BYOD or bring your own devices is used by many schools as a strategy to harness the ownership of digital devices in the teaching and learning process.

From three emerging findings of this study, it can be concluded that the teachers perceived BYOD implementation to bring more advantages to their teaching and learning process. The appropriate use of digital technology among students encourages them to create a more up-to-date, diverse, meaningful, and contextual lesson. However, the teachers also realized that some misbehavior could emerge as the shortcomings of BYOD implementation. The distraction of social media, misuse of personal devices, lack of social skills, and the chance of exclusivity or even bullying have become the negative side when teachers' authority and control are not in the right place.

Finally, it can be seen that all teachers support the implementation of BYOD at school with some notes. It is maintained that for a better implementation of BYOD, needed rigorous and robust regulation, regular monitoring, and control from teachers, as well as education of the students and parents toward the fundamental objectives of BYOD implementation, should be well established in the first place.

Acknowledgments

Thanks to Christ Jesus my God and Savior. Mom and dad, thank you for your enduring love and support. You are the best.

References

- Ackerman, A. S., & Krupp, M. L. (2012). Five components to consider for BYOT/BYOD. *International Association for Development of the Information Society*.
- Adhikari, J., Mathrani, A., & Scogings, C. (2016). Bring your own devices classroom: Exploring the issue of digital divide in the teaching and learning contexts. *Interactive Technology and Smart Education, 13*(4), 323-343.
- Adhikari, J., Scogings, C., Mathrani, A., & Sofat, I. (2017). Evolving digital divides in information literacy and learning outcomes. *The International Journal of Information and Learning Technology, 34*(4), 290-306.
- Alexander, S., Barnett, D., Mann, S., Mackay, A., Selinger, M., & Whitby, G. (2013). Beyond the classroom: A new digital education for young Australians in the 21st century.
- Bryman, A. (2016). *Social research methods*. Oxford: Oxford University Press.
- Burns-Sardone, N. (2014). Making the case for BYOD instruction in teacher education. *Issues in Informing Science and Information Technology, 11*(1), 192-200.
- Churchill, R., Godinho, S., Johnson, N., & Keddie, A. (2015). *Teaching: Making a difference* (3rd ed.). Queensland: John Wiley & Sons.
- Cochrane, T., Antonczak, L., Keegan, H., & Narayan, V. (2014). Riding the wave of BYOD: developing a framework for creative pedagogies. *Research in Learning Technology, 22*(1), 24637.
- Creswell, J., & Creswell, D. (2018). *Research design: Qualitative, quantitative & mixed methods approaches*. Thousand Oaks: Sage.
- Cristol, D., & Gimbert, B. (2013). Academic achievement in BYOD classrooms. *QScience Proceedings* (12th World Conference on Mobile and Contextual Learning [mLearn

- 2013]), 15.
- Denzin, N., & Lincoln, Y. (2000). *The handbook of qualitative research* Thousand Oaks: Sage.
- Denscombe, M. (2007). *The good research guide for small-scale social research projects*. London: McGraw-Hill.
- Echols, V., & Tipton, T. (2012). BYOD and the freshman orientation experience-creating an exciting, hi-tech event. *Texas Study Magazine*, 25-28.
- Esterberg, K. (2002). *Qualitative methods in social research*. Boston: McGraw-Hill.
- Gay, L., Mills, G., & Airasian, P. (2012). *Educational research: Competencies for analysis and applications*. New Jersey: Pearson.
- Hill, D. (2016). Transformative education, critical education, Marxist education: Possibilities and alternatives to the restructuring of education in global Neoliberal/Neoconservative times. *Knowledge Cultures*, 4(6).
- Hopkins, N., Sylvester, A., & Tate, M. (2013). *Motivations for BYOD: An investigation of the contents of the 21st century school bag*. Paper presented at the Proceedings of the 21st European Conference on Information Systems (ECIS 2013).
- Hopkins, N., Tate, M., Sylvester, A., & Johnstone, D. (2017). Motivations for 21st century school children to bring their own device to school. *Information Systems Frontiers*, 19(5), 1191-1203. doi:<http://dx.doi.org/10.1007/s10796-016-9644-z>
- Hung, H. T. (2017). Clickers in the flipped classroom: Bring your own device (BYOD) to promote student learning. *Interactive Learning Environments*, 25(8), 983-995. doi:<http://dx.doi.org/10.1080/10494820.2016.1240090>
- Imazeki, J. (2014). Bring-your-own-device: Turning cell phones into forces for good. *Journal of Economic Education*, 45(3), 240-250.
- Janssen, K. C., & Phillipson, S. (2015). Are we ready for BYOD? An analysis of the implementation and communication of BYOD programs in Victorian schools. *Australian Educational Computing*, 30(2), n2.
- Johnson, L., Adams-Becker, S., Estrada, V., & Freeman, A. (2014). *NMC Horizon Report: 2014 K-12 Edition*. Austin, TX: The New Media Consortium. Retrieved from <http://cdn.nmc.org/media/2014-nmc-horizon-report-k12-EN.pdf>
- Kay, R., & Schellenberg, D. (2017). *Integrating a BYOD program in high school English: Advantage or distraction?* Paper presented at the EdMedia: World Conference on Educational Media and Technology 2017, Washington, DC. <https://www.learntechlib.org/p/178297>
- Koh, J. H. L., Chai, C. S., Benjamin, W., & Hong, H. (2015). Technological pedagogical content knowledge (TPACK) and design thinking: A framework to support ICT lesson design for 21st century learning. *The Asia-Pacific Education Researcher*, 24(3), 535-543.
- Maher, D., & Twining, P. (2017). Bring your own device—a snapshot of two Australian primary schools. *Educational Research*, 59(1), 73-88.
- Masilo, G.M., Simelane-Mnisi, S., Mji, A. and Mokgobu, I. (2020). Students' behavioural intention to use mobile device for learning at home in times of COVID-19. *Proceeding Edulearn Virtual Conference*.
- Merriam, S. (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco: Jossey-Bass.

- O'Bannon, B. W., & Thomas, K. M. (2015). Mobile phones in the classroom: Preservice teachers answer the call. *Computers & Education, 85*, 110-122.
- Parsons, D., & Adhikari, J. (2016). Bring your own device to secondary school: The perceptions of teachers, students and parents.
- Pegrum, M., Oakley, G., & Faulkner, R. (2013). Schools going mobile: A study of the adoption of mobile handheld technologies in Western Australian independent schools. *Australasian Journal of Educational Technology, 29*(1).
- Rae, G. (2017). *BYOD (Bring Your Own Device) and its impact on teacher pedagogy: A New Zealand case study*. Retrieved from [https://ir.canterbury.ac.nz/bitstream/handle/10092/13427/MEd thesis - G Rae .pdf?sequence=1](https://ir.canterbury.ac.nz/bitstream/handle/10092/13427/MEd_thesis_-_G_Rae.pdf?sequence=1)
- Rae, G., Dabner, N., & Mackey, J. (2017). Bring your own device (BYOD) and teacher pedagogy in a New Zealand primary school. *Teachers and Curriculum, 17*(2), 53-60.
- Scott, D., & Usher, R. (2011). *Researching education: Data, methods and theory in educational inquiry*. London: Continuum.
- Simelane-Mnisi, S. and Mji, A. (2020). COVID-19 pandemic: opportunities for online learning to unblock the minds of students during lockdown period. *Proceeding Edulearn Virtual Conference*.
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks: Sage.
- Thomas, K., & O'Bannon, B. (2014). *BYOD— as long as your device is not a cell phone! Perspectives from the classroom on cell phones integration*. Paper presented at the Society for Information Technology & Teacher Education International Conference 2014, Jacksonville, Florida, United States. <https://www.learntechlib.org/p/130954>
- Thomas, K. M., O'Bannon, B. W., & Bolton, N. (2013). Cell phones in the classroom: Teachers' perspectives of inclusion, benefits, and barriers. *Computers in the Schools, 30*(4), 295-308. doi:10.1080/07380569.2013.844637
- Yin, R. (2014). *Case study research: Design and methods* Thousand Oaks: Sage.



UPH PRESS

Penerbit UPH Press
Kampus Universitas Pelita Harapan
Gedung C Lantai 3
Jl. MH. Thamrin 1100 Lippo Village
Karawaci, Tangerang 15811

ISBN 978-602-5859-17-5 (PDF)

