



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of Social Sciences
and Humanities



POSE 2022

POSTGRADUATE SEMINAR IN EDUCATION

P R O C E E D I N G

Sustainability, Education & Digitalization

School of Education Research Study Task Force
School of Education, Faculty of Social Sciences and Humanities,
Universiti Teknologi Malaysia, 81310 Skudai, Johor MALAYSIA

<https://humanities.utm.my/pose22/>

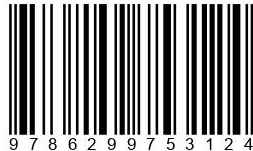
First Edition 2022

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e ISBN 978-629-97531-2-4



POSTGRADUATE SEMINAR
IN EDUCATION 2022

Diterbitkan di Malaysia oleh/*Published in Malaysia by:*

Research Study Task Force,
School of Education,
Faculty of Social Sciences and Humanities,
Universiti Teknologi Malaysia,
81310 Skudai, Johor MALAYSIA
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Foreword



Assalamualaikum wbth, and warm greetings to all,

Welcome to the 1st Postgraduate Seminar in Education (POSE) 2022!

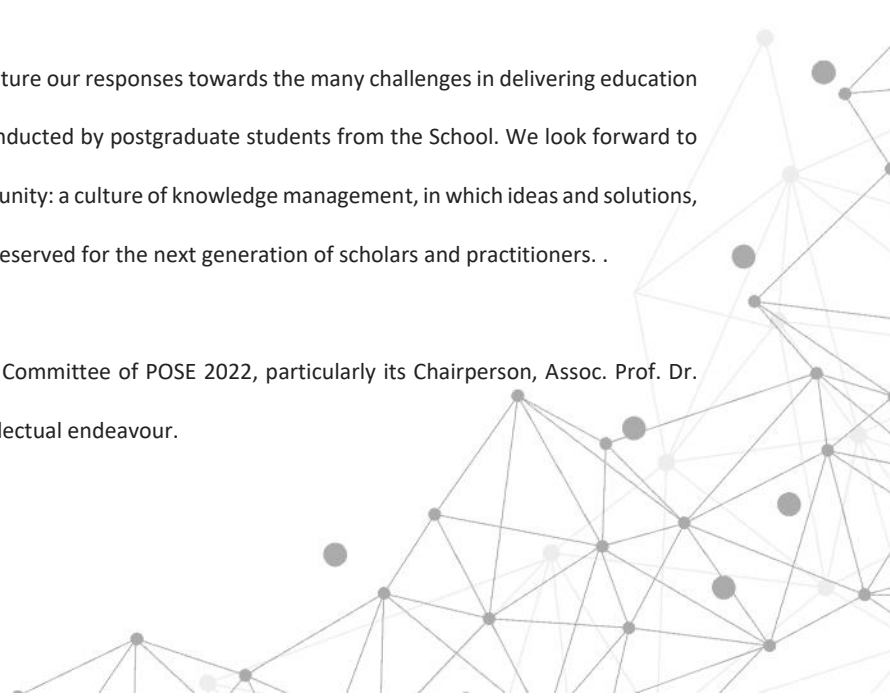
Through POSE, we wish to provide exposure for postgraduate students at the School of Education, Faculty of Social Sciences and Humanities (FSSH), UTM on the culture of knowledge exchange in academia, in particular the notion of attending and/or presenting in seminars and colloquiums to solicit feedback from peers and experts, as well as the preparation of proceeding for publication.

Even though POSE is a faculty-level initiative, it is our hope that POSE will be the start of a scholarly tradition for students and academics at the School of Education for years to come. Knowledge exchange - both verbally and in written format - is an integral component in the life of scholars and researchers. It is through active and collegial discussions that new ideas are generated, and widely acknowledged concepts are contested.

As an experiment, the 1st POSE is conducted online. This format introduces an integral theme that emerges in a post-pandemic world: the need to ensure accessibility of knowledge exchange opportunities to all, irrespective of presence and space. The theme of this year's seminar, "Sustainability, Education, & Digitalization" is of great relevance to us, as we reimagine a world that is more humane and just for students and peers within the education sector.

This proceeding documents sample projects that feature our responses towards the many challenges in delivering education post-pandemic, through research study projects conducted by postgraduate students from the School. We look forward to yet another first for the postgraduate student community: a culture of knowledge management, in which ideas and solutions, no matter how big or small, are documented and preserved for the next generation of scholars and practitioners. .

Thanks to all keynote speakers and the Organising Committee of POSE 2022, particularly its Chairperson, Assoc. Prof. Dr. Zaleha Abdullah, for pioneering this wonderful intellectual endeavour.



1st POSE 2022 Committee

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Seminar Schedule

<https://humanities.utm.my/pose22/>

8.30 am	Registration / online attendance
9.00 am	Opening Ceremony of the POSE2022 <ul style="list-style-type: none">• Doa Recitation• Opening Address from the Chair, School of Education• Welcoming speech by the Organizing Chair
10.00 am	Speaker I : Prof. Dr. Widad Othman
11.30 am	Short Break
11.45 am	Speaker II : Assoc. Prof Dr. Noraffandy Yahya
1.00 pm	Lunch Break
2.00 pm	Paper presentations on: https://humanities.utm.my/pose22/presentation/ <ul style="list-style-type: none">• Digital Learning• New Frameworks in Teaching & Learning• Learning Assessment• Quality Education and Community Wellbeing• Strategic Collaboration in Education• Institutional Ecosystem, Governance, and Education Policy
5.00 pm	Closing Speech by Organizing Chair END OF SEMINAR



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Acknowledgements

The 1st POSE 2022 Committee would like to thank the following for their contribution to this event:

- School of Education, FSSH, Universiti Teknologi Malaysia for financial contributions and administrative support,
- Distinguished keynote speakers and presenters for their time and knowledge sharing,
- Participants for their active participation.

Also, thank you to anyone who may have been directly or indirectly involved in organising this event. Your effort and contributions are greatly appreciated and may Allah bless all of us.

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Extended Abstracts



KESEDIAAN MURID TERHADAP PENGAJARAN DAN PEMBELAJARAN DALAM TALIAN SEMASA PANDEMIK COVID-19

Choo Yih Teen¹, Megat Aman Zahiri bin Megat Zakaria²

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ABSTRAK

Kajian dijalankan untuk meninjau tahap kesediaan murid terhadap PdP dalam talian semasa Pandemik Covid-19. Kajian kuantitatif ini melibatkan 105 murid Tingkatan Enam aliran STEM dari sekolah-sekolah menengah negeri Sarawak. Instrumen kajian ialah borang soal selidik dalam talian yang terdiri daripada tiga bahagian dan 40 item. Pensampelan rawak bertujuan digunakan untuk memilih sampel daripada 11 buah sekolah menengah negeri Sarawak. Seterusnya, tahap kesediaan murid Tingkatan Enam terhadap PdP dalam talian dikaji berdasarkan lima aspek. Murid Tingkatan Enam aliran STEM menunjukkan Kesediaan Teknologi (KT) yang tinggi dengan min 3.20. Aspek kesediaan lain adalah pada tahap sederhana, iaitu Pembelajaran Kendiri (PK), 2.97; Kawalan Pembelajaran (KP), 2.94; Motivasi Pembelajaran (MP), 2.79 dan Komunikasi Dalam Talian (KDT), 2.69. Secara keseluruhannya, kesediaan PdP dalam talian murid adalah pada tahap sederhana dengan purata min 2.92. Ujian Mann-Whitney U dilaksanakan untuk membandingkan tahap kesediaan mengikut jantina. Skor signifikan kajian ini ialah, $p=0.801$, ($p>0.05$) dan ini menunjukkan tidak terdapat perbezaan yang signifikan antara murid lelaki dan perempuan dalam tahap kesediaan PdP dalam talian. Ujian Korelasi Spearman pula mendapati terdapat hubungan yang signifikan antara pencapaian akademik (nilai PNGK Peperiksaan STPM Semester 2 Sesi 2021) dengan tahap kesediaan PdP dalam talian (purata min kesediaan), dengan nilai korelasi 0.211 dan nilai $p=0.031$, di mana $p<0.05$. Walau bagaimanapun, korelasi ini berlaku pada tahap yang rendah. Kesimpulan daripada kajian ini juga mendapati majoriti murid menggunakan peranti mudah alih seperti telefon bimbit dan komputer riba. Alat pembelajaran dalam talian yang kerap digunakan adalah seperti Google Meet, Telegram, Google Classroom, Whatsapp, dan Zoom.

Keywords: Pengajaran dan Pembelajaran dalam Talian; Pandemik Covid-19; Kesediaan Murid; Alat Pembelajaran dalam Talian

1. PENGENALAN

Pandemik Covid-19 telah membawa perubahan yang ketara dalam era pendidikan sedunia sejak bulan Mac 2020. Demi memastikan penjarakan sosial untuk menghindar penularan jangkitan Covid-19 dalam kalangan murid atau pelajar di institusi pendidikan secara berkesan, penutupan institusi pendidikan diambil tindakan. Para guru dan murid sekolah tidak diberikan masa persediaan atau pilihan untuk berubah. Anjakan sistem pendidikan secara mendadak ini juga dikenali sebagai kejutan pendidikan. Namun demikian, Warfvinge et al. (2021) mengatakan bahawa dunia pendidikan perlu mengambil pengajaran daripada impak pandemik ini dan menjana kesediaan yang lebih menyeluruh agar berupaya menghadapi cabaran masa depan yang tidak menentu [1]. Maka, kajian ini dilaksanakan untuk memberikan kefahaman yang lebih menyeluruh kepada penyelidik atau pendidik dalam merancang strategi pengajaran dan pembelajaran (PdP) STEM masa depan. Keberkesanan pembelajaran murid diukur dengan tahap pencapaian akademik murid dalam peperiksaan awam, STPM Semester 2 Sesi 2021. Menurut Tang et al. (2021), kesediaan murid terhadap PdP dalam talian semasa Pandemik Covid-19 merujuk kepada lima aspek utama, iaitu (i) Pembelajaran Kendiri (PK), (ii) Komunikasi Dalam Talian (PDT), (iii) Kesediaan Teknologi (KT), (iv) Kawalan Pembelajaran (KP) dan (v) Motivasi Pembelajaran (MP) [2]. Keberkesanan pembelajaran dari segi nilai PNGK sebagai penentu pencapaian peperiksaan STPM sebenar dan kekerapan penggunaan alat pembelajaran dalam talian telah dikaji. Objektif kajian ini adalah untuk:

- i. Mengenal pasti tahap kesediaan murid Tingkatan Enam terhadap pengajaran dan pembelajaran dalam talian semasa Pandemik Covid-19 di sekolah menengah berdasarkan lima aspek, iaitu
 - a. Pembelajaran Kendiri (PK)
 - b. Komunikasi Dalam Talian (KDT)
 - c. Kesediaan Teknologi (KT)
 - d. Kawalan Pembelajaran (KP)
 - e. Motivasi Pembelajaran (MP)
- ii. Mengukur sama ada terdapat perbezaan yang signifikan antara murid lelaki dan perempuan dalam tahap kesediaan PdP dalam talian.
- iii. Mengenal pasti hubungan antara tahap kesediaan PdP dalam talian dengan pencapaian akademik.
- iv. Meninjau kekerapan penggunaan alat pembelajaran dalam talian dalam kalangan murid tingkatan enam.

Hipotesis kajian bagi objektif (ii) dan (iii) disenaraikan seperti berikut:

H₀₁: Tidak terdapat perbezaan yang signifikan antara murid lelaki dan perempuan dalam tahap kesediaan PdP dalam talian.

H_{a1}: Terdapat perbezaan yang signifikan antara murid lelaki dan perempuan dalam tahap kesediaan PdP dalam talian.

H₀₂: Tidak terdapat hubungan yang signifikan antara kesediaan PdP dalam talian dengan pencapaian akademik.

H_{a2}: Terdapat hubungan yang signifikan antara kesediaan PdP dalam talian dengan pencapaian akademik.

2. INSTRUMEN KAJIAN DAN METODOLOGI

Secara rasionalnya, kajian ini berbentuk tinjauan diskriptif yang menggunakan kaedah soal selidik berskala 4 liket. Proses pengesahan item bagi setiap bahagian soal selidik akan dilakukan oleh penyelia, dua pensyarah kanan dalam bidang teknologi pendidikan, seorang pegawai dari Jabatan Pendidikan Negeri Kelantan dan seorang guru Bahasa Melayu yang berpengalaman bagi memantapkan kesahan item soal selidik yang dibina. Secara keseluruhannya, 40 item dalam borang soal selidik ini digunakan untuk mengumpul data mentah daripada responden secara dalam talian dengan *Google Form*. Populasi yang terpilih oleh penyelidik dalam kajian ini terdiri daripada 138 orang murid STEM yang bertabur dari 11 sekolah-sekolah menengah di negeri Sarawak secara rawak. Teknik pensampelan bertujuan (*purposive sampling*) digunakan. *Link* soal selidik diagihkan kepada 11 sekolah menengah yang menawarkan pakej STEM tingkatan enam. Seramai 105 responden telah memberi maklum balas dalam kajian ini.

2.1. Kajian Rintis

Dengan bantuan guru di Kolej Tingkatan Enam Tun Fatimah, Melaka dan Kolej Tingkatan Enam Kulim, Kedah, seramai 37 orang murid tingkatan enam aliran STEM dipilih secara rawak untuk menjawab soalan dalam talian. Responden ini tidak terlibat dalam kajian sebenar. Daripada analisis data dapatan kajian rintis, nilai kepercayaan Alpha Cronbach bagi 40 item soal selidik tentang tahap kesediaan ialah 0.888. Hal ini menunjukkan bahawa semua item soal selidik yang dibina adalah sesuai digunakan dalam kajian dan mempunyai kepercayaan yang tinggi. Validasi instrumen soal selidik dilakukan untuk meningkatkan kebolehpercayaan dan kesahan data yang dikumpul. Kesahan dan kebolehpercayaan nilai PNGK peperiksaan awam STPM adalah tinggi dan dikawal oleh Majlis Peperiksaan Malaysia (MPM). Data yang

dikumpulkan daripada maklum balas responden akan dianalisis dan diproses dengan program perisian komputer Statistical Packages For the *Social Sciences (SPSS) Versi 23 for Windows*.

3. KEPUTUSAN DAN PERBINCANGAN

3.1. Kesyediaan Murid

Seramai 105 orang responden memberikan maklum balas dalam borang soal selidik dalam talian. Terdapat 45 orang murid lelaki (42.9%) dan 60 orang murid perempuan (57.1%). Min nilai PNGK ialah 2.65 dengan sisihan piawai 0.835, iaitu nilai minimum dan maksimum PNGK ialah 0.25 dan 4.00. Dalam Jadual 1, tahap kesediaan yang paling rendah pada aspek Komunikasi Dalam Talian dan diikuti oleh aspek Motivasi Pembelajaran. Kesyediaan murid tingkatan enam dalam aspek Kawalan Pembelajaran dan Pembelajaran Kendiri menunjukkan min 2.94 dan 2.97 merupakan nilai yang mendekati tahap tinggi. Namun demikian, murid tingkatan enam didapati menunjukkan kesediaan paling tinggi pada aspek Kesyediaan Teknologi. Murid tingkatan enam bersedia untuk menguasai teknologi terkini demi menghadapi cabaran PdP dalam talian. Rumusannya, purata min kesediaan murid ialah 2.92, iaitu pada tahap sederhana.

Jadual 1. Rumusan Min Purata Kesyediaan Murid

Aspek Kesyediaan	Min	Sisihan Piawai	Tahap
Pembelajaran Kendiri (PK)	2.97	0.488	Sederhana
Komunikasi Dalam Talian (KTD)	2.69	0.691	Sederhana
Kesyediaan Teknologi (KT)	3.20	0.473	Tinggi
Kawalan Pembelajaran (KP)	2.94	0.565	Sederhana
Motivasi Pembelajaran (MP)	2.79	0.612	Sederhana
Tahap Kesyediaan Keseluruhan	2.92	0.421	Sederhana

Nilai Min (Rendah = 1.00 - 2.00; Sederhana = 2.01 - 3.00; Tinggi = 3.01 - 4.00)

3.2. Perbezaan Jantina Murid

Data yang dikumpul daripada 45 murid lelaki dan 60 murid perempuan telah dianalisis taburan min kesediaan dan ditunjukkan dalam Jadual 2 dan seterusnya Ujian Normaliti juga dilakukan terhadap data purata min dengan peranti *SPSS 23 for windows*. Didapati data diperolehi dalam bentuk taburan tidak normal (Jadual 3), di mana $p=0.005$ ($p<0.05$) dalam analisis *Shapiro-Wilk*. Jadi, analisis seterusnya perlu diteruskan dengan Ujian Statistik Bukan Parameter, iaitu *Mann-Whitney U*. Dirumuskan dalam Jadual 4 bahawa skor signifikan Ujian Mann-Whitney U ialah, $p=0.801$ ($p>0.05$). H_{01} gagal ditolak kerana tidak terdapat perbezaan yang signifikan antara murid lelaki dan perempuan dalam kesediaan PdP dalam talian.

Jadual 2. Taburan Min Kesyediaan Murid Mengikut Jantina

Jantina	Peratus, %	Min	Sisihan Piawai	Tahap
Lelaki	42.9	2.89	0.485	Sederhana
Perempuan	57.1	2.93	0.371	Sederhana
Jumlah	100.0	2.92	0.421	Sederhana

Nilai Min (Rendah = 1.00 - 2.00; Sederhana = 2.01 - 3.00; Tinggi = 3.01 - 4.00)

Jadual 3. Analisis Ujian Normaliti Data Min Kesyediaan

Ujian Normaliti						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistik	df	Sig.	Statistik	df	Sig.
Purata Min Kesyediaan	0.072	105	0.200	0.963	105	0.005
a. Lilliefors Significance Correction						

Jadual 4. Analisis Ujian Mann-Whitney U Data Min Kesediaan Mengikut Perbezaan Jantina

Jantina	Bilangan	Min	Sisihan Piawai	Nilai Z	Nilai P
Lelaki	45	2.89	0.485	-0.253	0.801
Perempuan	60	2.93	0.371		

3.3. Hubungan Kesediaan Murid dengan Pencapaian Akademik

Seterusnya, korelasi hubungan antara tahap kesediaan murid tingkatan enam terhadap PdP dalam talian semasa Pandemik Covid-19 dengan pencapaian akademik STPM Semester Dua Sesi 2021. Nilai PNGK merupakan skala ordinal. Merujuk kepada Jadual 5, analisis data daripada 105 responden, nilai korelasi antara nilai NPGK dengan min kesediaan ialah 0.211. Nilai $p=0.031$, di mana $p < 0.05$. Maka, H_0 ditolak. Terdapat hubungan yang signifikan antara nilai PNGK dengan kesediaan. Nilai koefisien korelasi 0.211 merupakan positif korelasi yang rendah. Jadi, dirumuskan bahawa terdapat hubungan yang signifikan antara nilai NPGK dengan min kesediaan pada tahap korelasi yang rendah.

Jadual 5. Analisis Ujian Korelasi Spearman Bagi Nilai PNGK dengan Min Kesediaan

Nilai Spearman's rho	0.211
Sig. (2 tailed)	0.031

3.4. Alat Pembelajaran Dalam Talian

Didapati majoriti murid tingkatan enam menggunakan telefon bimbit (89.5%) semasa pengajaran dan pembelajaran dalam talian semasa Pandemik Covid-19. Hal ini diikuti dengan komputer riba (85.7%), tablet atau ipad (12.4%) dan desktop atau PC (10.5%) untuk pembelajaran. Jadi, boleh dirumuskan peranti mudah alih seperti telefon bimbit dan komputer riba merupakan pilihan murid semasa pembelajaran. Selain itu, rangkaian internet yang digunakan oleh murid tingkatan enam talian ialah Unifi atau Streamyx (81.9%) dan diikuti dengan Data atau Hotspot telefon (69.5%). Tiada penggunaan broadband dikumpulkan. Majoriti murid memiliki kedua-dua rangkaian internet Unifi atau Streamyx dan Data atau Hotspot. Kajian ini juga menunjukkan bahawa 100% daripada 105 orang murid tingkatan enam aliran STEM (responden) telah memilih alat pembelajaran *Google Meet* dalam PdP dalam talian semasa Pandemik Covid-19. Analisis data diikuti dengan 83.8% *Telegram*, 69.5% *Google Classroom*, 55.0% *Whatsapp*, 52% *Zoom*, 35.2% rakaman video, 30.5% *Kahoot!*, 26.7% rakaman audio, 16.2% emel, 10.5% *wechat*, 6.7% *webex*, 6.7% *Facebook* atau *Meta*, 3.8% *Messenger* dan *Microsoft Teams*, dan 1.9% *Padlet*. Justeru, guru digalakkan merancang PdP dalam talian dengan platform *Google Meet*.

4. KESIMPULAN

Dengan ini dirumuskan bahawa objektif-objektif kajian yang telah tercapai melalui kajian ini. Tahap kesediaan murid tingkatan enam terhadap PdP dalam talian semasa Pandemik Covid-19 di sekolah-sekolah menengah negeri Sarawak adalah pada tahap yang sederhana dan tiada perbezaan yang signifikan antara murid lelaki dan perempuan. Namum, terdapat hubungan yang signifikan antara kesediaan PdP dalam talian dengan pencapaian akademik yang diukur dengan nilai PNGK Peperiksaan STPM Semester 2 Sesi 2021. Namum, korelasi hubungan antara kesediaan PdP dalam talian dengan pencapaian akademik adalah pada tahap yang rendah. Akhir sekali, penggunaan alat pembelajaran dalam talian yang paling popular ialah *Google Meet* dan diikuti dengan *Telegram*, *Google Classroom*, *Whatsapp* dan *Zoom*. Alat pembelajaran dalam talian lain yang juga digunakan ialah rakaman video, *Kahoot!*, rakaman audio, emel, *wechat*, *webex*, *facebook* atau *meta*, *messenger*, *microsoft teams* dan *Padlet*. Murid tingkatan enam aliran STEM didapati tidak mengalami kekurangan dalam peranti PdP dalam talian.

Majoriti murid menggunakan peranti mudah alih seperti telefon bimbit dan komputer riba. Rangkaian internet yang selalu digunakan ialah unifi atau streamyx dan data atau hotspot. Selain itu, kesediaan teknologi murid adalah tinggi. Kajian lanjutan perlu dilaksanakan demi meningkatkan proses pembudayaan teknologi pendidikan dalam kalangan murid walaupun PdP bersemuka telah dikembalikan pada zaman endemik kini.

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THE IMPACT OF ONLINE FLIPPED-CLASSROOM, PROBLEM-BASED LEARNING AND TWO-WAYS REFLECTION ON STUDENT ACHIEVEMENT AND MOTIVATION

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ABSTRACT

Online teaching and learning have gained its popularity after the Covid-19 pandemic. Flipped classroom maximises the use of online face-to-face learning time. Teachers are able to allocate more time for in-class discussions and engage the students with pre-lesson materials during the out-of-class sessions. Flipped classroom model alone has limited effect on achievement and motivation of students in highly structured subject such as chemistry. Active learning strategies such as problem-based learning (PBL) and self-reflections improve academic achievement and motivation of students. This study implemented online flipped classroom in combination of PBL activities (FPBL) and two-ways reflection (RR). The purpose of this study is to find out the effect of FPBL+ RR approach towards the achievement and motivation among secondary school students in chemistry online lessons. This study proposes a new knowledge to education through two-ways reflection (RR) within the online flipped classroom with PBL. This study, hence, will help teachers in understanding the effect of using FPBL+ RR towards achievement and motivation in online chemistry teaching and learning. Teachers would be able to craft online flipped classroom lessons that are highly motivating the students and ultimately encourage them to perform well academically. FPBL + RR will also help the teachers in implementing effective online courses having online flipped classroom as an alternative to traditional online face-to-face (OFTF) teaching post Covid-19 pandemic. This study was conducted using quasi-experimental study between control group (n=20) with traditional OFTF approach and treatment group (n=24) with FPBL+ RR approach. FPBL + RR showed no significant improvements compared to OFTF approach in terms of academic achievement. Out of the seven factors of motivation measured, FPBL + RR showed significant improvement in two extrinsic non-autonomous motivation factors. They are external regulation and introjected regulation. This study bridges the gaps in the study of flipped classroom by involving secondary school students, exploring more on the effect of flipped classroom towards motivation factors and proposing a structured form of flipped classroom to improve online chemistry learning through a new innovation namely two-ways reflection (RR).

Keywords: Flipped-classroom; problem-based learning (PBL); two-ways reflection

1. INTRODUCTION

There is no doubt that flipped classroom (FC) model improves the academic achievements of students and motivation based on various studies done by researchers over the years. However, contradictory to common assumptions, FC only has a moderate positive impact on student performance and it varies according to discipline (Strelan, Osborn and Palmer, 2020). There are insufficient evidences to generalise that FC improves academic achievement and motivation (Akçayır & Akçayır, 2018).

According to Jensen et al. (2015), the main component in FC is active in-class activities like problem-based learning (PBL) for academic achievement and motivation. The pandemic situation has forced many educators to use online flipped classroom (OFC) and it resulted in larger variation or polarisation in

students' performance (St€ Ohr, Demazi, Ere and Adawi, 2020). In simple terms, some students perform better in OFC but some students struggled.

In a study conducted Lin, Hsia and Hwang (2021), flipped classroom (FC) with self-reflection activities promotes performance in the subject and intrinsic motivation. Yusuff (2015) quoted that self-reflection improves academic performance, deep learning and confidence in critical thinking. However, previous studies did not apply two-ways reflection (RR). RR is a new contribution of knowledge in online flipped classroom (OFC) setting. RR is basically reflection done twice. The first reflection is done individually during out-of-class session and the second reflection is done collaboratively during in-class session. The inclusion of PBL with two-ways reflection (RR) in OFC has a potential in increasing academic achievement and motivation of the students especially in chemistry.

Most of the studies done on flipped classroom (FC) focus on achievement and there is a need to explore on other learning outcomes such as motivation (Akçayır & Akçayır, 2018). Furthermore, there are limited studies done regarding online flipped classroom (OFC) in chemistry subject especially in secondary level education. OFC in combination of PBL activities (FPBL) and two-ways reflection (RR) has the potential to improve academic achievement and motivation than traditional online face-to-face lesson. Therefore, the purpose of this study is to find out the effect of FPBL+ RR approach towards the achievement and motivation among secondary school students in chemistry online lessons.

2. MATERIALS AND METHODS

A quasi-experimental design with pre-tests and post-tests is used on 44 Junior College 2 (JC2) students from Bina Bangsa School Pantai Indah Kapuk in Jakarta, Indonesia. Treatment group (n=24) is assigned with FPBL + RR learning and control group (n=20) is assigned with traditional online face-to-face learning (OFTF). Pre-lesson materials such as videos, notes and PBL worksheets were prepared to be used during the out-of-class and in-class activities. The pre-lesson materials would guide the students in self-directed learning in preparing for the PBL discussions during in-class sessions. Self-reflection is done in out-of-class session and group self-reflection is done during in-class session. Group discussions, presentations and online quizzes were done during the in-class sessions. These out-of-class and in-class sessions cycles were repeated during the six weeks until the learning outcomes for the chapters were achieved. Chapter tests were administered online as post-tests after each topic.

Academic motivation scale- chemistry (AMS-Chemistry), an instrument based on self-determination theory (SDT) was used in this study to evaluate students' motivation. This instrument was modified by Yajuan Liu et al. (2017) using academic motivation scale initially proposed by Vallerand et al. (1992). This modified AMS-Chemistry questionnaire is a 20-item questionnaire which uses five-point-Likert scale from 1 for "strongly disagree" to 5 for "strongly agree".

3. RESULTS AND DISCUSSION

Table 1 shows the results from the analysis using the Wilcoxon Signed Rank test for the pre-test and post-test within the control group which used the online face-to-face (OFTF) approach. The Asymp. Sig. (2-tailed) value of 0.681 ($p > 0.05$), and therefore there is no significant change towards the mean marks for the achievement tests between the pre-test and post-test among the control group which used the OFTF approach.

Table 1 Wilcoxon Signed Rank Asymp. Sig. (2-tailed) for the pre-test and post-test within the control group which used the OFTF approach

Test Statistics ^a	Control Posttest-ControlPretest
Z	-0.411 ^b
Asymp. Sig. (2-tailed)	0.681

a. Wilcoxon Signed Ranks Test b. Based on positive ranks.

Table 2 shows the results from the analysis using the Wilcoxon Signed Ranked test for the pre-test and post-test within the treatment group which used the FPBL + RR approach in online chemistry lessons. The Asymp. Sig. (2-tailed) value of 0.262 ($p > 0.05$), and therefore there is no significant change towards the mean marks for the achievement tests between the pre-test and post-test among the treatment group which used the FPBL + RR approach in online chemistry lessons.

Table 2 Wilcoxon Signed Rank Asymp. Sig. (2-tailed) for the pre-test and post-test within the treatment group which used the FPBL + RR approach

Test Statistics ^a	Treatment Posttest-Treatment Pretest
Z	-1.121 ^b
Asymp. Sig. (2-tailed)	0.262

a. Wilcoxon Signed Ranks Test b. Based on negative ranks.

The results for the independent t-test for the post-test marks for the treatment and the control group showed the Sig. (2-tailed) value of 0.323 ($p > 0.05$) and therefore there is no significant change towards the mean marks for the post-test marks for achievement between the treatment group which went through the FPBL + RR approach and the control group which went through the traditional method during their online chemistry lessons.

All the 14 comparisons made between the control and the treatment group show the Asymp. Sig. (2-tailed) value of more than the alpha value of 0.05 ($p > 0.05$) and therefore there is no significant change towards the mean motivation scores between the control group using the OFTF approach and the treatment group which used the FPBL + RR approach for all the seven factors of motivation.

Table 3 shows the results from the analysis using the Wilcoxon Signed Ranked test for the pre-test and post-test within the control group which used the OFTF approach. The Asymp. Sig. (2-tailed) value of more than the alpha value of 0.05 ($p > 0.05$) was obtained for all the seven factors of motivation, and therefore there is no significant change towards the mean motivation score between the pre-test and post-test among the control group which used the OFTF approach for all the seven factors of motivation.

Table 3 Wilcoxon Signed Rank Test for pre-test and post-test of control group according to motivation factors

Test Statistics ^a	Post_AMOT - Pre_AMOT	Post_EREG - Pre_EREG	Post_IREG - Pre_IREG	Post_IDREG - Pre_IDREG	Post_TEX - Pre_TEX	Post_TACC - Pre_TACC	Post_TK - Pre_TK
Z	-.451 ^b	-1.836 ^b	-1.552 ^b	-1.139 ^b	-1.186 ^b	-1.552 ^b	-1.873 ^b
Asymp. Sig. (2-tailed)	.652	.066	.121	.255	.236	.121	.061

a. Wilcoxon Signed Ranks Test b. Based on negative ranks

Abbreviations: AMOT: Amotivation, EREG: External regulation, IREG: Introjected regulation, IDREG: Identified regulation, TEX: To experience, TACC: To accomplish, TK: To know

Table 4 shows that the Asymp. Sig. (2-tailed) value of less than the alpha value of 0.05 ($p < 0.05$) for external regulation significant and introjected regulation factors. The other factors have the alpha value of more than 0.05. The null hypothesis (H_0) is rejected for external regulation and introjected regulation factors. There is no significant change towards the mean motivation score between the pre-test and post-test among the treatment group which used the FPBL + RR approach for the following factors namely amotivation, identified regulation, to experience, to accomplish and to know. In contrary, there is a significant improvement in the mean motivation score between the pre-test and post-test among the treatment group for the two factors namely external regulation significant and introjected regulation.

Table 4 Wilcoxon Signed Rank Test for pre-test and post-test of treatment group according to motivation factors

Test Statistics ^a	Post_AMOT - Pre_AMOT	Post_EREG - Pre_EREG	Post_IREG - Pre_IREG	Post_IDREG - Pre_IDREG	Post_TEX - Pre_TEX	Post_TACC - Pre_TACC	Post_TK - Pre_TK
Z	-.731 ^b	-2.428 ^b	-2.053 ^b	-1.356 ^b	-1.272 ^b	-1.598 ^b	-1.675 ^b
Asymp. Sig. (2-tailed)	.465	.015	.040	.175	.204	.110	.094

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Abbreviations: AMOT: Amotivation, EREG: External regulation, IREG: Introjected regulation, IDREG: Identified regulation, TEX: To experience, TACC: To accomplish, TK: To know

4. CONCLUSION

FPBL + RR approach does not significantly improve the academic achievement of the students taking chemistry online. FPBL + RR approach has significant improvement in external regulation and introjected regulation motivation factors. Future researches may focus on a broad coverage of chemistry topics and non-structured subjects like humanities and languages.

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PELAKSANAAN E-PEMBELAJARAN DALAM KALANGAN GURU SEJARAH BAGI TAJUK KEMERDEKAAN PERSEKUTUAN TANAH MELAYU TINGKATAN 4 SEKOLAH MENENGAH

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ABSTRAK

Kajian ini bertujuan untuk mengkaji Pelaksanaan E-Pembelajaran dalam kalangan guru Sejarah bagi Tajuk “Kemerdekaan Persekutuan Tanah Melayu”. Selain itu, kajian ini juga bertujuan untuk mengkaji jenis-jenis E-Pembelajaran yang digunakan oleh guru Sejarah, tahap kemahiran penggunaan E-Pembelajaran guru Sejarah, perbezaan tahap kemahiran penggunaan E-Pembelajaran guru Sejarah berdasarkan opsyen, kaedah-kaedah pengajaran Sejarah, cabaran dan kaedah penyelesaian dalam E-Pembelajaran. Reka bentuk yang digunakan dalam kajian ini adalah reka bentuk gabungan, gabungan kuantitatif dan kualitatif. Seramai 40 orang guru Sejarah tingkatan 4, 5 dan 6 Sekolah Menengah Kebangsaan daerah Kulai telah terlibat dalam kajian ini. Instrumen yang digunakan dalam kajian ini ialah soal selidik. Kajian ini dianalisis menggunakan perisian *Statistical Package for the Social Science* (SPSS) berbentuk statistik deskriptif iaitu peratusan, kekerapan dan min. Kajian ini juga menggunakan kaedah analisis tematik dalam menganalisis data. Dapatan utama adalah jenis-jenis E-Pembelajaran dikenal pasti (*Google Meet* sebagai aplikasi E-Pembelajaran yang digunakan utama dalam pengajaran), tahap kemahiran guru menurut persepsi responden adalah tinggi, tiada perbezaan signifikan tahap kemahiran antara guru opsyen Sejarah dan guru bukan opsyen Sejarah dan kaedah pengajaran yang pelbagai serta cabaran pengajaran guru pada tahap yang sederhana. Kajian ini mampu memberikan gambaran awal dari segi pemilihan E-Pembelajaran, tahap kemahiran yang perlu dikuasai, kaedah pengajaran yang sesuai digunakan bersama E-Pembelajaran dan cabaran pengajaran yang akan dihadapi kepada para guru Sejarah supaya mereka dapat menjana idea dan menghasilkan cara penyelesaian tersendiri secara kreatif dan inovatif semasa menjalankan pengajaran melalui E-Pembelajaran.

Keywords: E-Pembelajaran, guru Sejarah, Tajuk “Kemerdekaan Persekutuan Tanah Melayu”

1. PENGENALAN

Pendidikan Sejarah amat dititikberatkan dan dimulakan sebagai Pendidikan Tradisional Melayu sejak abad ke-17. Mata pelajaran Sejarah merupakan subjek yang amat mencabar guru dalam pengajaran. Guru Sejarah memerlukan kaedah dalam membangkitkan semangat dan menarik minat dalam belajar Sejarah (Nur Syazwani et al, 2016). Ia akan menambah kesusahan apabila menggunakan E-Pembelajaran. Tajuk “Kemerdekaan Persekutuan Tanah Melayu” merupakan antara tajuk yang amat dititikberatkan di dalam Dokumen Standard Kurikulum dan Pentaksiran (DSKP) Tingkatan Empat, menengah atas. Tajuk ini amat penting kerana ia meliputi sejarah kemerdekaan negara kita yang tercinta. Tajuk ini meliputi beberapa subtopik termasuk Usaha-usaha ke arah kemerdekaan, Pilihan Raya, Perlembagaan Persekutuan Tanah Melayu 1957 dan Pemasyhuran Kemerdekaan Tanah Melayu (KSSM DSKP Sejarah Tingkatan 4, 2021).

E- Pembelajaran amat diperlukan dalam pengajaran pada zaman moden ini. *Google Classroom* dapat memberikan sokongan terhadap pelaksanaan proses pengajaran dan pembelajaran kelas pintar. Selain menjadi platform atau medium untuk melaksanakan Proses Pembelajaran Abad ke-21 (PAK-21), ia juga memberi kesan dan keberkesanan positif terhadap hasil pembelajaran pelajar. Platform pembelajaran

mengembangkan strategi pembelajaran berpusatkan pelajar berdasarkan kursus yang telah ditetapkan (Seuk, Seuk, Sedigheh dan Ainin, 2019). Penggunaan *WhatsApp Messenger* dalam pengajaran dan pembelajaran telah membolehkan guru dan pelajar menghantar pelbagai mesej dalam bentuk teks, gambar, video, mesej audio dan sebagainya, secara individu atau berkumpulan dengan kelajuan tinggi melalui Internet (Said, 2015); Izyani dan Mohamed Amin, 2016), selain kemungkinan membentuk proses komunikasi yang berkesan dan media digital untuk literasi (Normazini, Alavia dan Vavara, 2018; Muhammed Wildan dan Prarasta, 2019; Mwakapina, Mhandeni dan Ninondi, 2016). Aplikasi *Telegram* berbeza dengan aplikasi *WhatsApp Messenger* kerana semua anggota *Telegram* dapat menambahkan ahli lain dalam jangka masa yang singkat kerana semua ahli mempunyai kuasa dalam mengawal kumpulan berbanding *Whatsapp* (Tuan Shariffah Khairiah Tuan Kechil dan Mohd Mahzan Awang, 2021). Namun, E-Pembelajaran masih belum dikuasai dan digunakan penuh oleh para pendidik dalam pelaksanaan pengajaran mereka. Dalam hal ini, terdapat satu persoalan yang dicetuskan melalui penggunaan E-Pembelajaran ini, iaitu tahap kemahiran guru Sejarah dalam menggunakan E-Pembelajaran. Bagi guru Sejarah yang jarang atau tidak pernah menggunakan E-Pembelajaran, tahap kemahiran menggunakan E-Pembelajaran adalah agak rendah dan akan mempengaruhi kualiti pengajaran melalui E-Pembelajaran. Berdasarkan kajian Rachel Lyne G. Pius *et al.* (2021), guru Sejarah tidak mempunyai kemahiran yang mencukupi untuk mengendalikan kelas maya ini pada tahap yang efektif dalam sesi pengajaran dan pembelajaran. Bagi mereka penggunaan aplikasi *Google Classroom* sangat sukar untuk diterima sebagai satu kaedah pengajaran di dalam kelas (Kaukab & Nayab, 2018). Oleh itu, kaedah pengajaran dilihat kurang sesuai atau kurang kreatif untuk menarik minat pelajar dalam mempelajari mata pelajaran Sejarah. Sebagai contohnya, guru Sejarah dilihat kekurangan dalam menyediakan bahan bantu mengajar seperti sumber digital sejarah yang meliputi bahan visual, filem, dokumen, dan peta.

Sejak tahun 2020, para pendidik terpaksa melaksanakan pengajaran dan pembelajaran secara jarak jauh atau pembelajaran dari rumah untuk meneruskan pelajaran pelajar. Situasi ini berlaku akibat wabak Coronavirus 2019 (COVID-19). Penutupan sekolah, institusi dan ruang pembelajaran yang lain telah mempengaruhi lebih dari 94% populasi pelajar dunia (Sumitra Pokhrel dan Roshan Chhetri, 2021). Dengan mengatasi masalah ini, aplikasi E-Pembelajaran digunakan sebagai tapak pengajaran dan pembelajaran antara guru dan pelajar. Guru dikehendaki mempunyai tahap kemahiran yang baik dalam penggunaan E-Pembelajaran bagi melaksanakan pengajaran dan pembelajaran sehingga memenuhi kepuasan pengguna, iaitu pelajar dalam memperoleh ilmu pengetahuan.

2. METODOLOGI

Kajian ini menggunakan reka bentuk gabungan untuk mengkaji pelaksanaan E-Pembelajaran dalam kalangan guru Sejarah bagi Tajuk “Kemerdekaan Persekutuan Tanah Melayu” yang merangkumi data kuantitatif dan kualitatif. Data kuantitatif meliputi soalan tertutup dalam soal selidik yang mengandungi Bahagian A sehingga Bahagian E manakala data kualitatif meliputi soalan terbuka dalam soal selidik (Bahagian F). Penyelidik memilih Sekolah Menengah Kebangsaan daerah Kulai sebagai lokasi kajian dalam kajian ini. Kajian ini mengkaji guru Sejarah Tingkatan 4, 5 dan 6 yang berkhidmat di Sekolah Menengah Kebangsaan daerah Kulai. Populasi kajian ialah 55 orang guru Sejarah yang mengajar di 17 buah Sekolah Menengah Kebangsaan daerah Kulai sebagai sampel kajian. Kajian ini menggunakan borang soal selidik berbentuk tertutup dan terbuka. Soal selidik dibahagikan kepada enam bahagian dalam kajian ini, iaitu Demografi bagi Bahagian A, (jenis-jenis E-Pembelajaran) dalam bahagian B, tahap kemahiran guru-guru Sejarah terhadap penggunaan E-Pembelajaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu”, nilai Cronbach Alpha bersamaan 0.948) dalam Bahagian C, (kaedah-kaedah pengajaran yang digunakan guru-guru Sejarah terhadap penggunaan E-Pembelajaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” melalui E-Pembelajaran, nilai Cronbach Alpha bersamaan 0.855) dalam Bahagian D, (cabaran-cabaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah

Melayu” melalui E-Pembelajaran, nilai Cronbach Alpha bersamaan 0.953) dalam Bahagian E dan (kaedah untuk menangani cabaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” melalui E-Pembelajaran) dalam Bahagian F. Bahagian A hingga Bahagian E meliputi kaedah kuantitatif dalam mengumpul data, iaitu soalan tertutup. Bahagian F meliputi kaedah kualitatif dalam mengumpul data.

3. DAPATAN DAN PERBINCANGAN

Dapatan kajian ini telah menjawab kesemua persoalan dalam kajian. Persoalan kajian pertama telah menyoal “Apakah jenis-jenis E-Pembelajaran yang digunakan oleh guru-guru Sejarah dalam pengajaran “Kemerdekaan Persekutuan Tanah Melayu?” Frekuensi tertinggi merujuk kepada item B1 di bahagian B, iaitu “Saya menggunakan aplikasi *Google Meet* dalam pengajaran”, paling ramai responden menjawab “Ya” untuk soalan ini, iaitu 40 orang responden (100.0%). Hal ini bermakna bahawa tiada guru Sejarah yang tidak menggunakan aplikasi *Google Meet* ini. Aplikasi ini merupakan antara aplikasi E-Pembelajaran yang popular digunakan. Hal ini disebabkan *Google Meet* mudah dikendalikan dan mudah diakses oleh guru dan juga pelajar. Sesiapa yang mempunyai emel boleh menggunakan aplikasi ini. Persoalan kajian kedua “Apakah tahap kemahiran guru-guru Sejarah terhadap penggunaan E-Pembelajaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” ? Secara keseluruhannya, tahap kemahiran guru Sejarah adalah tinggi berdasarkan min skor, 3.72. Antara item yang mempunyai min skor tertinggi adalah item C1 dan C4, 4.08. C1 “Saya mampu mengenal pasti dan memilih sumber sejarah untuk kegunaan pengajaran dan pembelajaran mengikut keperluan pelajar melalui E-Pembelajaran” dan C4 “Saya mampu mencari laman web sejarah dan mengenal pasti sumber sejarah yang terdapat dalam internet semasa melaksanakan pengajaran dalam E-Pembelajaran” . Kedua-dua item ini menunjukkan bahawa mereka mengetahui cara memilih sumber Sejarah dan melakukan kritikan ke atas sumber Sejarah. Ini adalah perkara penting kerana guru Sejarah diwajibkan menyampaikan ilmu pengetahuan dengan benar dan betul. Ia meliputi banyak prosedur dan juga teknik untuk menyampaikannya. Dari aspek ini, jelas menunjukkan bahawa guru Sejarah memenuhi syarat sebagai penyelidik Sejarah dan berminat dalam mencari pelbagai sumber Sejarah supaya dijadikan panduan pelajar. Ciri-ciri guru Sejarah ini amat sesuai dijadikan role model pelajar.

Persoalan kajian ketiga “Adakah terdapat perbezaan tahap kemahiran guru-guru Sejarah terhadap penggunaan E-Pembelajaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” berdasarkan opsyen?” Bagi memberikan jawapan soalan ini, ujian sampel bebas T telah menunjukkan bahawa setiap item mencapai $p > 0.05$, tiada perbezaan signifikan tahap kemahiran antara guru opsyen Sejarah dan guru bukan opsyen Sejarah. Namun demikian, min bagi guru bukan opsyen Sejarah adalah lebih tinggi daripada guru opsyen Sejarah. Dengan ini, opsyen Sejarah bukannya faktor yang mempengaruhi tahap kemahiran penggunaan E-Pembelajaran dalam kalangan guru Sejarah. Persoalan kajian keempat “Apakah kaedah-kaedah pengajaran yang digunakan oleh guru-guru Sejarah dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” melalui E-Pembelajaran?” Analisis telah menunjukkan bahawa min keseluruhan adalah 3.49. Antara item yang mencatat min tertinggi adalah item D2. Item D2 “Saya menggunakan kaedah perbincangan dalam aplikasi E-Pembelajaran” mencatat min 3.95. Ramai guru Sejarah bersetuju pernyataan ini bahawa mereka melaksanakan pembelajaran berpusatkan pelajar. Bukannya guru yang aktif dalam sesi pengajaran dan pembelajaran, tetapi pelajar yang perlu menjadi fokus dan aktif dalam proses pembelajaran. Dengan kaedah perbincangan ini, pelajar mempunyai peluang untuk memberikan pandangan mereka terhadap peristiwa-peristiwa dalam menuntut kemerdekaan Persekutuan Tanah Melayu. Pelajar atau generasi muda adalah tulang belakang negara kita, mereka perlu mengetahui cara menganalisis sesuatu perkara dengan pandangan bersendirian dan melaksanakan tindakan sewajarnya berdasarkan kemampuan mereka. Melalui proses ini, mereka akan menyedarkan peranan mereka dalam negara dan mula dibangitkan dengan semangat dan jiwa yang utuh untuk kemajuan dan keamanan negara. Inilah produk yang kita pendidik ingin lihat dan menghasilkannya.

Persoalan kajian kelima “Apakah cabaran-cabaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” melalui E-Pembelajaran?”. Analisis telah menunjukkan bahawa min

keseluruhan 2.89. Analisis menunjukkan item E4 “Saya tidak mahir menggunakan aplikasi *virtual museum*” mencatatkan min tertinggi, iaitu 3.23 dan kedudukan pertama dalam item tersebut. Dapatan ini menunjukkan ramai guru Sejarah tidak pernah atau jarang melaksanakan *virtual musuem* dalam pengajaran melalui E-Pembelajaran. Dengan ini, kebanyakan tidak pasti mereka sama ada mereka mahir atau tidak dalam kaedah pengajaran ini. Walaupun *virtual musuem* ini semakin menjadi pilihan kaedah pengajaran guru, tetapi masih boleh memerhati kelemahan dan ketidakyakinan guru Sejarah dalam mengaplikasikannya dalam pengajaran. Terdapat juga guru yang berpendapat bahawa kaedah pengajaran ini susah dilaksanakan kerana ia meliputi kerjasama pihak muzium dan sebagainya, ia memerlukan tempoh masa yang panjang untuk mendapatkan kebenaran. Persoalan kajian keenam “Apakah kaedah-kaedah untuk menangani cabaran dalam pengajaran Tajuk “Kemerdekaan Persekutuan Tanah Melayu” melalui E-Pembelajaran?”. Dalam menjawab persoalan ini, terdapat pelbagai kaedah yang dicadangkan iaitu tayangan video, kaedah simulasi, kaedah inkuiri, *Mastery Learning* dan juga penggunaan alat bantu mengajar. Tayangan video adalah antara idea yang paling banyak dicadangkan oleh responden kerana mereka berpendapat bahawa kaedah ini merupakan kaedah yang paling efektif untuk mengatasi cabaran dalam pengajaran.

4. PENUTUP

Kajian ini dapat disimpulkan bahawa kesemua objektif dalam kajian ini telah dicapai. Dapatan utama adalah jenis-jenis E-Pembelajaran dikenal pasti, tahap kemahiran guru menurut persepsi responden adalah tinggi, tiada perbezaan signifikan tahap kemahiran antara guru opsyen Sejarah dan guru bukan opsyen Sejarah dan kaedah pengajaran yang pelbagai serta cabaran pengajaran guru pada tahap yang sederhana.

PENGHARGAAN

Setinggi-tinggi penghargaan buat penyelia Prof. Madya Dr. Ahmad Johari Bin Sihes yang banyak memberi bimbingan, tunjuk ajar dan dorongan kepada saya. Penghargaan dan terima kasih ini juga saya tujukan kepada Assoc. Prof. Dr. Sanitah binti Mohd. Yusof atas perkongsian ilmu dan bimbingan yang telah diberikan.

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ESL LEARNER'S AND LANGUAGE INSTRUCTOR'S PERCEPTION ON UTILISING VIRTUAL REALITY DEVICES TO MINIMISE SPEAKING ANXIETY

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ABSTRACT

Tertiary level students often perceive speaking in English as a menacing task due to the existence of second language speaking anxiety that acts as an impediment for students to perform well in speaking tasks. Consequently, this study addresses ESL learners' perception, attitude, and acceptance of utilising VR devices to minimise their speaking anxiety. In order to achieve this aim, the survey questionnaire by Alqirnas (2020), which comprises sixteen items based on the Davis's (1989) TAM model, was adapted and administered among 140 Intermediate English students at Southern University College together with a semi-structured interview session with four students from the sample by using the interview questions which was adapted from Alsaffar (2021). Besides, this study also aims to discover language instructors' perceptions of implementing VR devices to minimise speaking anxiety among ESL learners. Therefore, a semi-structured interview was conducted with two language instructors by adapting the interview questions from Putra, Santosa and Saputra (2020). The data collected from the questionnaire were analysed using Statistical Package for the Social Sciences (SPSS) version 23.0. Meanwhile, the data collected from the semi-structured interview was analysed using the thematic analysis method. The findings showed ESL students have a positive perception of the use of VR devices to minimise speaking anxiety faced by them as students perceived VR devices as useful and easy to use. Eventually, it generates a positive attitude and the intention to use VR. In addition, the interview revealed that language instructors also positively perceive the implementation of VR devices as it creates a safe space to practice for the learners without getting judged, and they can practice at their own pace. Based on these results, it can be concluded that VR is useful for reducing students' nervousness because it improves their preparation prior to speaking in a real-world context.

Keywords: English ; Speaking Anxiety ; Perception ; Attitude ; Acceptance

1. INTRODUCTION

Mastering English as a second language is vital in Malaysia for every student since English plays an essential part in one's life. Everyone needs to become competent in English, as it is the most commonly used language in daily interactions and formal events. The Ministry of Education of Malaysia has taken numerous measures to introduce English as early as kindergarten up until the tertiary level. For many years, the Government has been committed to introducing new programs like Malaysian Education Blueprint (2013 until 2023) implemented the Common European Framework of Reference for Language (CEFR) with the belief to enhance students' four skills in English, mainly speaking. Moreover, English is one of the entry requirements to further study at the tertiary level (Heng, 2012). This situation shows the importance of mastering English. However, ESL learners still face difficulty performing well in English communication at a tertiary level (Kashinathan & Aziz, 2021). Even though both Government and schools take various initiatives to solve the problems faced by the students, the strategies being implemented by them are not very useful. Hence, it will lead to an unemployment issue in the future (Miskam & Sai Dalvi, 2018). Many researchers like Hashemi (2011); Kashinathan & Aziz (2021) underline that one of the main problems that cause ESL learners not to perform well in spoken English could be anxiety. Anxiety is one of the most well-known and subtle emotions, defined as a feeling of nervous apprehension (Heng, 2012). Second language speaking anxiety has sparked much attention among researchers in the past two decades. Horwitz, Horwitz & Cope (1986) emphasised that speaking is one of the most anxiety-provoking situations for ESL learners. Therefore, innumerable research has been conducted on ESL learners (Heng, 2012) to find solutions to help them overcome their trouble communicating in English.

The recent findings on the solution to reduce speaking anxiety have led to discovering an advanced technological tool like a Virtual Reality (VR) device. According to El-Yamri, Hernandez, Rjojo & Manero (2019), VR device allows users to speak in English just as they would in front of a real audience but with the advantage of doing it in a safe environment. As the users are practising speaking in the language within a safe environment, thus, will not be afraid to make errors, and as time goes on, they will be able to face a real-life scenario similar to the one in virtual (El-Yamri et al., 2019). VR is a new approach in Malaysian education since students are advancing to a new degree of technology interaction, and there is a need to connect students to instructional content via engaging technologies (El-Yamri et al., 2019). Although VR technology has not yet been widely adopted in Malaysia, particularly in ESL classrooms, the implementation of VR technologies has the potential to significantly improve speaking anxiety issues, as mentioned by Adnan (2020). However, a review of the literature found that among the elements that ensure the success of a technological tool is based on the perception and attitude of users towards the acceptance of the tool (Adnan, 2020). Therefore, this paper seeks to address ESL learners' perception, attitude, and acceptance of utilising VR devices to minimise their speaking anxiety and language instructors' perception of the implementation of VR devices to minimise speaking anxiety among ESL learners.

2. MATERIALS AND METHODS

A mixed-method approach was adopted in this study to explore ESL learners' perception, attitude, and acceptance of utilising VR devices to minimise their speaking anxiety and language instructors' perception of the implementation of VR devices to minimise speaking anxiety among ESL learners. This study's first, second and third research questions were solved using quantitative and qualitative approaches as the ESL learners' perception, attitude, and acceptance of utilising VR devices to minimise their speaking anxiety can be determined by using a survey questionnaire and semi-structured interview. Besides, the fourth research question of this study was solved through a qualitative approach as the perception of the implementation of VR devices to minimise speaking anxiety among ESL learners, which was extracted during the interview session conducted by language instructors. The survey questionnaire by Alqirnas (2020), which comprises sixteen items based on the Davis's (1989) TAM model, was adapted and administrated among 140 Intermediate English students at Southern University College together with a semi-structured interview session with four students from the sample by using the interview questions which was adapted from Alsaffar (2021). Besides, a semi-structured interview was conducted with two language instructors by adapting the interview questions from Putra, Santosa and Saputra (2020). The data collected from the questionnaire were analysed using Statistical Package for the Social Sciences (SPSS) version 23.0. Meanwhile, the data collected from the semi-structured interview was analysed using the thematic analysis method.

3. RESULTS AND DISCUSSION

The findings from the survey will be presented in table form based on the mean obtained from the items of each theme in the questionnaire. The results were organized by following the method used by Majid et.al (2018) in their study.

Table 1 Means and standard deviation for perceived usefulness

Factor	Statements	Mean	SD
Perceived Usefulness	<i>Using virtual reality devices lowers my speaking anxiety.</i>	3.46	.970
	<i>Using virtual reality devices enhances my ability to speak in front of others.</i>	3.39	.903
	<i>Using virtual reality devices improves my communication skills.</i>	3.41	.952
	<i>Using virtual reality devices increase my self-confidence.</i>	3.49	.993
	<i>Using virtual reality devices provides realistic environment to lower my speaking anxiety.</i>	3.44	.931

Table 2 Means and standard deviation for perceived ease of use

Factor	Statements	Mean	SD
Perceived Ease of Use	<i>The instructions in virtual reality devices are clear and understandable.</i>	3.54	1.007
	<i>The functions in virtual reality devices are easy to use.</i>	3.56	.938
	<i>I find virtual reality devices is flexible to use.</i>	3.57	.866
	<i>Virtual reality devices can be used without any expert help.</i>	3.62	.933

Table 3 Means and standard deviation for the attitude toward the usage of virtual reality device

Factor	Statements	Mean	SD
Attitude toward the Usage of Virtual Reality Device	<i>Using virtual reality devices to reduce speaking anxiety is more interesting while preparing for speaking tasks.</i>	3.65	.921
	<i>Using virtual reality devices to reduce speaking anxiety is a good idea compared to other technological tools.</i>	3.64	.969
	<i>I like using virtual reality devices to overcome my fear to speak.</i>	3.54	.917

Table 4 Means and standard deviation for behavioural intention

Factor	Statements	Mean	SD
Behavioural Intention	<i>plan to use virtual reality devices while preparing for speaking tasks.</i>	3.65	.952
	<i>I will recommend others to use virtual reality devices to overcome their speaking anxiety.</i>	3.64	.982
	<i>I intend to use virtual reality devices to improve my communication skills.</i>	3.63	.962
	<i>I intend to use virtual reality devices to ease my speaking anxiety.</i>	3.63	.962

4. CONCLUSION

Based on the quantitative and qualitative analysis of ESL students' and language instructors' perceptions of the use of VR devices to reduce speaking anxiety, it can be concluded that both ESL students and language instructors have a positive perception of the use of VR devices to address the problem of communicative apprehension. The findings of this study suggest that VR is useful for reducing students' nervousness because it improves their preparation before speaking in a real-world context. Besides, through this study ESL students are acquainted with technological tools, such as VR devices. Since students require a tool that establishes a safe atmosphere for speaking practice and simultaneously reduces their negative thoughts, this research is beneficial because it creates awareness among students that VR devices may be used to relieve anxiety. While many students are familiar with VR, few know that it can be a useful tool for reducing anxiety. Since Malaysia adopted the Common European Framework of Reference (CEFR) and the 21st-century learning strategy in 2013, it is crucial for language instructors to understand their responsibilities in order to be effective implementers. The introduction and adoption of 21st-century learning in Malaysia necessitate that both ESL teachers and ESL students be well-equipped with technical knowledge that emphasises the development of knowledge-based learners as a preparation for the future. The changes in contemporary education require language instructors to implement technological tools such as VR in their English classrooms to reduce speaking anxiety among ESL students rather than using traditional strategies because technology promotes student-centred learning, which thereby fostering an optimal learning environment. Finally,

the institution administration must provide suitable technological support to aid language instructors in using VR in the classroom. Certain investments in equipment and subscriptions to online VR resources could support incorporating VR into active lessons. Based on the findings and conclusion of the study, there are several recommendations for future studies on this topic. Further work needs to be carried out with respondents representing different English proficiency levels since this study was done among Intermediate proficiency level students. Moreover, future research can implement experimental research design as the present study design was descriptive. Lastly, future studies on the current topic should include an investigation of the relationships between the four themes: perceived usefulness, perceived ease of use, attitude towards using VR devices to minimise speaking anxiety and behavioural intention.

ACKNOWLEDGEMENT

I would like to express my deep and sincere gratitude to my research supervisor, Dr. Kew Si Na for giving a continuous support and guidance while doing this research. Her motivation and insightful comments helped me in every aspect while during the research, as well as in writing this paper.

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THE EFFECT OF HOME-BASED ONLINE LEARNING DURING COVID - 19 TOWARDS STUDENTS' COGNITIVE LOAD

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ABSTRACT

The purpose of this study is to examine the effect of home-based online learning on students' cognitive load by identifying factor of cognitive load. This study has implemented simple case study design on 12 students involving form 1 students from a school located at Selangor, Malaysia. The sample consists of 6 male and 6 female. The implementation of home-based online learning has lasted for 9 days. The researcher used the subject of mathematics in this study. The findings showed that the cognitive load of students will increase if they only learn through notes, that is in writing without visuals and audio. This will cause them to lose focus and lose enthusiasm to continue learning due to confusion in the understanding and assimilation of information which contributes to a decrease in motivation where the information obtained cannot be stored in working memory (Coman et al., 2020). In conclusion, by identifying the factor that increase students' cognitive load, teachers will be able to plan appropriate methods to use during home based online learning.

Keywords:

Cognitive Load; Home-Based Online Learning; Working Memory

1. INTRODUCTION

By the beginning of 2020, the whole world was hit by the Covid-19 epidemic that was declared by the World Health Organization (WHO) that caused the education sector to be unable to operate. The Malaysian Ministry of Education (MOE) provides home-based learning (PdPR) to students who cannot attend school due to disasters, epidemics or other reasons considered and accepted by the state registrar (MOE, 2021).

According to Harding (2011) the meaning of home-based learning (PdPR) is home-schooling learning where children's education is the responsibility of parents in making monitoring at home. Home -based learning (PdPR) is a new system implied by the Ministry of Education Malaysia (MOE), this matter raises various problems faced by teachers, students and parties involved in teaching and learning sessions that cause an increase in students' cognitive load (Mansor et al., 2021). This happens because, human working memory that has limited limits depending on each human memory (Morrison, Dorn & Guzdial, 2016). A student's performance can be determined by looking at the extent to which a student is able to understand a given instruction (Morrison, Dorn & Guzdial, 2016). Therefore, if the instruction is so stressful that they feel burdened with memory, then any information or knowledge that wants to be stored for a long or short period of time will be affected the cognitive load (Morrison, Dorn & Guzdial, 2016). Therefore, according to Morrison, Dorn and Guzdial (2016), as a teacher who is a designer of teaching materials it is their responsibility to ensure that students' working memory does not receive pressure that causes their learning performance to decline. With that, it is appropriate that this study is conducted where the purpose of this study is to examine the effect of home-based online learning on the cognitive load of students by identifying the cause of cognitive load that affects students through mathematics subjects.

This study has implemented a case study design on 12 students of form 1 students, from a school located at Selangor. It is consisting of 6 male and 6 female. The implementation of home-based online learning has lasted for 9 days. Where, all study materials are provided through google classroom. The researcher used the subject of mathematics in this experiment. The following is the order that has been simplified to see the procedure of this study based on the table below.

Table 1. Implementation of 9 Days Using Home-Based Online Learning

Table 1. Implementation of 9 Days Using Home-Based Online Learning				
Method	Days	Content	Modality	
Visual + Audio	Day 1	-Teach math using (V+A) level elementary school -Student will answer 10 questions consist of additional, minus, multiplication, and division.	Home-based online learning	
	Day 2	-Teach math using (V+A) level secondary school -Student will answer 10 questions consist of ratio, algebra, fraction and linear	Home-based online learning	
	Day 3	Using previous question: <ul style="list-style-type: none"> ▪ 1x: Student answer the question ▪ 3x: Student repeat the same question 	Face to face	
	Writing: Read (Have detail explanation, learn using their notes only)	Day 4	-Student learn math using their notes or textbook level elementary school -Student will answer 10 questions consist of additional, minus, multiplication, and division.	Home-based online learning
		Day 5	-Student learn math using their notes or textbook level secondary school -Student will answer 10 questions consist of ratio, algebra, fraction and linear	Home-based online learning
		Day 6	Using previous question: <ul style="list-style-type: none"> ▪ 1x: Student answer the question ▪ 3x: Student repeat the same question 	Face to face
Visual + Audio + Writing (Detail explanation)	Day 7	-Student learn math using (V + A +W) elementary school -Student will answer 10 questions consist of additional, minus, multiplication, and division.	Home-based online learning	
	Day 8	-Student learn math using (V + A +W) level secondary school -Student will answer 10 questions consist of ratio, algebra, fraction and linear (15 minutes given to answer the question)	Home-based online learning	
	Day 9	Using previous question: <ul style="list-style-type: none"> ▪ 1x: Student answer the question ▪ 3x: Student repeat the same question 	Face to face	

For this part, a total of 6 students consisting of 3 males and 3 females were asked to be interviewed after 9 days of this experiment. Table 2. below provides some of the interview questions and the original answers given by the students.

Table 2. Results of Respondents' Answers When Interviewed

Interview Questions	Respondents' Answer	Keyword
<p>Among the 3 methods that you have used for 9 days, which one do you think is less effective to use and why is that method difficult for you to use?</p>	<p>R1: <i>For me the second method that has a lot of writing, when reading alone will cause me to fall asleep quickly</i></p>	<ul style="list-style-type: none"> ➤Easily bored ➤Not interesting ➤Easily lost focus ➤The information is too complicated to understand
	<p>R2: <i>I don't like the second method the most, where we learn by following the notes, because I don't understand at all</i></p>	
	<p>R3: <i>I really don't like the second method of having to read, if you just read you will get bored quickly</i></p>	
<p>During this experiment, which part caused you stress and was there any change when you were asked to answer the questions repeatedly?</p>	<p>R4: <i>For me, the next day the level increase. It's hard because I never studied before. So, when I must answer questions, I can only answer questions that I have learned and mastered, so when asked to answer questions repeatedly, I can answer all questions quickly, because I already know the answers.</i></p>	<ul style="list-style-type: none"> ➤The level of topic increase, more difficult ➤Difficult if never studied before ➤When it's difficult, the pressure received is high, it's easy to stress ➤Repeated question, helps to understand the topic better
	<p>R5: <i>I find it difficult when the topic of learning increases. But if given questions to do repeatedly, maybe I think it's easier.</i></p>	

	<p>R6: <i>I think when the level of the topic to study increases, it is more difficult, so I feel stressed. Maybe with repeated practice, like answering the repeatedly question, it helps me to understand this topic better.</i></p>	
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*R=respondent

Through an experiment made for 9 days, the researcher found that the cognitive load of students will increase if they only learn through notes, that is in writing without visuals and audio. This will cause them to lose focus and lose enthusiasm to continue learning. According to Sweller (2020), learning methods that use audio and visual can attract students to learn. This is because, according to Sweller (2020), elements that have sound and colour will give no response in the human brain, where people will be more inclined to remember long-term information. Therefore, if students only learn based on writing that has a lot of words, this will cause confusion in understanding and assimilation of information further contributing to a decrease in motivation where the information obtained cannot be stored in working memory (Coman et al., 2020). According to Sweller (2020), if people experience a decrease in motivation this will cause pressure on the human working memory, where the human brain can only process information when they are mentally in a good state and not under high pressure.

Finally, through the experiment conducted by the researcher, it was found that when the level of difficulty is increased, it will increase the cognitive load which is the intrinsic load. However, if students have basic knowledge or do repeated questions, it will cause all the information obtained to be stored for a long time. This is because, according to Sweller (2020), a reduction in cognitive load can occur if there is a balance of interactivity elements where techniques to determine the complexity of information are

used.

4. CONCLUSION

In conclusion, this study shows that home-based online learning is a system that require good learning strategies will contribute to reducing cognitive load. With that, researchers believe that using appropriate learning strategies for home-based online learning will help students reduce cognitive load leading to effective learning. Therefore, the researcher hopes that future studies will examine what is the appropriate pedagogy to reduce the cognitive load of school students in home-based learning (PdPR) by providing a good framework as a guide for schools, teachers, and students.

ACKNOWLEDGEMENT

This work was supported/funded by the Ministry of Higher Education under Fundamental Research Grant Scheme (FRGS/1/2021/SSIO/UTM/02/16).

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PENGUNAAN TEKNOLOGI DALAM PENGHASILAN PRODUK MELALUI PEMBELAJARAN BERASASKAN PROJEK DALAM MATA PELAJARAN PENDIDIKAN ISLAM

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ABSTRAK Penggunaan teknologi dalam proses pengajaran dan pemudahcaraan (PdPc) merupakan perkara yang tidak asing pada masa kini. Proses PdPc guru Pendidikan Islam di peringkat sekolah rendah seharusnya tidak ketinggalan dalam mempelbagaikan penggunaan strategi pengajaran abad ke 21 seperti pembelajaran berasaskan projek (PBP). Malahan, kualiti pengajaran guru dan pencapaian murid dapat dipertingkatkan melalui integrasi teknologi dalam proses penghasilan produk yang merupakan elemen utama dalam PBP. Hal ini perlu diberikan perhatian oleh guru dalam mendepani dunia yang semakin kompleks kerana masyarakat Islam terutamanya, memerlukan kepakaran generasi kini dalam bidang teknologi untuk menghasilkan produk yang dapat memberi impak dari sudut intelek, rohani, jasmani, emosi dan sosial bagi memenuhi kemaslahatan umat Islam. Justeru itu, kertas konsep ini akan membincangkan bagaimanakah produk dapat dihasilkan berbantuan teknologi melalui pelaksanaan PBP dalam Pendidikan Islam serta kesannya menggunakan metodologi analisis kepustakaan. Hasil analisis kajian mendapati, beberapa langkah yang khusus perlu dilakukan bagi mengintegrasikan PBP dengan teknologi dalam penghasilan produk iaitu penentuan tema pembelajaran, produk yang akan dihasilkan dan aplikasi atau perisian yang sesuai. Selain itu, terdapat kesan yang positif dan negatif daripada penghasilan produk menggunakan teknologi dalam pelaksanaan PdPc melalui PBP. Implikasi terhadap kajian serta cadangan turut dibincangkan dan mendapati terdapat keperluan dalam meningkatkan kualiti dalam Pendidikan Islam.

Kata kunci: Teknologi; Penghasilan Produk; Pembelajaran Berasaskan Projek; Pendidikan Islam

1. PENGENALAN

Pembelajaran berasaskan projek (PBP) adalah salah satu daripada strategi pengajaran berpusatkan murid yang dicadangkan oleh Kementerian Pendidikan Malaysia (KPM) dalam Dokumen Standard Kurikulum dan Pentaksiran (DSKP) Pendidikan Islam KSSR [1]. PBP merupakan strategi pengajaran yang memerlukan murid untuk membina pengetahuan baru dalam menghasilkan produk melalui interaksi bersama rakan mereka secara berkumpulan berdasarkan situasi kehidupan yang sebenar [2]. Selaras dengan hasrat yang digariskan oleh KPM dalam PPPM 2013-2025, PBP dilihat sebagai salah satu strategi pengajaran yang mampu untuk merealisasikan matlamat kemenjadian murid. Hal demikian kerana, melalui pelaksanaan PBP, murid dapat menguasai kemahiran yang diperlukan pada abad ke 21 bagi membolehkan mereka mempunyai daya saing yang tinggi di peringkat global.

Pelaksanaan PBP dalam PdPc mampu memberi anjakan terhadap Pendidikan Islam terutamanya apabila diintegrasikan dengan penggunaan teknologi. Teknologi dapat diaplikasikan dalam pelaksanaan PBP

dalam mencari sumber atau untuk penghasilan produk yang merupakan elemen dalam PBP. Hal ini penting bagi memastikan proses PdPc Pendidikan Islam seiring dengan pendidikan arus perdana. Malahan, dalam jangka masa yang panjang dapat memenuhi keperluan masyarakat terutamanya umat Islam dalam penghasilan produk yang patuh syariah.

Oleh itu, transformasi dalam PdPc perlu dilakukan oleh guru dengan mengintegrasikan teknologi dalam pelaksanaan PBP bagi meningkatkan kualiti mata pelajaran Pendidikan Islam agar dapat memenuhi matlamat kemenjadian murid yang selari dengan Falsafah Pendidikan Kebangsaan.

2. METODOLOGI

Kaedah penyelidikan atau metodologi yang digunakan dalam kajian ini adalah melalui kaedah kualitatif, iaitu analisis kajian kepustakaan. Analisis kajian kepustakaan dalam kajian ini menggunakan pelbagai penulisan yang diperoleh daripada artikel, jurnal, tesis, buku ilmiah dan prosiding seminar. Kesemua bahan yang dirujuk adalah berkaitan dengan topik teknologi dalam pengajaran dan pembelajaran, pembelajaran berasaskan projek dan Pendidikan Islam yang merangkumi konsep, strategi pengajaran, pendekatan pembelajaran, kelebihan, cabaran dan kesan.

3. DAPATAN DAN PERBINCANGAN

Berdasarkan hasil analisis, didapati terdapat beberapa perkara yang perlu diberi perhatian dalam menghasilkan produk berbantuan teknologi melalui PBP. Antaranya ialah penentuan tema atau tajuk pembelajaran, penentuan bentuk produk yang akan dihasilkan serta penentuan aplikasi (*apps*) atau perisian (*software*) yang sesuai bagi penghasilan produk. Di samping itu, pelaksanaan PBP berbantuan teknologi dalam menghasilkan produk juga memberi kesan terhadap pelajar, guru, sekolah dan masyarakat.

3.1. Penghasilan produk berbantuan teknologi

Penentuan tema atau tajuk pembelajaran:

Penentuan tema atau tajuk adalah penting [3] agar maklumat yang akan dimasukkan sebagai kandungan produk tidak tersasar daripada skopnya [4] dan produk yang akan dihasilkan dapat memberi manfaat kepada orang lain [5].

Penentuan bentuk produk:

Bentuk produk adalah salah satu aspek yang sangat penting dalam keberkesanan pembelajaran. Bentuk produk boleh terdiri daripada produk yang berbentuk fizikal (*tangible product*) atau bukan fizikal (*intangible product*). Antara contoh *tangible product* ialah seperti poster, gegantung (*banner/ bunting*) dan barangan cenderahati atau kraf [6], manakala *intangible product* ialah seperti video, lirik lagu, sajak, karya seni animasi atau bahan penulisan yang diterbitkan atau dipaparkan secara maya di media sosial [7, 8].

Penentuan aplikasi (*apps*) atau perisian (*software*):

Selepas bentuk produk yang akan dihasilkan ditentukan, aplikasi (*apps*) atau software (*perisian*) yang bersesuaian untuk digunakan pula dikenal pasti berdasarkan kesesuaian produk yang akan dihasilkan [5, 9].

3.2. Kesan

Di samping itu, pelaksanaan PBP berbantuan teknologi dalam menghasilkan produk juga memberi banyak kesan terhadap pelajar, guru, sekolah dan masyarakat.

Pelajar:

Melalui penghasilan produk berbantuan teknologi dalam pelaksanaan PBP, kemahiran abad ke 21 yang diperlukan oleh murid dapat ditingkatkan iaitu kemahiran komunikasi, kolaborasi, kemahiran berfikir kritis dan kreativiti [5, 10] serta nilai murni dan etika [4, 11]. Pencapaian akademik murid juga meningkat disebabkan oleh faktor motivasi yang tinggi [9]. Hal ini sekali gus melahirkan inventor cilik melalui inovasi yang dihasilkan [6, 7]. Walau bagaimanapun, kepelbagaian karakter dan gaya pembelajaran murid adalah cabaran terbesar bagi guru. Antara permasalahan yang timbul ialah pemilihan ahli kumpulan sukar untuk ditentukan kerana terdapat pelajar yang kurang mahir dalam mengaplikasikan teknologi [12]. Malahan, pelajar yang kurang berkemampuan juga sukar melaksanakannya kerana perlu mengeluarkan kos yang tinggi [9] terutamanya jika mereka berlatar belakangkan ibu bapa yang berpendapatan rendah [13].

Guru:

Tahap profesionalisme guru juga meningkat dari segi pengetahuan, kemahiran dan sikap terutamanya berkaitan dengan pengaplikasian teknologi kerana didorong oleh efikasi sendiri guru yang tinggi [10]. Pada masa yang sama, terdapat segelintir guru yang mempunyai persepsi yang negatif terhadap pelaksanaan dan penghasilan produk melalui pembelajaran berasaskan projek [13] lebih-lebih lagi apabila diintegrasikan dengan penggunaan teknologi .

Sekolah:

Melalui hasil produk murid yang dicipta seperti gegantung (*banner*), poster atau infografik dapat mewujudkan persekitaran sekolah yang baik dari aspek fizikal mahupun psikososial [14] serta menjadikan ruang kawasan sekolah lebih berinformasi. Sekolah juga dapat berperanan sebagai agen perubahan terhadap masyarakat melalui produk yang disebar. Namun, bagi sekolah yang mempunyai kekurangan dari segi kemudahan infrastruktur seperti makmal komputer sukar untuk laksanakan kaedah PBP dalam PdPc [15].

Masyarakat:

Produk yang dihasilkan dalam bentuk penyebaran informasi akan memberi manfaat kepada masyarakat dari sudut perkembangan ilmu pengetahuan [2, 5], melahirkan kesedaran [4] dan meningkatkan interaksi serta kerjasama antara masyarakat dengan pihak sekolah [5]. Selain itu, produk yang dihasilkan juga dapat memberi kemudahan dalam aktiviti kehidupan seharian masyarakat [15], di samping meningkatkan taraf sosioekonomi melalui bidang keusahawanan [8].

4. KESIMPULAN

Berdasarkan perbincangan, ternyata pelaksanaan PdPc melalui strategi pengajaran PBP berbantuan teknologi memberi lebih banyak input positif terhadap kualiti pendidikan walaupun terdapat cabaran yang perlu dihadapi. Guru sebagai tunjang dalam proses PdPc perlu sentiasa memotivasikan diri mereka bagi menjadi guru yang berkesan dalam mencetuskan pemikiran kritis dan kreatif murid yang penting untuk melahirkan inventor cilik terutamanya dalam bidang teknologi. Selanjutnya, kepakaran yang ada pada murid dapat dikembangkan ke arah bidang yang lebih luas seperti reka cipta, keusahawanan, khidmat masyarakat dan sebagainya. Namun, tanggungjawab ini bukanlah terletak dibahu guru sahaja. Semua pihak pemegang taruh perlulah memainkan peranan masing-masing bagi memastikan segala keperluan dan kekurangan dapat disediakan dan ditambah baik dalam mencapai matlamat pendidikan yang dihasratkan.

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MASALAH KEMAHIRAN PEMIKIRAN KOMPUTASIONAL DALAM KALANGAN PELAJAR YANG MENGAMBIL SUBJEK ASAS SAINS KOMPUTER

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ABSTRAK

Pemikiran komputasional (CT) merupakan salah satu kemahiran atau proses yang diperlukan dalam subjek asas sains komputer. Namun begitu, kemahiran ini juga boleh diintegrasikan ke dalam mana-mana bidang dalam pendidikan. Objektif kajian ini adalah untuk mengkaji masalah yang dihadapi oleh pelajar dalam menguasai teknik-teknik pemikiran komputasional (CT) dalam subjek asas sains komputer. Kajian ini telah melaksanakan reka bentuk satu kumpulan pascaujian ke atas 30 orang pelajar tingkatan 1, dari Pulau Pinang. Hasil keputusan 30 orang pelajar dalam ujian tersebut di gunakan untuk mengetahui masalah dalam teknik CT yang kurang difahami oleh pelajar. Berdasarkan tinjauan literatur, terdapat 4 teknik dalam CT iaitu teknik leraian, pengecaman corak, peniskalaan dan pengitlakan. Namun begitu, terdapat masalah yang dihadapi oleh pelajar dalam memahami setiap teknik-teknik dalam pemikiran komputasional ini. Oleh itu, diharap kajian ini diharap dapat memberi kefahaman kepada pendidik bagaimana untuk mengatasi masalah yang dihadapi oleh pelajar dalam memahami setiap teknik-teknik pemikiran komputasional dan membentuk pendidikan menjadi lebih bermakna kepada pelajar.

Keywords: *Pemikiran Komputasional, Leraian, Pengecaman corak, Peniskalaan, Pengitlakan*

1. PENGENALAN

Pengajaran dan pembelajaran menjadi semakin mencabar seiring dengan perkembangan pendidikan pada abad -21. Dalam era maklumat dan teknologi moden, pendidikan perlu diselaraskan dengan keperluan semasa. Justeru, pelbagai istilah telah diperkenalkan ke dalam dunia pendidikan. Salah satunya ialah Pemikiran Komputasional (CT). CT merupakan kemahiran asas yang perlu dikuasai daripada pendidikan awal hingga ke peringkat tinggi agar dapat menyelesaikan masalah dalam dunia teknologi digital dengan berkesan. CT juga memberi peluang kepada individu untuk mengembangkan pengetahuan dan kemahiran mereka untuk berjaya dalam hidup [1]. Istilah CT pertama kali diperkenalkan oleh Seymour Papert pada tahun 1980, dalam bukunya yang bertajuk *Mindstorms: Children, Computers, Powerful Ideas and An Exploration in the Space of Mathematics Educations* [2]. [3] mentakrifkan CT sebagai pendekatan kepada penyelesaian masalah, mereka bentuk sistem, memahami tingkah laku manusia, dan menggambarkan konsep asas sains komputer. CT kemudiannya ditakrifkan semula sebagai proses pemikiran yang

digunakan untuk merumuskan masalah dan mencari penyelesaian yang boleh diterjemahkan ke dalam bentuk yang boleh dilaksanakan dengan berkesan oleh agen pemprosesan maklumat [4].

Menggunakan kemahiran CT [5], pelajar juga boleh menyelesaikan masalah kognitif menggunakan pelbagai kaedah [6]. Ia juga melibatkan penyediaan dan analisis data, mencari penyelesaian dengan menggunakan algoritma dan menyelesaikan masalah [7]. CT terkenal sebagai alat untuk proses penyelesaian masalah yang memerlukan pembahagian masalah kepada komponen yang lebih kecil, mengekstrak idea penting dan relevan, dan mengenali corak untuk membolehkan perancangan penyelesaian yang betul untuk mengelakkan pertindihan dan tindakan yang kurang relevan untuk meningkatkan keberkesanan masalah- proses penyelesaian [8]. Terdapat beberapa teknik untuk menyelesaikan masalah dalam pendekatan CT yang merangkumi: teknik leraian, teknik pengekaman corak, teknik peniskalaan dan teknik pengitlakan, [9]. Proses ini membolehkan individu menyelesaikan masalah kompleks dengan menyelesaikan masalah kecil mengikut fungsi tertentu. [10] dan [11] menjelaskan bahawa dalam kemahiran CT, seseorang boleh menyelesaikan masalah dengan berkesan dengan membahagikannya kepada komponen yang lebih kecil. Pengekaman corak melibatkan proses mengenal pasti dan menggunakan kekerapan pada data atau masalah. Proses generalisasi menggunakan persamaan yang dikenal pasti untuk membuat ramalan atau menyelesaikan masalah yang lebih umum [12].

2. METODOLOGI

Kajian ini menggunakan reka bentuk satu kumpulan pascaujian ke atas 30 orang pelajar tingkatan 1, dari Pulau Pinang. Pelaksanaan pembelajaran topik pemikiran komputational telah berlangsung selama 6 hari di mana semua bahan pembelajaran digunakan secara bersemuka sepanjang proses pengajaran dan pembelajaran di dalam bilik darjah seperti buku teks dan latihan. Pengkaji menggunakan subjek asas sains komputer (ASK) dalam kajian ini. Berikut adalah susunan yang telah dipermudahkan untuk melihat prosedur kajian ini berdasarkan jadual 1 di bawah.

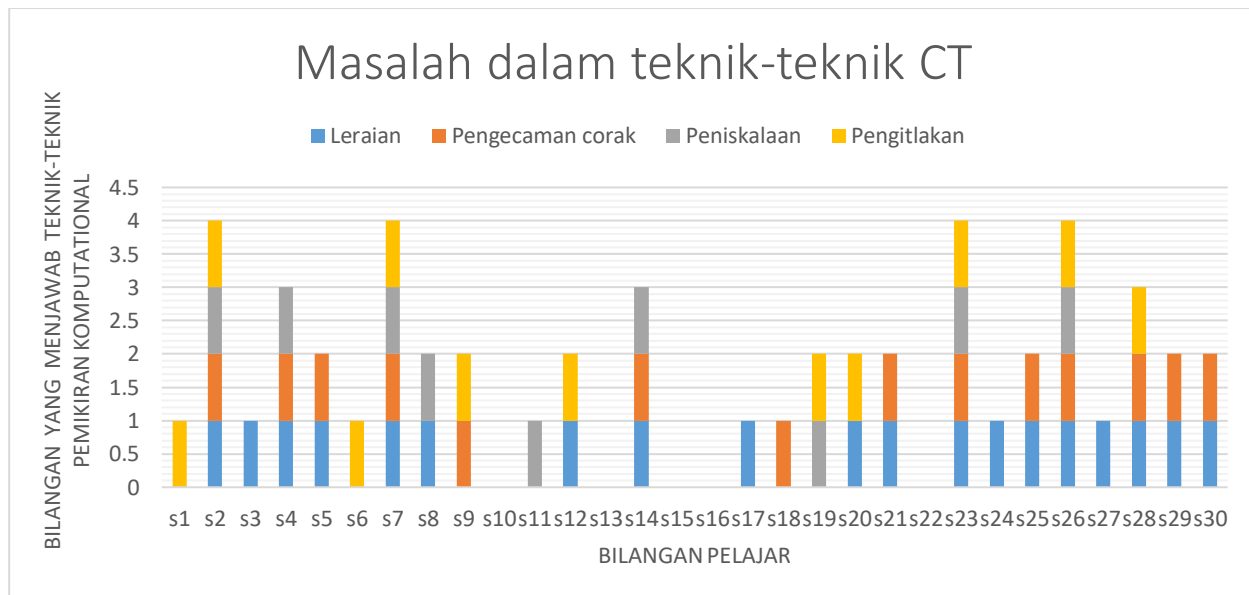
Jadual 1. Pelaksanaan 6 Hari Pembelajaran Secara Bersemuka Dalam Bilik Darjah

Kaedah	Hari	Isi Kandungan	Modaliti
Buku Teks ASK	Hari 1	- Guru mengajar asas sains komputer bab 1 - Pelajar diterangkan tentang teknik leraian oleh guru ASK	Bersemuka
	Hari 2	- Guru mengajar asas sains komputer bab 1 - Pelajar diterangkan tentang teknik pengekaman corak oleh guru ASK	Bersemuka
	Hari 3	- Guru mengajar asas sains komputer bab 1 - Pelajar diterangkan tentang teknik peniskalaan dan teknik pengitlakan oleh guru ASK	Bersemuka

Latihan (Hanya fokus pada setiap teknik dan nota yang ditulis oleh pelajar)	Hari 4	- Pelajar belajar ASK menggunakan nota atau buku teks - Pelajar akan menjawab 5 soalan terdiri daripada teknik leraian dan teknik pengecaman corak	Bersemuka
	Hari 5	- Pelajar belajar ASK menggunakan nota atau buku teks - Pelajar akan menjawab 5 soalan terdiri daripada teknik peniskalaan dan teknik pengitlakan	Bersemuka
	Hari 6	- Menggunakan latihan yang sama 3x: Pelajar menjawab soalan 1x: Guru berbincang jawapan untuk soalan	Bersemuka

3. KEPUTUSAN DAN PERBINCANGAN

Bagi bahagian ini, seramai 30 orang pelajar tingkan 1 telah diminta untuk menjawab soalan ujian yang diberi oleh guru selepas 6 hari pelaksanaan pembelajaran topik pemikiran komputasional. Pelajar diberi 4 soalan struktur dan setiap soalan diberi 2 markah. Soalan struktur yang diuji adalah berkaitan situasi yang diberi dan pelajar perlu menjawab teknik CT yang sesuai berdasarkan situasi yang diberi. Pelajar perlu mengenalpasti teknik-teknik pemikiran komputasional (CT) yang sesuai digunakan untuk menyelesaikan masalah dalam situasi tersebut. Rajah 1 di bawah menunjukkan keputusan hasil dari ujian yang telah dilaksanakan oleh guru terhadap pelajar.



Rajah 1: Masalah dalam teknik-teknik Pemikiran Komputasional (CT)

Hasil ujian yang dilaksanakan menunjukkan ramai pelajar menjawab soalan teknik leraian dan teknik pengecaman corak dengan betul. 19 orang pelajar berjaya menjawab teknik leraian dan 14 orang pelajar berjaya menjawab untuk teknik pengecaman corak. Namun, pengkaji mendapati pelajar kurang memahami teknik peniskalaan dan teknik pengitlakan berdasarkan hasil ujian, bilangan pelajar yang berjaya menjawab teknik peniskalaan ialah 9 orang pelajar dan teknik pengitlakan pula ialah 11 orang pelajar. Sebanyak 5 orang pelajar tidak menjawab kesemua soalan yang diberi. Ini menunjukkan masih ada pelajar yang langsung tidak memahami teknik-teknik dalam CT. Pemikiran komputasional perlu diterapkan oleh guru kepada pelajar agar pelajar dapat menguasai pemikiran komputasional dalam abad ke-21 ini. Pemikiran komputasional sangat penting pada era pembelajaran abad ke 21 ini yang semakin mencabar dan sangat kompetitif dikalangan pelajar.

Jadual 2 : Jumlah pelajar yang menjawab dengan betul mengikut setiap teknik dalam pemikiran komputasional.

Teknik-Teknik. Pemikiran Komputasional	Jumlah Pelajar yang menjawab dengan betul
Teknik Leraian	19/30
Teknik Pengecaman corak	14/30
Teknik Peniskalaan	9/30
Teknik Pengitlakan	11/30

4. KESIMPULAN

Kesimpulannya, kajian ini menunjukkan bahawa pelajar dapat memahami teknik leraian dan teknik pengecaman corak berbanding teknik peniskalaan dan teknik pengitlakan. Ini adalah kerana teknik leraian dan pengecaman corak tidak melibatkan kemahiran berfikir aras tinggi (KBAT). Kedua-dua teknik ini mudah difahami apabila pelajar mengetahui maksud kedua-dua teknik ini. Manakala teknik peniskalaan dan teknik pengitlakan memerlukan pelajar berfikir secara KBAT untuk mengenalpasti teknik yang sesuai untuk menjawab situasi yang diberikan. Pelajar perlu berfikir untuk menentukan teknik yang sesuai berdasarkan situasi yang diberi. Dengan ini, penyelidik percaya bahawa teknik CT mampu dikuasai oleh setiap pelajar namun pelajar perlu membuat banyak latihan terutama berkaitan teknik peniskalaan dan teknik pengitlakan. Oleh itu, pengkaji berharap agar kajian akan datang dapat mengkaji apakah formula yang sesuai digunakan kepada pelajar agar pelajar dapat menguasai teknik-teknik dalam pemikiran komputasional.

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THE EFFECT OF LEARNING MANAGEMENT SYSTEM BY IMPLEMENTING SELF-DIRECTED LEARNING IN SELF INSTRUCTIONAL MATERIAL TOWARDS INTRINSIC MOTIVATION FOR OPEN AND DISTANCE LEARNING STUDENTS

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ABSTRACT

Open and distance learning is indeed in high demand where it offers flexible learning in terms of time, location, and context of lifelong learning. Many researchers have found that there is a problem that needs to be emphasized, namely student withdrawal from studies and late graduation. Therefore, the main thing that needs to be achieved for every open and distance learning program offered by Higher Learning Institutions is the development of self-instructional materials (SIM) to improve the quality of student learning. Thus, the objective of this study was to examine the effect of using learning management systems (LMS) that adapt self-directed learning (SDL) strategies in self-instructional materials toward students' intrinsic motivation. The survey was done with 36 Open and Distance Learning (ODL) students from ODL University in Klang Valley. The design of this study is a quantitative study in the form of a survey through questionnaires instruments for pre and post. Hence, intrinsic motivation is important to study because it involves the elements of autonomy, mastery, and purpose. In conclusion, the findings of this study can examine issues in the education system that should not be taken lightly, especially on the rate of withdrawal and postponement of studies for the Open and Distance Learning (ODL) Program.

Keywords: Open and Distance Learning; Learning Management System; Self-directed Learning; Self-instructional Materials

1. INTRODUCTION

Educational technology is an application that used science and technology in the education process [1]. Along with the development in educational technology, Higher Education Institutions in Malaysia began to make strides by offering Open and Distance Learning (ODL) programs. The main thing that needs to be achieved by every ODL program offered by Higher Education Institutions is the development of Self instructional Materials (SIM) to improve the quality of student learning [2]. This is because the problem stated by the previous researcher is a lack of motivation and it causes increased withdrawal and late graduation for Open and Distance Learning students [3]. So, Dunn and Kennedy (2019) [4], found out that technology in education able to increase intrinsic motivation and academic success apart from involving students' emotions and cognition.

Then, SIM is related to educational technology used by ODL students because online learning is the method the most realistic because it can be achieved anywhere for open and distance learning students [5]. The characteristics of SIM for the ODL program need to emphasize Self-directed learning (SDL) teaching strategies. This SIM allows students to learn without the help of lecturers completely and away from the study centre [6]. By highlighting SDL for the use of open and distance learning students, it can ensure that students do not feel disappointed and are always motivated to continue learning online due to the presence of distant instructors and friends [2]. Other than that, Open and distance learning (ODL) is

found to be more effective if teaching technology is applied when developing online learning materials using theoretical principles for adult students [7].

Although the study of this teaching strategy was found to be effective for ODL students. However, various problems related to ODL are identified with an opportunity to search for the level of intrinsic motivation in using SDL teaching in Higher Education. The researcher has developed a SIM for Discrete Mathematics course that highlights the strategy of SDL by using the LMS platform. Therefore, this research was done with the aim to investigate the effect of an LMS that implements SDL strategies for SIM towards intrinsic motivation for ODL students from aspects of Autonomy, Mastery, and Purpose.

2. MATERIALS AND METHODS

2.1. Methodology

The participants of this study are 36 Open and Distance Learning (ODL) students who enrolled in Discrete Mathematics course participate by using quantitative methods. The design used is a pre-experiment type one group pre-test and post-test to study empirically related variable of intrinsic motivation for open and distance learning (ODL) students. A one-group pre and post-experimental design was used because the researcher only studied one sample group and no control group. Based on the design of this study, the dependent variable was tested before and after the experiment carried out. In the first week of study, students were given access to the discrete mathematics course in the LMS and asked to answer a pre questionnaire. Then, on the fourth week, the students were given another post-questionnaire. It is used to analyse the level of intrinsic motivation of ODL students.

2.2. Research Instrument

The intrinsic motivation questionnaire was adapted from the intrinsic motivation questionnaire produced by InnerActive Leadership Associates (2011) [8] and the Intrinsic Motivation Inventory developed by Ryan and Deci (2000) [9]. This section contains 30 items to identify the three constructs of intrinsic motivation namely autonomy, mastery, and purpose. Data was collected using a questionnaire in part B. Data analysis using SPSS to test the level of intrinsic motivation of each respondent for the constructs of autonomy, mastery, and purpose. Questionnaires with ordinal data (Likert scale) were interpreted using total score interpretation analysis with score level classification.

Reliability testing has been done by a technology expert, a lecturer from the University of Melaka with seven years of experience, and a Psychological Officer from the Psychological Management Unit, Ibrahim Sultan Polytechnic with 13 years of experience who validated the intrinsic motivation questionnaire. Then, validity testing was conducted involving 30 open and distance learning (ODL) students at Public and Private Institutions. Next, the method to measure the reliability of the scale for this research instrument is to perform the Cronbach's Alpha Statistical Test using SPSS software. This proves that the questionnaire items used in this pilot study have a high level of reliability.

3. RESULTS AND DISCUSSION

3.1. The Level of Intrinsic Motivation

Table 1 shows the findings about the level of Intrinsic Motivation consist of elements Autonomy, Mastery and Purposes that adapts Self-directed Learning strategies into the Self-Instructional Materials structure for the use of 36 Open and Distance Learning students.

Table 1. The Level of Autonomy, Mastery and Purposes Intrinsic Motivation for Pre and Post

Pre & Post Result	Number of Students		
	Increase	Unchanged	Decrease
Autonomy	36	0	0
Mastery	30	6	0
Purpose	32	4	0

It shows that all of the respondents (N=36) had an increase in their level of autonomy. Teaching and learning sessions that support autonomy can increase the motivation level of respondents to lead their learning and engage directly through training and learning materials that support independent learning. Then, for mastery, 30 respondents were at a moderate level for the pre and showed an increase to a high level for the post. However, six respondents did not show an improvement. This is because the pre and post-levels are at the same high level. It proves that if the respondent has a high level of autonomy for intrinsic motivation, the respondent also has an effort to master the learning. Lastly, the element of purpose shows that 32 respondents were at a moderate level for pre and showed an increase to a high level for the post. However, four respondents did not show an improvement. This is because the pre and post-levels are at the same high level. It can be concluded that respondents have a clear purpose when using the Learning Management System provided. When respondents have clear goals and objectives when studying the learning materials provided, it simultaneously also gives rise to a high value of autonomy and mastery in respondents without external motivation.

3.2. Discussion of Learning Management System Effects on Intrinsic Motivation

In the autonomy construct, all respondents showed an increase in level from moderate in the pre to a high level in the post. This shows that autonomy can stimulate respondents to be more positive to continue learning independently without external stimulation. Respondents are free to plan the learning schedule, choose topics and activities for their learning to improve knowledge, and at the same time achieve learning objectives [10]. Next, teaching and learning sessions using the provided Learning Management System are seen to be able to increase the motivation level of respondents to lead their learning and engage directly through training and learning materials that support self-learning [11].

The mastery construct proves that the respondents have a clear objective and sufficient time to review the learning materials provided with the best commitment. The learning activities and materials provided in the LMS are sufficient to ensure that respondents feel challenged but not burdensome [12]. Next, the difficulty faced by respondents when using the LMS is considered a challenge and a responsibility to be solved. Therefore, with the birth of a sense of mastering a learning activity, respondents will be able to

complete self-learning activities provided in the LMS [13].

The purpose construct proves that respondents can clearly define the goals and objectives of learning for each learning activity provided. A study from Ahmed & Mesanovic (2019) [13], also found that respondents believe that the ability to complete each learning activity provided can improve understanding of the course and at the same time achieve the learning goals. This is because the more learning activities are completed, the clearer the learning objectives felt by the respondents. Next, a study conducted by Gillard et al (2015) [14] found that learning goals can be achieved with their own will because when a student has a sense of autonomy and mastery, students will also be able to achieve learning goals. Therefore, the effect of using the LMS was found to have a positive impact on the respondents.

4. CONCLUSION

Based on the results of the analysis, it shows that students' intrinsic motivation has increased when using LMS that implemented the strategy SDL for SIM at IPTS. It is important because learning materials for the ODL program are crucial for the student. Where else, future research should be done on IPTA ODL students in Malaysia to know the effectiveness of this method.

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Teachers' teaching insight and its issues in online classroom

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ABSTRACT

Insight is a very important ability, which refers to the ability to probe and analyze things or problems in depth. It is the ability of people to accurately judge the underlying essence through surface phenomena. This study explored teachers' teaching insight, and established the relevant concepts, which includes three key parts: (1) teaching insight is an ability to analyze the essence of teaching problems. (2) teaching insight focuses on students or specific teaching behaviors. (3) teaching insight's process and results have a high depth and width. At the same time, in this article, the researcher fully discussed some problems faced by teaching insight in the online classroom environment. This research focused on teaching insight, tries to establish relevant concepts and theoretical frameworks, defined teaching insight, and expounded a series of problems that may exist in teaching insight under the hot environment of online classroom. This research is fundamental and valuable, which is conducive to the further research in the area.

Keywords: teaching; teaching insight; online classroom; insight

1. INTRODUCTION

In the past, we always believed that teachers should have various abilities, the most important of which include curriculum ability, teaching ability and evaluation ability. In recent years, with the higher requirements put forward by the educational circles of various countries for teachers, their ability to discover and solve problems has gradually become important. And insight, which plays an important role in finding and solving problems in other fields and industries, has gradually entered the field of vision of the education sector.

This research focused on teaching insight, tried to establish relevant concepts and theoretical frameworks, defined teaching insight, and expounded a series of problems that may exist in teaching insight under the hot environment of online classroom.

2. MATERIALS AND METHODS

In this study, researcher used the document analysis to collect data, mainly through various databases, such as Google Scholar and CNKI. Finally, researcher formed a conclusion through thematic analysis.

3. RESULTS AND DISCUSSION

3.1 definition of teaching insight

Insight, refers to the ability to probe and analyze things or problems in depth. It is the ability of people to accurately judge the underlying essence through surface phenomena (Baidu Baike, 2022). At the same time, it also refers to a person's ability to observe things in many aspects and grasp its core from a variety of problems. Commercially, people who lack insight can only see trees or forests, not both. Because he cannot grasp the root of the problem, he cannot make effective plans or make scientific decisions (Mbalib, 2022). Insight, which is widely used in the advertising industry, is often called "insight for consumer" or "Consumer insight". It is a deep understanding of human nature, culture, psychology, emotion and attitude related to consumer behavior and an explanation of crowd motivation (Li, 2010).

From these definitions, we can draw three important characteristics and essence of insight:

- (A) Insight is the ability to analyze the essence of things and problems.
- (B) Insight should point to specific things and people.
- (C) Insight has depth and breadth.

Teaching insight is an application of the concept of insight in the field of education. Therefore, we can establish the definition of teaching insight that:

- (1) teaching insight is an ability to analyze the essence of teaching problems.
- (2) teaching insight focuses on students or specific teaching behaviors.
- (3) teaching insight's process and results have a high depth and width.

If we consider teaching insight in the online classroom, we must also add a qualification, that is, all insights are conducted or created in the online situation, and teachers and students do not have physical or face-to-face contact.

3.2 comparison between definitions

In fact, some previous studies have established and analyzed the concept of teacher insight. However, they are somewhat different from the insights established in this study.

Xiao & Li (2017) thought that, "Generally speaking, teaching insight refers to the ability of teachers to keenly perceive all kinds of relevant information and irrelevant information in the teaching situation, through 'filtering' the irrelevant information, and then combining the information that is conducive to solving problems, to obtain some information that is conducive to teaching, and finally make judgments and reflections on the pedagogical significance and value contained in the information." Their concept of teaching insight is relatively broad and comprehensive, but they do not specify the clear objects to be observed with insight, nor do they point out the width and depth of teaching insight itself.

Zhao & Xu (2013) believed that, "teachers' insight refers to that teachers can not only perceive various kinds of information in complex teaching situations, but also make wise judgments on the pedagogical significance and value contained in the information. This kind of insight should not only intuitively perceive the needs of the situation, but also reflect on the reasons for action, and make a proper evaluation and trade-off in a variety of conflicting needs or reasons." They explored the two key behaviors of insight very deeply, one is perception, and the other is wise judgment. This definition explains the key of teaching insight, but it is not clearly combined with teaching very well. It seems that this definition can be used in various fields and has a wide range. From the above studies, we can see that the current researches on teachers' insight is not completely focused on teaching, but on all aspects of teachers' work. And, for the researches on

teaching insight, their characteristics are not obvious, and the concept is broad rather than targeted. Therefore, compared with these, the definitions given in this study have some characteristics different from them, which is conducive to the later researchers to better determine the research scope and concepts when conducting relevant research.

3.3 teaching insight in online classroom

Online classroom, often can be regarded as virtual classroom that refers to the activities of teaching and learning mainly through the Internet (Zhao, 2021). Generally speaking, online classroom is a very special teaching environment. Teachers and students have no way to contact each other physically. In this case, there are many problems, such as the impairment of the function of teaching interaction and the decline of motivation (Zhao, Yusof, & Hou, 2022). The almost completely different "classroom" seems to have challenged some common traditional pedagogical concepts in the past. Teaching insight is obviously affected by this kind of influence. In traditional teachers, teachers can directly see what students are doing face to face and whether they are listening carefully. However, in the online class room, this is a luxury. The field of view brought by the camera is always very small, which makes the teacher unable to see whether the students looking at the screen are playing games or doing other things. Even, students have the right not to let teachers see them: turn off the camera directly.

In this case, it is very difficult for teachers to realize teaching insight. After all, all the information he can get comes from the students' active display—if the students are not willing to show some information to the teachers, the teachers can not do it. This is a huge problem, which needs further research to explore and analyze. What teachers should do in the online class room to improve or maintain a relatively high level of teaching insight.

4. CONCLUSION

Teaching insight is a new concept. It should be regarded as one of the important abilities of teachers, which can effectively help us to examine and solve some key problems in teaching. In practice, the concept of teaching insight should be clear and detailed: (1) teaching insight is an ability to analyze the essence of teaching problems. (2) teaching insight focuses on students or specific teaching behaviors. (3) teaching insight's process and results have a high depth and width. At the same time, we should realize that there is an essential difference between the traditional face-to-face classroom and the online classroom. In the latter special environment, it has some very important obstacles and challenges, which need to be solved through further research.

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KERANGKA PEMBELAJARAN KEUSAHAWANAN SEBAGAI KERJAYA PILIHAN KEPADA PELAJAR DI KOLEJ KOMUNITI

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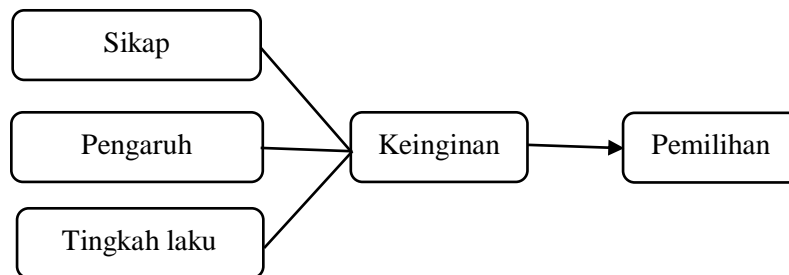
ABSTRAK

Pengusahaan perniagaan organisasi berkait rapat dengan bidang keusahawanan. Usahawan mempunyai tanggungjawab untuk membangunkan pelan perniagaan supaya dapat memperoleh sumber kewangan dan manusia sedia ada dalam pasaran. Bidang keusahawanan memainkan peranan penting dalam pembangunan ekonomi sesebuah negara dengan mencipta pelbagai peluang pekerjaan kepada rakyat. Malaysia sentiasa berusaha untuk memupuk minat keusahawanan di kalangan pelajar terutamanya bagi pelajar institut pendidikan tinggi agar mereka dapat meneruskan kerjaya keusahawanan selepas tamat pengajian. Namun begitu, usaha tersebut telah menunjukkan bahawa tidak berjaya adalah disebabkan oleh bilangan graduan pada peringkat rendah dalam kerjaya keusahawanan. Kajian ini dilaksanakan untuk mengkaji faktor dalaman, faktor luaran dan mencadangkan kerangka pembelajaran keusahawanan sebagai kerjaya pilihan kepada pelajar daripada 103 buah kolej komuniti di Malaysia. Seramai 381 orang pelajar kolej komuniti melibatkan diri dalam kajian. Temu bual dan analisis data tinjauan dengan satu set soal selidik diedarkan kepada responden atas talian. Perisian Pakej Statistik untuk Sains Sosial (SPSS) digunakan untuk memperoleh data analisis, deskriptif dan regresi. Analisis data tinjauan mendapati bahawa kehendak pelajar adalah pada tahap tinggi tetapi pemilihan terhadap kerjaya keusahawanan pelajar pada tahap sederhana tinggi. Justeru, pihak kerajaan Malaysia perlu mengambil tindakan dan menyediakan langkah sewajarnya untuk meningkatkan kadar pemilihan untuk menjalankan kerjaya keusahawanan dalam kalangan pelajar kolej komuniti.

Kata Kunci: Kerangka Pembelajaran; Keusahawanan; Pelajar; Pemilihan Kerjaya; Kolej Komuniti Di Malaysia

1. PENGENALAN

Bidang keusahawanan membuka peluang yang luas dan mencipta banyak peluang pekerjaan kepada setiap individu untuk memperoleh pendapatan yang lebih tinggi (Mohd Noor, 2021). Sesebuah negara akan menjadi lebih maju dan makmur jika memiliki bilangan usahawan yang ramai. Ini kerana aktiviti-aktiviti keusahawanan dilaksanakan secara tidak langsung dapat mencipta pelbagai peluang pekerjaan kepada para warga sesebuah negara (Abd Samad, 2019). Pengkaji merangkakan kajian ini kepada dua pemboleh ubah bersandar dan tiga pemboleh ubah tidak bersandar yang penting. Sikap, pengaruh dan tingkah laku para pelajar terhadap bidang keusahawanan merupakan ciri-ciri penting bagi pemboleh ubah tidak bersandar. Pemboleh ubah bersandar adalah terdiri daripada keinginan para pelajar untuk menjadi seorang usahawan berjaya dan pemilihan kerjaya keusahawanan. Ringkasan kerangka konsep dalam kajian ini adalah dirujukkan pada Rajah 1 di bawah.



Rajah 1. Kerangka Konseptual Kajian “Sikap, Pengaruh Dan Tingkah Laku Dengan Keinginan Pemilihan Kerjaya Keusahawanan Para Pelajar Di Kolej Komuniti (Adaptasi Shapero 1982 & Azjen 1991)

2. PERNYATAAN MASALAH

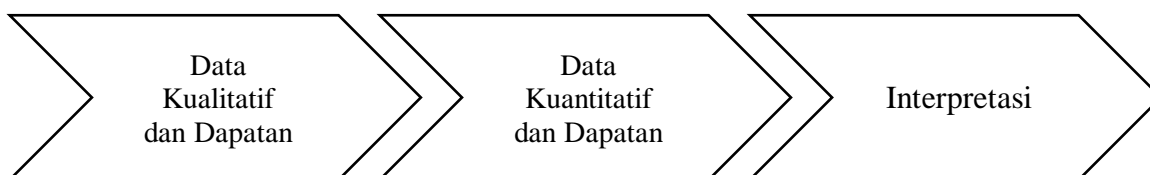
286,299 orang bergraduasi (2021), meningkat 25,598 graduan (2020) di Malaysia (Statistik Pendidikan Tinggi 2022). Sebagai contoh, Jabatan Perangkaan Malaysia (2021) turut melaporkan bahawa kadar pengangguran dalam kalangan siswazah pada tahun 2020 merupakan yang tertinggi sejak 10 tahun iaitu 33.7 peratus daripada 768,700 (Alias, 2021). Bilangan siswazah menganggur meningkat kepada 202,400 orang pada tahun lalu, pertumbuhan sebanyak 22.5 peratus berbanding 165,200 yang direkodkan pada 2020, berdasarkan Statistik Siswazah 2020 yang diterbitkan oleh Jabatan Perangkaan. Jumlah pengangguran yang banyak ini membimbangkan apabila berlaku krisis ekonomi Covid-19. Banyak syarikat juga menghadapi masalah kewangan sehingga jatuh muflis. Perubahan ekonomi yang tidak stabil, peluang pekerjaan terbatas bagi graduan pada pandemik covid-19. Bilangan graduan pada peringkat rendah dalam kerjaya keusahawanan di Malaysia.

3. OBJEKTIF

- i. Mengenal pasti faktor dalaman terhadap pemilihan kerjaya keusahawanan sebagai pilihan kerjaya pelajar selepas tamat pengajian di kolej komuniti.
- ii. Mengenal pasti faktor luaran terhadap pemilihan kerjaya keusahawanan sebagai pilihan kerjaya pelajar selepas tamat pengajian di kolej komuniti.
- iii. Mencadangkan kerangka pembelajaran keusahawanan sebagai kerjaya pilihan kepada pelajar selepas tamat pengajian di kolej komuniti.

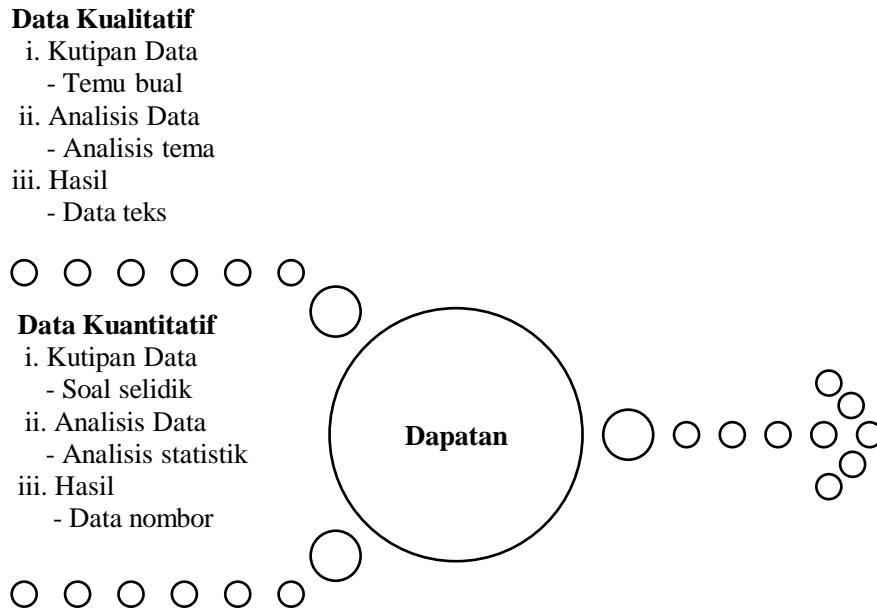
4. METODOLOGI

Kajian gabungan dengan penggunaan pendekatan kualitatif dan kuantitatif sebagai pendekatan utama reka bentuk kajian untuk mengenal pasti faktor dalaman, luaran dan cadangan kerangka terhadap pemilihan kerjaya keusahawanan sebagai pilihan kerjaya utama pelajar selepas tamat pengajian daripada kolej komuniti di Malaysia. Penggunaan temu bual sebagai kaedah kualitatif dan soal selidik sebagai kaedah tinjauan untuk memperoleh data sebagai sesuatu cara yang paling baik (Mazirah, 2016). Kaedah ini mempunyai kekuatan kepada pengkaji supaya dapat mengetahui kaedah bagi mengenal pasti cara pengukur pemboleh ubah daripada pelbagai maklumat yang telah diperolehi dalam temu bual dan soal selidik kajian (Rosli, 2018). Ramai penyelidik iaitu Idrus (2018), Creswell et al. (2018) dan Othman (2020) penggunaan kajian tinjauan adalah lebih berkesan bagi penyelidik untuk menganalisis data daripada responden serta pemboleh ubah yang banyak secara statistik dalam masa yang singkat. Penggunaan kajian gabungan dengan temu bual dan soal selidik dapat memperoleh gambaran keseluruhan ke atas masalah diperolehi oleh penyelidik dalam kajian dari data kualitatif serta mudah melihat data kuantitatif dengan lebih berkesan (Musa, 2017).



Rajah 2. Kaedah Penyelidikan Gabungan

4.1 Reka Bentuk Kajian



Rajah 3. Kaedah Kutipan Data dan Analisis Data Kaedah Penyelidikan Gabungan

4.2 Populasi dan Sampel Kajian

Populasi ialah 51,245 orang pelajar Kolej Komuniti Malaysia. Sampel ialah 381 orang pelajar. Kaedah temu bual dan soal selidik dilaksanakan untuk mengkaji faktor dalaman, faktor luaran dan mencadangkan kerangka pembelajaran keusahawanan sebagai kerjaya pilihan kepada pelajar daripada 103 buah kolej komuniti di Malaysia. Bahagian A ciri berkaitan demografi responden, bahagian B tentang faktor dalaman pelajar terhadap pemilihan kerjaya keusahawanan dan bahagian C tentang faktor luaran pemilihan terhadap kerjaya keusahawanan. SPSS kaedah statistik deskriptif min dan sisihan piawai digunakan oleh pengkaji. Kesahan soal selidik ialah > 0.30. Kebolehpercayaan (Cronbach's Alpha) ialah > 0.70. Tafsiran hasil analisis kajian, skor min dapat dihitung (Othman, 2002).

4.3 Analisis Data Kajian

Pengkaji mengklasifikasikan setiap pemerolehan skor dengan mengikut kumpulan skor seperti Jadual 1 di bawah.

Jadual 1. Interpretasi Skor

Min	Peringkat Tahap
1.00 - 3.00	Rendah
3.01 - 5.00	Tinggi

Sumber: Adaptasi dan Diubahsuai daripada Norasmah, 2019

5. RUMUSAN

Tahap kehendak pelajar terhadap kerjaya keusahawanan berada pada tahap yang tinggi. Tahap pemilihan terhadap kerjaya keusahawanan berada pada tahap sederhana tinggi. Segelintir siswazah menganggap pemilihan keusahawanan sebagai sesuatu kerjaya mereka sahaja (Rahim et al., 2017). Pendekatan pendidikan sebagai usaha berterusan menarik minat dan kehendak pelajar menceburi bidang keusahawanan (Ab Rashid et al, 2018). Para siswazah berpengetahuan tinggi dianggap sebagai modal insan berpotensi yang menjadi bakal usahawan berjaya, sanggup menerokai peluang kerjaya keusahawanan dan sentiasa berani berdaya saing di pasaran global (Nuradibah et al., 2018). Pihak kerajaan dan swasta berperanan menyediakan latihan, kursus, pinjaman dan memberi khidmat nasihat sewajarnya kepada para siswazah agar isu pengangguran diatasi. Persepsi dan pandangan rendah para siswazah perlu diubah dan pilih kerjaya keusahawanan (Abd Samad et al. & Othman, 2019).

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TEACHING COMPETENCIES FOR DEEP LEARNING AMONG COLLEGE ENGLISH TEACHERS IN CHINA

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ABSTRACT: *The purpose of the study is to construct a framework of College English teachers' teaching competencies for deep learning. Deep learning is a student-centered and transdisciplinary learning approach involving higher-order thinking. It encourages students' intrinsic motivation aiming to solve problems in real-life situations with emphasis on deep processing rather than standardized outcomes while the teacher becomes a facilitator and resource provider. The Sequential Exploratory mixed research is implemented. Based on Biggs' 3P model applied to teaching, Tochon's Deep Approach to world languages and culture, and China's national document Guidelines on College English Teaching, the study selects Southwest China as the research site and puts forward the framework of teaching competencies for deep learning among College English teachers in China. The study is important to College English teachers, school administrators, and policymakers.*

Keywords: teaching competency; deep learning; student-centredness; transdisciplinary value; higher-order thinking

1. INTRODUCTION

With China going through economic reform and the open-door policy for over forty years, there has been an increasing demand for people with high English proficiency, and English as a Foreign Language (EFL) education has become increasingly important in China. CE education has made a great contribution to equipping undergraduates with high English proficiency and communicating with the world, but at the same time, it is under constant attack from educators and English experts. Influenced by the dominating teacher-centredness plus the fever of CET-4/6 (College English Test Band 4/6), criterion-referenced English language tests for non-English-major undergraduates in Chinese universities, students don't learn English with a deep and motivating approach to learning. They just want to get high scores on the tests. Research shows that simply focusing on memorizing, reciting, and imitating in CE classes led to basic language skill acquisition (listening, speaking, reading, writing and translating), the inadequacy of language expression and lack of in-depth opinion and argumentations. The passively rote learning fragments plus repetitious grammatical drills in CE also resulted in the opposite of deep learning, that is, surface learning, which means low efficiency and absence of critical thinking (Wang, 2017).

CE teachers need to equip themselves with the teaching competencies for deep learning that enhances students' motivation to learn and autonomy in learning (Kvashnina & Martynko, 2016). Especially those teaching students in Southwest China are supposed to try their best to maximize students' learning experience for the backwardness and low education quality in this area. A competent CE teacher in deep learning creates a student-centred classroom environment that enables students to equip themselves with higher-order thinking while offering support from both the lecturer and their peers. With teaching competencies for deep learning, a CE teacher guides the students to integrate language into the real world and life-related projects (Xiao, 2015), focusing on the process rather than the outcomes, emphasizing quality, relevance, and purposefulness rather than rote learning (Tochon, 2010).

The call for CE teachers' teaching competencies for deep learning is becoming increasingly urgent. In 2015, the State Council in China announced plans for the "world-class university and world-class

discipline construction”, which is known as Project “Double World-Class” (*shuang yi liu*) universities (DWCUs). The overall goal is to enhance the quality and competitiveness of higher education by promoting several high-level universities and disciplines to enter the world’s top ranks or the front ranks (Liu & Liu, 2021; Peters & Besley, 2018). As one of the essential components of liberal arts, the College English course and the CE teachers’ teaching competencies for deep learning play an important role in building DWCUs. Research shows the levels of the CE teachers’ teaching competencies may have something to do with the institution types involving DWCUs, the ordinary institutions, the non-governmental institutions. Besides that, their teaching competencies are reported to differentiate due to teachers’ individual characteristics, like academic qualifications, years of teaching, professional titles (Li, 2006; Li, 2011; Xi, 2015).

Although ample literature exists about the teaching competencies of EFL teachers in K12, teaching competencies of EFL teachers in post-secondary institutions, and teaching competencies of CE teachers, no literature studies CE teachers’ teaching competencies to enhance students’ deep learning. This study aims to explore the teaching competency framework to enhance students’ deep learning in China based on Biggs’ 3P model and Tochon’s Deep Approach to language and culture. And the research questions are:

- (1) What are the elements of the CE teachers’ teaching competencies for deep learning according to experts (members of the National Foreign Language Teaching Advisory Board in MOE, teachers of Pedagogy for English Language, and experts in deep learning)?
- (2) What are the elements of the CE teachers’ teaching competencies for deep learning among CE teachers?
- (3) Are there any differences in the teaching competencies for deep learning among the CE teachers with different academic qualifications (master’s degree, and doctoral degree)?
- (4) Are there any differences in the teaching competencies for deep learning among the CE teachers with different years of teaching experience (less than 4 years, 5-14 years, and more than 15 years)?
- (5) Are there any differences in the teaching competencies for deep learning among the CE teachers with different title ranks (professors, associate professors, and lecturers)?
- (6) Are there any differences in the teaching competencies for deep learning among the CE teachers in different higher education institution types (Project “Double World-Class” universities, the ordinary institutions, the non-governmental institutions)?
- (7) What is the framework of the teaching competencies for deep learning among the CE teachers?

2. MATERIALS AND METHODS

This research adopts Sequential Exploratory mixed method design to develop a framework of CE teachers’ teaching competencies for deep learning in China, as is shown in Figure 1.

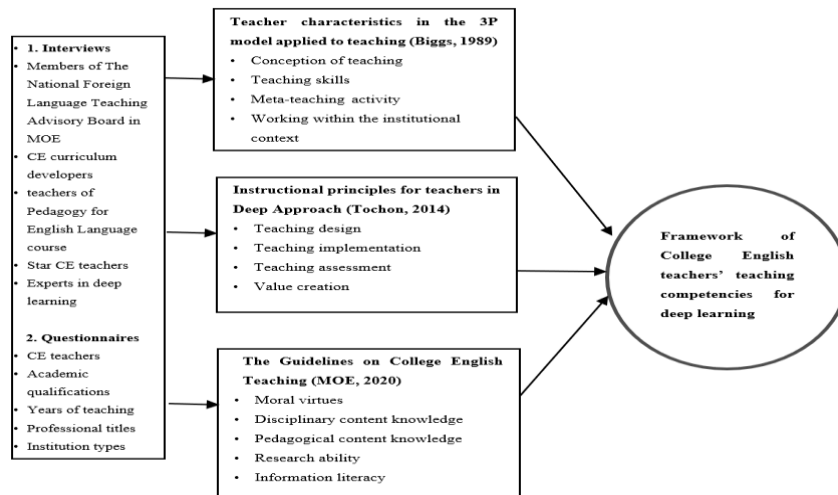


Figure 1. Conceptual Framework of the Study

2.1. Participants

The research focuses on universities and colleges Southwest China in order to identify CE teachers' teaching competencies for deep learning. Although significant development has helped modernize many portions of the region with the latest advancements, Southwest China has always been regarded as more remote and backward than the more prosperous eastern areas. And the education quality there is comparatively low. There are 144 universities and colleges in Southwest China (MOE, 2021), among which there are 13 "Double World-Class" universities (*World-class universities and disciplines, 2022*), 87 ordinary institutions, and 44 non-governmental institutions. In this study, all the teachers who have taught College English course for at least one semester in the 144 universities and colleges Southwest China are counted as the population.

2.2. Research Instruments

In the Exploratory Sequential research, semi-structured interviews are the research instruments for the first qualitative phase and questionnaires are for the second quantitative phase. In the semi-structured interview, two experts in deep learning help the researcher to determine the content validity of the interview protocol. These experts here are not the respondents interviewed later. The content validity of the questionnaire is also evaluated. Another two experts in deep learning are invited. Meanwhile, two experts on English language experts are also invited for the accuracy and structure of the language expression.

As for the reliability of the instruments, in the qualitative phase, the inter-rater reliability is adopted to test the consistency between different coders or raters. In the quantitative phase, the internal consistency of the questionnaire items is evaluated by Cronbach's alpha (α).

3. EXPECTED FINDINGS

The study goes through thematic analysis of the semi-structured interviews on several experts to develop a questionnaire of College English Teachers' Teaching Competencies for Deep Learning in China. Then after Exploratory Factor Analysis and Confirmatory Factor Analysis, the study expects to put forward of College English Teachers' Teaching Competencies for Deep Learning in Figure 2.

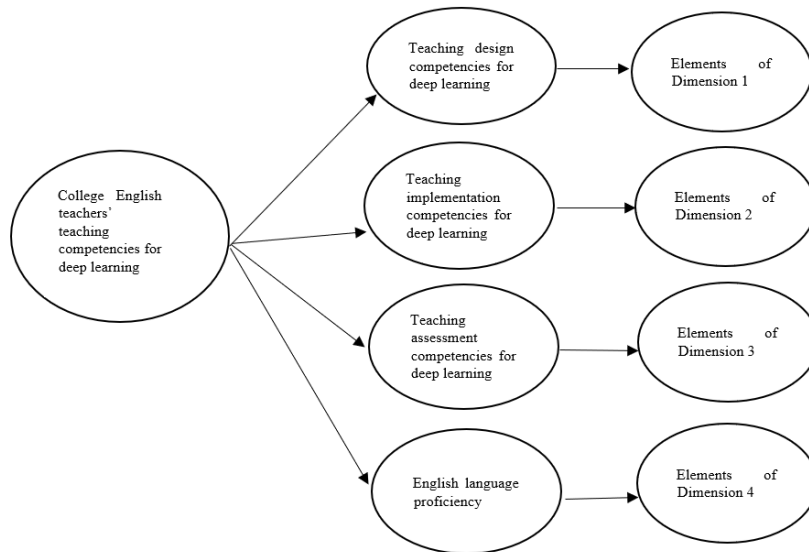


Figure 2. Framework of College English Teachers' Teaching Competencies for Deep Learning

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OBE BLENDED (OBEB) APPROACH FOR PROMOTING PRESERVICE ENGLISH TEACHERS' IDC IN CHINA

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ABSTRACT- The development of preservice teacher's instructional design competence (IDC) lays at the core position of teacher training course. The present ID course model has been proved strongly effective in achieving developing students' teaching skills in an undergraduate teacher education course. However, the researches on students' learning outcomes-oriented ID approach are rarely carried out. This research attempts to develop a blended approach based on the theoretical guidance of OBE aimed at improving the IDC of preservice English teachers. By conducting two rounds of experimental teaching research with preservice English teachers as participants, the research intends to explore: How OBE-based blended approach (OBEB) can be used to promote the development of preservice English teachers' IDC.

Keywords: outcome based education; blended learning; instructional design competence; preservice English teacher

1. INTRODUCTION AND OBJECTIVES

Instructional design competence (IDC) is the core of instructional ability and a key point of preservice teacher's ability training. The development of IDC determines not only the level of teachers' instructional ability, but also the quality of classroom teaching. The essence of IDC is the practical ability of analyzing and solving problems in classroom teaching.

It is an important as well as challenging task to provide preservice teachers with proper training to develop instructional design and planning skills before they formally begin their professional teaching careers. Many models have been used to teach instructional design (ID) [1]. Magliaro and Shambough found that learners of ID do not always use the models given to them, but they actively and independently reconstruct models in graduate ID courses[2]. Isman, Abanmy, Hussein and Al Saadany found that the new ADDIE (analysis, design, development, implementation, evaluation) model was strongly effective in achieving research aims, particularly for developing students' teaching skills in an undergraduate teacher education course [3].

Surprisingly, little work has been done on outcome-based model aimed at promoting the development of preservice teachers' IDC. This work is of crucial significance, since it is one of the core concepts of teacher professional certification. In addition, it is an important ideological tool to improve the quality of teacher training.

Outcome-based education (OBE) is a kind of educational concept oriented by students' learning outcomes. It is necessary for teachers colleges and universities to examine the problems existing in the current preservice teachers education courses, construct the expected learning outcome of ID courses guided by the concept of OBE, reverse-design the objectives, contents, implementation and evaluation of ID courses aimed to optimize and innovate ID courses, so as to improve the quality of ID courses.

This research attempts to develop a blended approach based on the theoretical guidance of OBE aimed at improving the IDC of preservice English teachers. By conducting two rounds of experimental teaching

research with preservice English teachers as participants, the research intends to explore: How OBE-based blended approach (OBEB) can be used to promote the development of preservice English teachers' IDC.

2. MATERIALS AND METHODS

The exploration of research needs theoretical support. Guided by the theory of blended learning and OBE, an OBEB approach was constructed for promotion of the development of preservice English teachers' IDC.

OBE theory, firstly proposed by Spady in 1994, is a student-centered approach of curriculum design and teaching. The move towards applying outcome-based education (OBE) in handling instructions at tertiary education has been one of the most widely considered topics in the educational sector in recent years [4]; Unlike traditional competence-based approach, OBE highlights student-centered, output-oriented, sustainable improvement. OBE impacts the whole instructive procedures from educational program plan; definition of goals and learning results, training methodology, learning technique design, evaluation strategy, and instructive condition [5].

Blended learning, according to Kvavik, is an innovative method for learners, making learning and teaching process more comfortable and attractive and is in accordance with learners' needs for the 21st century [6]. Blended learning could be the "new normal" in education [7]. Because blended learning incorporates the benefits of both traditional face-to-face classroom teaching and ICT (Information and Communication Technology) assisted learning, combining both offline and online learning. Blended learning is referred to as a combination of online and face-to-face instruction, and it is argued that learners can learn easily through this method, because this method is supported by the theory of experiential learning [8]. Sharma asserts that blended learning attempts to generate a harmonious balance between face-to-face interaction and online access to knowledge by considering teachers' and learners' attitudes and aptitudes [9].

3. FINDINGS AND ARGUMENT

3.1 THE OBE MODEL

In general, an outcome is describe as a culminating demonstration of learning which is the student should be able to do at the end of a course [10]. Outcome-based education is an approach to education in which decisions about the curriculum are driven by the exit learning outcomes that the students should display at the end of the course. Outcome-based education can be summed up as results-oriented thinking and is the opposite of input-based education where the emphasis is on the educational process and where we are happy to accept whatever is the result [5]. Outcome-based, insists Spady, does not mean curriculum based with outcomes sprinkled on top. It is a transformational way of doing business in education.

With all of these were saying saying, in essence, a three-circle outcome model was presented by Harden and colleagues, shown in Figure 1.

The inner circle represents tasks undertaken or work done by the practitioner: *doing the right thing*. If that was all that was involved in being a practitioner, however, we would be merely technicians and so

the middle circle represents the approach taken to the tasks. The middle circle emphasize the necessity for knowing not only what to do but why and how to do it: *do the thing right*. The outer circle represents the personal attributes and professionalism of the practitioner: *the right person doing it*.



Figure 1. The OBE model

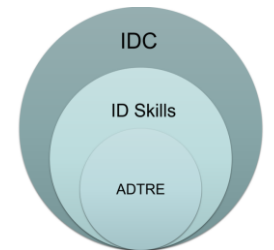


Figure 2. The OBE-ID Model

3.2 THE OBE-ID MODEL

The ADDIE model (analysis, design, development, implementation, and evaluation) is most frequently represented as the ID process and is generally viewed as a valuable framework for developing all types of training and development programs [11]. However, the model needs revision due to its restricted approach towards learning to teach.

The newly developed ID model ADTRE model is conceptually defined as a visual mental model and provides an iterative decision-making process for preservice English teachers to apply in complex and diverse future teaching situations. The five phases of ADTRE are analyzing, designing, teaching, revising, and evaluating or improving [12].

Accordingly, with the concept of the three-circle outcome based education model and ADTRE, the OBE-ID model is presented in Figure 2.

3.3 THE OBEB MODEL

Combining with previous OBE-ID model, the instructor could lead students to conduct the steps of analyzing, designing and teaching offline, while the steps of revising and evaluating online. The practice teaching and lesson plan of students could be recorded and put online, then being revised and evaluated by the instructors and peers. After that, the pre-service teacher could re-analyze and do practice teaching with a revised instructional design. Therefore, with this open system, the pre-service English teacher's IDC rises like a spiral.

4. CONCLUSION AND SUGGESTIONS

The results of this research may have some implication for preservice English teachers' professional development practice: OBEB can be used as a framework for course design of teacher training to promote the efficiency of ID course which is in cultivation of the IDC of preservice English teachers. OBEB

suggests that teacher professional development is a complex process, and in the following in-depth research, it needs to be cross examined from three dimensions: individual, practice and consequence.

ACKNOWLEDGEMENT

I would like to thank Prof. Ahmad Johari Bin Sihes for his help.

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CREATIVITY SKILLS IN PROJECT BASED LEARNING INTEGRATED STEM ON CHEMISTRY SUBJECT: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Since the year 2020, the world has faced crises that threaten its continuity, necessitating the speedy development of novel, creative solutions. Building a generation with these kinds of skills is important to secure the survival of human species. The educational system has the responsibility of helping students develop their creative abilities. One method that has demonstrated its capacity to give children creative abilities is the STEM-PjBL. This study aims to provide an overview of chemistry STEM-PjBL to assist students in developing their creativity. The majority of the publications in this study focused on improving creativity through STEM - PjBL in the chemical field and building creative domains. The reviewed articles were collected from well-known databases such as SCOPUS, Web of Science, and Google Scholar between 2016 and 2022 using PRISMA guidelines and flowchart. The findings reveal that more research into the impact of chemistry STEM-PjBL on scientific creativity is required. Although more than half of these articles implemented chemistry topics, there is still a need to conduct research on solving the learning difficulty of chemistry topics understanding using STEM-PjBL. Finally, findings demonstrate that there is a need for future study on involving high school students in long-term multi-project STEM-PjBL programs.

Keywords: STEM, Project Based Learning, STEM-PjBL, Creativity, Chemistry.

1.INTRODUCTION AND OBJECTIVE:

Since the beginning of the year 2020, the globe has been plagued by crises in every area, especially in the health and medicine factory sector and pollution problems and life has never been the same. There have been new challenges that can only be solved with new innovative scientific solutions. As a result, educational systems must modify their policies and curricula to produce a generation capable of generating novel solutions to unfamiliar real world problems. As this generation requires it to sense and detect problems, as well as develop the finest creative and original solutions, it must utilize the correct scientific and mathematical concepts, as well as select the best engineering principles and the most recent sustainable technologies in modeling methodologies [1].

One of the best educational approaches that has pioneered the implementation of such visions is project-based learning integrated STEM Education. STEM-PjBL is Student centered learning [2] providing them with authentic opportunities to think and act like engineers and scientists [3] and design solutions to real-life problems to foster creative thinking and hands-on skills [4]. Previous studies have proven the effectiveness of Steam in projects in consolidating creativity skills among students [5], [6], [7], [8], [9]

Because creative graduate students will positively contribute to the personal, social, technological, and economic worlds in the twenty-first century, the development of creative thinking skills is an important goal for science education [10]. Due to its close ties to other scientific disciplines like biology, medicine, nanoscience, and material science, Domenici views chemistry as the "central science" [9]. Rahmawati and others [11] affirmed that using STEM-PjBL to learn chemistry aids in students' ability to grasp chemical ideas and fosters their creativity. However, due to the difficulties involved in comprehending the chemistry topics, students tend to steer clear of choosing chemistry as a major [9], [11]. As a result, researchers must pay close attention to the chemistry discipline to determine how to foster creativity in its subjects using chemistry learning processes that are based on (Multi-levels) as identified by [12] through STEM-PjBL interventional programs.

Despite the fact that STEM-PjBL has been the topic of many studies in the domains of science, little is known about how STEM-PjBL fosters creativity in the study of chemistry [4]. In order to better

understand how project-based learning with STEM integration might enhance creativity in chemistry-related areas, this paper will do just that.

2. METHOD:

This study involved a thorough examination of the literature. The PRISMA principles and flowchart are used for the systematic literature review. The PRISMA 2020 standards contain a four-phase flow chart and a 27-point checklist item for transparency in the literature review [13].

2.1 Eligibility Criteria:

The articles were selected according to the availability of several criteria, including: published in scientific journals, between 2016 and 2022, and published in English. In addition, it focuses on exploring the question of this systematic literature review which is what is the role of chemistry STEM-PjBL on improving creativity skills.

2.2 Data Sources:

Databases used for searching are SCOPUS, Web of Science, and Google Scholar. The search terms used are “STEM” and “Project Based Learning” or “STEM-PjBL” and “Creativity” and “Chemistry”. The articles selected in educational research or chemistry are multidisciplinary from 2016 to 2022. The research process came out of it with a total number of articles equaling 19 articles.

SCOPUS is used to search in all Article-Title-Abstract- Keywords, and last search was carried out on 1/4/2022. The search resulted in 6 articles. While searching the web of science, resulted 6 articles after reading their abstracts, then reduced to 4 after removing the duplicates with SCOPUS results. The same terms were used for searching in google scholar and resulted in 9 relevant articles after looking in the first 5 pages for the appropriate articles and reading their abstracts [14], then became 8 after removing the duplicated ones. The last search was carried out on 3/4/2022.

2.3 Evaluation

To evaluate the quality of the research in each article, an evaluation was carried out using a rubric used by Amelia & Santoso [2]. The rubric consists of seven criteria: objectives and purposes, review of the literature, theoretical frameworks, participant, method, result and conclusion. The evaluation was carried out on the full text content. four scales, 1 = not meeting standard, 2 = almost meeting standard, 3 = meeting standard, 4 = exceeding standards. The score of each article was between 13 and 28. Articles that had a score less than 14 were excluded, so the final accepted articles became 18.

3. FINDINGS AND ARGUMENT:

This systematic literature review examines 18 publications on the impact of STEM-PjBL on creativity skills in chemistry. According to the year of publication, one article was published in 2016 and one piece was published in 2017. In contrast, in each of the years 2018 and 2019, two articles were published. In the years 2020 and 2021, there was a sharp increase in the number of articles published, with 5 in 2020 and 6 in 2021. In 2022, the number was reduced to only one published article. The number of papers using quantitative, qualitative, or quasi-experimental design is equal to 6 for each design, according to the research approach utilized.

3.1 STEM-PjBL for improving creativity skills.

Some articles considered the improvement in creativity skills as one part of a collection of modern skills like 21st century skills [7], [15], [16], or entrepreneurial characteristics [8], [17]. Moreover, based on the outcomes that focus on improving creativity, they differ on domains they focused on, such as, Originality, Flexibility [16], Fluency, Elaboration [6], [18], and Evaluation [19]. All of these articles used a

creativity test quantitative method to measure creativity. Results of these articles showed a significant improvement in overall creativity skills. In addition, implementing STEM-PjBL has the highest influence on Fluency, then on Flexibility, and the lowest improvement is in Originality. This systematic review showed particularly there is a lack of consensus regarding the importance of the skills required to enable students in the different education stages. Moreover, students need to be involved in interventional programs to raise their confidence in creating original ideas while working on their projects [6].

On the other hand, articles like [4], [20], measured the improvement in creativity through measuring the domains: adventurousness, curiosity, imagination, and challenge, using (Creativity Tendency Scale) with qualitative analysis. Results revealed, STEM- PjBL curriculum was designed based on objects in daily life, giving free rein to the students' imagination for creative design. Both articles suggested making some change in the way of implementing STEM by extending the teaching period and evaluating the long-term influence of PBL STEAM on students' learning attitude [20] and designing hands-on activities based on life experience and social issues [4].

3.2 Chemistry STEM-PjBL for improving creativity.

There have been literary studies that have focused on using STEM-PjBL in chemistry to promote creativity in general by adopting activities that are both relevant to the student's living reality and chemistry themes [20], [17], [7]. While some studies targeted pre-service chemistry teachers [8], [21], [9]. As can be seen, most of these researches did not give enough focus on how to solve the problems of the difficulty of chemistry subjects. Except for the analyses needed by Widarti and others [7], which emphasized the use of visual technology, such as video, to help students understand chemistry ideas from multi-level learning. This indicates that there is a shortage of research in this area. Accordingly, a paradigm for using STEM-PjBL that focuses on overcoming the problem of students' difficulty in learning chemistry topics is urgently needed.

3.3 Fostering Students Scientific Creativity.

"General creativity assessments will not do for assessing scientific originality," Hu and Adey stated [22]. However, the review of the previous studies showed only the researchers Siew & Ambo who published two articles [4.] and [23] implementing STEM-PjBL (cooperative learning) to enhance scientific creativity of grade 5 students. They used scientific creativity tests with criteria adapted from Torrance to measure the improvement in domains: Fluency, Originality, Elaboration, Abstractness of title, and Resistance to premature closure adventurousness, curiosity, imagination and challenge. Their studies showed that the STEM-PjBCL method produces a significant beneficial effect on scientific creativity among fifth graders. They suggested conducting it using different instructional methods among students of different grades especially after post-primary education. The revision of the literature reveals that STEM-PjBL has yet to fully exercise its right to research and investigation in the development of the variable of scientific creativity.

4. CONCLUSION AND SUGGESTION:

This systematic literature review looked at 18 studies that looked at the impact of chemistry STEM-PjBL on creativity. The analysis showed that using STEM-PjBL has a positive significant impact on creativity. More research into the impact of chemistry STEM-PjBL on scientific creativity is required. Additionally, articles findings suggest to involve students in long term multi-projects STEM-PjBL programs.

ACKNOWLEDGEMENT

The researcher thanks the Universiti Teknologi Malaysia for granting her access to the electronic library's database engines as an enrolled PhD student, and Prof. Johari Suraif for academic guidance.

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KESAN PENDEKATAN PEMBELAJARAN KOPERATIF TERADUN PEMBELAJARAN BERBALIK TERHADAP TAHAP KEMAHIRAN KOPERATIF PELAJAR DALAM PEMBELAJARAN SAINS

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ABSTRAK Penguasaan Subjek Sains di sekolah amatlah ditekankan dan pelbagai usaha untuk meningkatkan pemahaman pelajar telah dilaksanakan. Walaupun tahap penguasaan seseorang pelajar amat baik, kemahiran komunikasi yang lemah dan kurang keyakinan diri boleh memberi kesan kepada semangat berkumpulan. Beberapa kajian mendapati kaedah pembelajaran koperatif yang diintegrasikan dalam pengajaran teradun dapat membantu mengatasi masalah kelemahan interaksi sosial yang wujud. Oleh sebab itu, kajian ini dijalankan untuk menyelidik kesan pendekatan pembelajaran koperatif teradun flipped classroom bagi topik Haiwan terhadap tahap kemahiran koperatif pelajar. Kajian ini melibatkan 31 orang pelajar tahun 5 dari sebuah sekolah rendah di daerah Johor Bahru. Kajian ini dijalankan menggunakan reka bentuk pra eksperimen bagi satu kumpulan di mana penyelidik mengkaji satu kumpulan untuk intervensi semasa eksperimen tanpa kumpulan kawalan. Dapatan kajian mendapati pendekatan pembelajaran koperatif teradun flipped classroom dapat membantu meningkatkan tahap kemahiran koperatif pelajar dalam topik Haiwan. Hal ini berikutan majoriti pelajar (83.9%) mencapai tahap kemahiran koperatif cemerlang. Justeru, pendekatan pembelajaran koperatif teradun flipped classroom yang terdiri daripada kaedah pembelajaran berkumpulan secara dalam talian dan bersemuka ini amat bersesuaian dengan matlamat Kementerian Pelajaran Malaysia bagi merealisasikan pendidikan abad ke-21.

Kata kunci: pembelajaran berbalik; koperatif; pembelajaran teradun; sains

1. PENGENALAN

Pembangunan teknologi dalam pendidikan kini perlu seiring dengan pelaksanaan Pelan Pembangunan Pendidikan Malaysia (PPPM) tahun 2013-2025 untuk memenuhi keperluan pendidikan di peringkat global. Menurut Prihaswati et al., (2020), manusia perlu lebih proaktif untuk celik kepada teknologi dan menyedari kepentingan serta faedah menggunakan pendidikan berteknologi sebagai keutamaan untuk menghadapi cabaran era revolusi industri 4.0. Sehubungan itu, sektor pendidikan perlu dirancang dengan baik bagi memastikan kejayaan dan keberkesanan pembangunan negara (Hasnah dan Luqman, 2017).

Walau bagaimanapun, kaedah pengajaran di sekolah yang dilaksanakan pada masa kini masih tertumpu kepada kaedah pembelajaran tradisional walaupun guru menggunakan bahan berteknologi kerana proses pembelajaran masih berpusatkan guru (Yap et al., 2016). Hal ini menyebabkan pelajar akan rasa hilang keseronokan belajar dan mengurangkan sifat ingin tahu mereka untuk meneroka tentang Sains. Dapatan kajian Hassan et al., (2017) menyatakan antara punca pelajar lemah dalam subjek Sains adalah kerana kurangnya kesediaan guru dalam aspek pengetahuan dan pelaksanaan pengajaran. Bukan itu sahaja, kaedah pengajaran Sains biasanya adalah tradisional, berpusatkan guru dan tidak menggunakan bahan multimedia. Pembelajaran koperatif sesuai digunakan sebagai salah satu pendekatan bagi memastikan pengajaran lebih menarik dan mengoptimalkan penglibatan pelajar secara aktif. Menurut Barhoumi

(2015) pula, kaedah pembelajaran berkumpulan boleh membantu pelajar dalam konteks pendidikan, kognitif, motivasi dan afektif.

Untuk melaksanakan pembelajaran koperatif yang berkesan, pelajar memerlukan masa untuk berbincang bersama rakan-rakan. Walaupun tahap penguasaan seseorang pelajar amat baik, kemahiran komunikasi yang lemah akan memberi kesan kepada kejayaan pasukan. Penglibatan segelintir pelajar dalam tugas kumpulan juga kurang memuaskan dan sering rasa kurang keyakinan diri untuk berinteraksi dengan kumpulan ketika pembelajaran dijalankan (Lavy, 2017). Menerusi kajian Altun (2015), aktiviti berkumpulan memberi tekanan jika terdapat pelajar yang tidak dapat mempengaruhi kejayaan kumpulan itu. Bukan itu sahaja, kajian oleh Ramakanta dan Sonali, (2020) pula menyatakan masalah kehadiran dalam sesi pembelajaran dalam talian adalah berpunca dari kesukaran berinteraksi antara guru dengan pelajar dan kurangnya kerjasama daripada ibu bapa. Penggunaan aplikasi pesanan ringkas atau melalui kelas maya juga menghadkan komunikasi antara guru dan pelajar (Firman dan Rahayu, 2020). Hal ini menjadikan pelajar terpisah antara satu sama lain dan berhubung di ruang siber.

Subjek Sains juga sering disebut sebagai subjek sukar dan dipandang negatif bermula dari bangku sekolah rendah lagi (Van Aalderen dan Van Der Molen, 2015). Subjek Sains adalah antara subjek kritikal yang diajar di sekolah dan dapatan kajian Nachiappan et al., (2017) menunjukkan pencapaian Sains agak menurun sejak kebelakangan ini. Hal ini disokong oleh Poobalan et al., (2019), di mana terdapat pelajar yang telah gagal dalam peperiksaan Sains. Guru juga mempunyai kekangan untuk menghabiskan silibus pengajaran kerana setiap aktiviti yang dijalankan bersama pelajar akan mengambil masa yang banyak. Selain itu, tempoh pengajaran yang singkat telah menyekat kreativiti guru untuk mempelbagaikan aktiviti-aktiviti kemahiran berfikir aras tinggi KBAT di dalam proses pengajaran dan pembelajaran Sains. Oleh yang demikian, guru selalunya lebih mengejar topik pengajaran mengikut rancangan pengajaran tahunan (Shukri et al., 2020). Oleh sebab itu, kajian ini telah dijalankan bagi mengenal pasti kesan pendekatan pembelajaran koperatif teradun flipped classroom bagi topik Haiwan terhadap tahap kemahiran koperatif pelajar.

2. METODOLOGI KAJIAN

2.1. Reka Bentuk Kajian

Kajian ini dijalankan berpandukan kajian penyelidikan kuantitatif. Reka bentuk yang digunakan dalam kajian ini adalah reka bentuk pra eksperimental bagi satu kumpulan iaitu kajian kes sekali sahaja (*one shot case study*). Reka bentuk ini dimulakan dengan rawatan dan kemudiannya Ujian Pasca dijalankan terhadap satu kumpulan (Creswell, 2009).

2.2. Instrumen Kajian

Rubrik kemahiran koperatif digunakan dalam kajian ini dibentuk berdasarkan elemen pembelajaran koperatif (Johnson dan Johnson, 1989). Kriteria yang dinilai daripada Rubrik Kemahiran Koperatif ini diadaptasi daripada kajian yang dijalankan oleh (Yassin et al., 2018). Rubrik kemahiran koperatif ini terdiri

daripada lima elemen pembelajaran koperatif utama yang digunakan oleh penyelidik untuk melihat tahap kemahiran koperatif responden dalam kajian ini seperti berikut:

- i. Kebergantungan positif: Elemen ini memerihalkan tentang kefahaman pelajar dan ahli kumpulannya terhadap bahan pembelajaran yang diberikan. Konsep kebergantungan positif adalah di mana usaha antara ahli kumpulan memupuk semangat dan rasa ingin berjaya.
- ii. Interaksi bersemuka: Fokus utama elemen ini adalah hubungan komunikasi seperti bertukar idea dan bahan pembelajaran dengan ahli kumpulan. Ahli kumpulan berupaya membincangkan masalah dan penyelesaiannya serta memberi maklum balas kepada yang lain.
- iii. Akauntabiliti individu: Setiap ahli kumpulan harus menyedari siapa memerlukan bantuan, dorongan dan sokongan untuk membantunya melakukan tugas. Pelajar juga mesti mempunyai tugas individu untuk diuji pencapaian mereka sama ada telah mengembangkan kemahiran mereka atau tidak dan skor individu dikira untuk kejayaan kumpulan.
- iv. Kemahiran sosial: Elemen ini menjelaskan tentang sikap saling mengenali dan saling mempercayai, kemahiran berkomunikasi secara berkesan, saling menerima dan menyokong dan menyelesaikan konflik secara konstruktif. Produktiviti koperatif banyak berkait dengan kemahiran sosial sebagai kemahiran komunikasi seperti meminta pertolongan, meminta maaf, dan meminta sokongan.
- v. Pemprosesan kumpulan: Perbincangan harus membawa kepada keputusan tentang apa yang harus dilakukan untuk meningkatkan kerjasama dan hasil kerja kumpulan. Setiap ahli kumpulan perlu sentiasa menjalankan perbincangan untuk mengelakkan kesilapan dan memperbaiki kerja kumpulan. Elemen pemprosesan kumpulan boleh dicapai dengan dua cara iaitu pemprosesan kumpulan antara ahli dalam kumpulan dan pemprosesan kumpulan antara seluruh kelas di mana setiap kumpulan berkongsi pengalaman mereka dengan kumpulan lain.

3. DAPATAN DAN PERBINCANGAN

Kemahiran koperatif pelajar diukur berdasarkan tahap kemahiran koperatif yang dikuasai oleh pelajar dalam pendekatan pembelajaran koperatif secara teradun flipped classroom bagi subjek Sains topik Haiwan. Dapatan kajian menunjukkan secara keseluruhannya, 26 orang pelajar (83.9%) mencapai tahap kemahiran koperatif cemerlang. Manakala 4 orang pelajar (12.9%) memperoleh tahap penguasaan baik dan 1 orang pelajar (3.2%) mendapat tahap penguasaan lemah. Dapatan kajian mendapati tiada pelajar yang tidak menguasai berdasarkan tahap kemahiran koperatif yang diukur.

Dapatan kajian berdasarkan elemen kemahiran koperatif pula menunjukkan 74% pelajar memperoleh tahap kemahiran koperatif yang cemerlang bagi elemen kebergantungan positif. Manakala bagi elemen interaksi bersemuka, sebanyak 71% pelajar mencapai tahap kemahiran koperatif cemerlang. 80.6% pelajar pula mencapai tahap kemahiran koperatif cemerlang bagi elemen akauntabiliti individu. Bagi elemen kemahiran sosial pula, 67.7% pelajar berjaya memperoleh tahap cemerlang bagi elemen tersebut. Sebanyak 64.5% pelajar mendapat cemerlang pada elemen pemprosesan kumpulan.

Walau bagaimanapun, dapatan kajian juga menunjukkan sebanyak 3.2% pelajar lemah dalam penguasaan tahap kemahiran koperatif bagi elemen kebergantungan positif dan interaksi bersemuka. Manakala bagi elemen kemahiran sosial, 6.45% pelajar dikategorikan lemah dan 9.65% pelajar juga didapati mencapai tahap penguasaan lemah dalam elemen pemprosesan kumpulan. Bagi elemen akauntabiliti individu, 3.2% pelajar tidak menguasai tahap kemahiran koperatif selepas menggunakan pendekatan pembelajaran

koperatif teradun flipped classroom. Walaupun begitu, dapatan kajian membuktikan bahawa pendekatan pembelajaran koperatif teradun flipped classroom dapat meningkatkan tahap kemahiran koperatif majoriti pelajar dalam topik Haiwan.

Dapatan ini disokong oleh kajian Johnson dan Johnson, (2008) bahawa strategi utama untuk mengubah pelajar pasif kepada aktif melalui pembelajaran koperatif.

4. CONCLUSION

Dapatan kajian ini membuktikan kaedah pembelajaran Sains perlu diubah daripada kaedah tradisional kepada kaedah pembelajaran yang lebih moden dan mampu memotivasikan pelajar. Justeru, kajian ini dapat menjadi panduan kepada guru dan kementerian pendidikan dalam meningkatkan kemahiran koperatif dalam pembelajaran Sains.

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STRATEGIES FOR ENHANCING TEACHING SELF-EFFICACY AMONG ENGLISH AS A FOREIGN LANGUAGE TEACHERS IN CHINESE SECONDARY VOCATIONAL SCHOOLS

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ABSTRACT

The purpose of this study is to explore the strategies for enhancing teaching self-efficacy among English as a foreign language teachers in Chinese secondary vocational schools. The research design used in this study is the exploratory sequential mixed-method design. In this study, the exploration of strategies for enhancing EFL teachers' teaching self-efficacy are based on the combination of Morris, Usher, and Chen's (2017) model of the development of teachers' teaching self-efficacy and Wyatt's (2016) model of the growth of English language teachers' teaching self-efficacy. There is significant difference in strategies for enhancing teaching self-efficacy according to teachers' years of teaching experiences, qualifications and school types.

Keywords: Strategies; Teaching self-efficacy; EFL teachers; Teacher knowledge; Sources of self-efficacy

1. INTRODUCTION

In the last few decades, English language teaching in Chinese secondary vocational schools has been criticized at its quality. Studies have connected the poor quality to vocational school EFL teachers' effectiveness because quality in educational settings is largely dependent on effective teachers who are capable of adopting new teaching strategies, engaging students in meaningful activities, managing classroom routines, and building positive teacher-student-relationships (Rimm-Kaufman & Hamre, 2010). Teachers' teaching self-efficacy is an significant component of teacher effectiveness that exerts influences on the classroom ecology from three levels, including students' academic achievement, classroom quality, and teachers' well-being (Zee & Koomen, 2016). However, given both the empirical and anecdotal evidences, Chinese secondary vocational school EFL teachers' teaching self-efficacy are generally low (Liu, 2018; Tong et al., 2008; Yang, 2010), which is detrimental to the quality of English language teaching in Chinese secondary vocational school. Few studies attempted to provide solutions to this serious problem yet such efforts are inadequate as it is still work in progress. Therefore, this study meant to supplement the researchers' efforts by exploring from experts the strategies to enhance EFL teachers' teaching self-efficacy in Chinese secondary vocational schools.

The study is explored from Morris, Usher, and Chen's model of the development of teachers' teaching self-efficacy, and the model of growth in English language teachers' teaching self-efficacy

developed by Wyatt, tracing from the classical scholar who is Bandura. Sources of teaching self-efficacy, integrative and evaluative factors of efficacy information, and teaching self-efficacy are the three parts in Morris, Usher, and Chen's model. Sources of teaching self-efficacy are the bases in forming teachers' self-efficacy, which are enactive mastery experiences, vicarious experiences, social persuasions, physiological and affective states, and other sources of teacher knowledge. In order to explore the strategies to enhance EFL teachers' teaching self-efficacy in Chinese secondary vocational schools, elements of growth in English language teachers' teaching self-efficacy are incorporated in the framework, which are learners and learning, teaching approaches, organizing the class, analysing the coursebook, adapting materials, evaluating lessons and learning, developing reflective skills, use of language while reflecting, justifying pedagogical decisions, developing reflective attitudes, researching practice, supporting other teachers, coping with contextual demands.

2. RESEARCH OBJECTIVES

The main focus of this study is to develop a framework for the strategies to enhance EFL teachers' teaching self-efficacy in Chinese secondary vocational schools. The specific objectives of this study are therefore to:

1. Explore the strategies to enhance Chinese secondary vocational school EFL teachers' teaching self-efficacy according to experts (teaching and researching personnel, lecturers, and vocational school EFL teachers).
2. Identify the strategies to enhance teaching self-efficacy among Chinese secondary vocational EFL teachers.
3. Compare the strategies to enhance teaching self-efficacy among Chinese secondary vocational school EFL teachers based on their years of teaching experience.
4. Compare the strategies to enhance teaching self-efficacy among Chinese secondary vocational school EFL teachers based on their qualifications.
5. Compare the strategies to enhance teaching self-efficacy among technical school and non-technical school EFL teachers.
6. Develop a framework on strategies to enhance teaching self-efficacy among Chinese secondary vocational school EFL teachers.

3. RESEARCH METHODS

The research design used in this study is the exploratory sequential mixed-method design. Qualitative data will be collected firstly with a small sample, then quantitative data from a large sample used to generalize the findings (Cohen et al., 2018). The first phase of this study is a qualitative

exploration of strategies for enhancing teaching self-efficacy among EFL teachers in Chinese secondary vocational schools among experts. Qualitative findings inform the development of a survey instrument which was used to collect data from a large sample of Chinese secondary vocational school English language teachers. Data from both phases are mixed in the final analysis so as to give a comprehensive description of the study. Mixed method is an approach to integrate qualitative and quantitative components within a study, providing a more complete and elaborate understanding of a complex matter than could be achieved by either approach used alone (Halcomb & Hickman, 2015). The reason for using mixed methods in this study was to expand the depth and breadth of the study from multiple perspectives (Bryman, 2006). Data selected from experts and teachers contribute to the framework of strategies for enhancing teaching self-efficacy among EFL teachers in Chinese secondary vocational schools. In this study, the semi-structured interview is arranged for experts, and an online questionnaire is designed for Chinese secondary vocational English language teachers. NVIVO software will be used to code and search for data of the interview, while SPSS and AMOS software will be used to analyze the results of questionnaire.

4. RESULTS AND DISCUSSION

The expected findings are as the followings:

1. There is a significant difference among Chinese secondary vocational school EFL teachers on the strategies to enhance teaching self-efficacy based on their years of teaching experience.
2. There is a significant difference among Chinese secondary vocational school EFL teachers on the strategies to enhance teaching self-efficacy based on their qualifications.
3. There is a significant difference between technical school and non-technical school EFL teachers on the strategies to enhance teaching self-efficacy.

4. CONCLUSION

The research will make a great contribution in many aspects including theoretical, methodological, and contextual. The proposed framework will contribute to enhance EFL teachers' teaching self-efficacy in Chinese secondary vocational schools as the insufficient attention left by EFL teaching and teacher education calls for a framework combines elements of growth in teachers' teaching self-efficacy and English language teachers' teaching self-efficacy. The study thus, adopts a cutting-edge framework originated from classical scholar like Bandura (1986, 1997) as linked to Morris, Usher, and Chen's model of the development of teachers' teaching self-efficacy, as well as Wyatt's model of growth of English language teachers' teaching self-efficacy. The two models are employed to explore the opinions of experts on how to enhance EFL teachers' teaching self-efficacy. As for methodological contribution, mixed method approach is used in this study, which can avoid the pitfalls of a single method like

quantitative or qualitative. The study therefore is to fill the gap as it develops a framework on strategies for enhancing EFL teachers' teaching self-efficacy to contribute to the contextual needs of Chinese secondary vocational schools. Challenges and responsibilities coexisted. On one hand, Chinese secondary vocational school teachers are facing demotivated and difficult students particularly for EFL teachers. On the other hand, English instruction in Chinese secondary vocational schools shoulders the responsibility to nurture versatile talents with competent English comprehensive abilities in order to better serve for the society. All can be overcome and achieved by enhancing EFL teachers' teaching self-efficacy through the framework of the study. Details of the contribution will be elaborated in chapter five of this study.

ACKNOWLEDGEMENT

In preparing this thesis, I was in contact with many people, researchers, academicians, and practitioners. They have contributed towards my understanding and thoughts. In particular, I wish to express my sincere appreciation to my main thesis supervisor, Professor, for encouragement, guidance, critics and friendship. I am also very thankful to my co-supervisor Professor Dr Ahmad Johari Bin Sihes for his guidance, advices and motivation. Without their continued support and interest, this study would not have been the same as presented here. My family members should also be recognised for their support.

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EFFECTS OF PEER COACHING ON TEACHERS OF SECONDARY SCHOOLS IN JOHOR BAHRU

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ABSTRACT

Education has been acknowledged as the essence to develop a nation. In Malaysia, the government has actively laid out plans to strengthen its education strategies. However, teacher quality is still a big concern in education today. During the school year, several teachers seldom pursue professional development opportunities. As a result, teachers are unable to obtain a deeper grasp of teaching practices that will help students learn more effectively. Peer coaching is a part of PLC as well as one of supervision tool to improve teacher's professional learning. But, the introduction of peer coaching in Malaysia receives mixed feeling with regard of its implementation, acceptance and practice. This is due to various reasons ranging from the perception of teachers on the benefit and practice of peer coaching, the approval and limitations profound by school leaders, the concern from authorities and more. This study aimed to analyse the effect of peer coaching on teachers especially on novice teachers in Johor Bahru District. The study employed both quantitative and qualitative design. A total of 128 novice teachers and 5 principals were involved in this study. The results were analysed using Statistical Package for the Social Science (SPSS) software in the form of descriptive statistics, namely percentage, frequency, mode and inferential statistics using T-Test and Anova. Plus, thematic analysis for the interviews conducted. The result of the analysis demonstrates the perception, collaboration and effect of peer coaching among teachers as well as the potential setbacks faced by teachers. The result shows that the collaboration among teachers and the effect teachers obtain from the practice is encouraging but the perception on the concept of peer coaching as an additional workload or evaluative process has to be changed. The authorities are recommended to acknowledge and encourage the practice in school level to enjoys the fruits of peer coaching as a professional development opportunity.

Keywords: peer coaching, professional development, perception, collaboration, novice teachers

1. INTRODUCTION

Peer coaching has existed for a long time and has evolved from a programme that focuses on a specific training issue to a programme that supports collegiality, according to Joyce and Showers (1995, 1996), who are regarded the main authorities on the subject. It is the application of classroom teaching to real-world situations where teachers can benefit from other teachers to enhance their practice if other teachers are likewise striving for improvement. However, the introduction of peer coaching in Malaysia receives mixed feeling with regard of its implementation, acceptance and practice. This is due to various reasons ranging from the perception of teachers on the benefit and practice of peer coaching, the approval and limitations profound by school leaders, the concern from authorities and more. From the best knowledge of researcher, the level of implementation and understanding on the benefit of this peer coaching practice is very much limited to all stakeholder with regard educational entities in this country.

Hence, this study would look into how peer coaching works and how it impacts teachers' performance especially on the part of instructional preparation, teacher's collaboration and understanding of the school leaders. Referring to mentioned before, the objectives of this research are as follows:

- a. to identify the level of teacher's perception of peer coaching and effect of peer coaching among school teachers with less than 3 years of service

- b. to examine relationship between gender and the perception of peer coaching
- c. to assess the collaboration among teachers on the implementation of peer coaching
- d. to examine any potential barriers for peer coaching practice in schools

2. MATERIALS AND METHODS

This inferential study used quantitative and qualitative data collected through questionnaires and interviews. The data obtained from this random sample were then analysed with descriptive statistics and significant tests. This study, used a mixed research method that has several study designs and has employed a survey to gather quantitative data and employed semi-structured interviews to gather qualitative data. The study concentrated on a homogenous sample of in-service teachers with fewer than 3 years of experience (secondary school teachers from Johor Bahru district) and choosing this group of primarily inexperienced teachers would benefit both teachers as practitioners as well as educational enforcement bodies and school principals. The sample size for a population of 178 teachers, from 47 schools as per Krejcie and Morgan's (1970b, p. 607) sample size, is 118 teachers. In this study, 5 principals were chosen randomly in the research population to gather their feedback. Then, these 5 principals recommended 2 teachers (who fit the criteria) from their school to accommodate the study. Interviews were conducted with these 5 principals and 10 teachers.

3. RESULTS AND DISCUSSION

3.1. Findings

Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree	Mode
	%	%	%	%	Frequency distribution				
A1 Routine	22.0%	69.50%	8.50%	0	26	82	10	0	82
A2 Involvement	22.0%	69.50%	8.50%	0	26	82	10	0	82
A3 Being Observed	22.0%	69.50%	8.50%	0	26	82	10	0	82
A4 Stress / Worried	0.0%	67.80%	32.20%	0	0	80	38	0	80
A5 Delay in Duties	0.0%	17.80%	82.20%	0	0	21	97	0	97
A6 Overwhelming Clerical Duties	19.5%	44.90%	35.60%	0	23	53	42	0	53
A7 Time consumption	0.0%	22.90%	77.10%	0	0	27	91	0	91
A8 Helpful	7.6%	65.30%	27.10%	0	9	77	32	0	77
A9 Evaluative	13.6%	51.70%	34.70%	0	16	61	41	0	61
A10 Students' Concentration	0.0%	27.10%	63.60%	9.30%	0	32	75	11	75
Average %	10.7%	50.6%	37.8%	0.9%	126	597	446	11	
118	61%		39%		723		457		

Section A consists of 10 items and analysed descriptively to answer research question 1; respondents' perception on peer coaching program in the study. It can be summarized generally that 61% of the sample

population are favorable in the category of strongly agree and agree and 39% in the category of disagree and strongly disagree. 10 items in the perception part are distributed into 4 categories according to the themes designed in the questions for better understanding and discussion. The categories are management issue, interruption, program routine and professionalism/ self-motivation.

The figure above demonstrates teacher’s response on how overwhelming clerical duties hindering teachers in participating; creating reflection that peer coaching is time consuming (A6) and the amount of time taken for the implementation of peer coaching session (A7). Interruption is one of the barriers highlighted in the survey. Basically, interruption explores teacher’s perception on peer coaching practice with regard of their teaching and learning schedule, class control and curriculum implementation. These would also be the main concerns of teachers when they are proposed to run other elements in class as mentioned in item A5 and A10. Educators as professional teachers are always looking for better situations and environments to support their learning (Coe.et al.,2014). On item A4, 67.8% of the respondents feel that the program is rather helpful to them while 32.2% disagreed that observations conducted by their peers are helpful to them. Practical peer coaching sessions should give an advantage to the teachers to improve their skills and knowledge. However, it should come with the right frequency of the visits and participation as per item A1, A2 and A3.

Items	Percentage distribution				Number of respondent distribution				Mode	Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree		
	%	%	%	%	Frequency distribution					
B11 Teaching Preparation	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
B12 Supervisory	0.0%	42.3%	56.7%	0.8%	0	50	67	1	67	118
B13 School Climate	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
B14 Experimenting new elements	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
B15 Reflecting own teaching	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
B16 Contribution to personal growth	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
Average	21.8%	68.5%	9.5%	0.1%	155	485	67	1	485	707
118	90.3%		9.6%		639		68			

Section B of the questionnaire consists of 6 items and analyzed descriptively to answer research question 2; influence or effect of using peer coaching on pedagogical preparation from the total of 118 respondents. For further analysis, 6 items in this part are distributed into 2 categories according to the themes designed in the questions for better understanding and discussion. This part explores positive impacts and changes peer coaching program has contributed with regard of pedagogical preparation of the respondents. As shown in the table above, almost all the respondents for item B15 and B16 agreed and strongly agreed that observing their peers has helped them to reflect their own teaching style and methods. The same group of respondents noted that the observations and feedback from their peers contribute towards their professional growth.

Items	Percentage distribution				Number of respondent distribution				Mode	Total
	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree		
	%	%	%	%	Frequency distribution					
C17 Active Participation	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
C18 Comfort	0.0%	42.3%	56.7%	0.8%	0	50	67	1	67	118
C19	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
C20	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
C21	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
C22	26.2%	73.7%	0.0%	0.0%	31	87	0	0	87	118
Average	21.8%	68.5%	9.5%	0.1%	155	485	67	1	485	707
118	90.3%		9.6%		639		68			

Section C of the questionnaire consists of 6 items and analyzed descriptively to answer research question 3; assessing the collaboration among teachers on the implementation of peer coaching. It can be summarized generally that 90.3% of the sample population are favorable in the category of strongly agree and agree in regard to collaboration among teachers on the implementation of peer coaching and 9.6% in the category of disagree and strongly disagree.

Next, qualitative findings were gained from the semi-structured interviews that were used to expand on the quantitative findings. Theme 1 discovers the reality of what is happening in the school regarding the implementation of peer coaching from the perception of principals and teachers. On the scenario of peer coaching practice in school, the principals agreed that its being practiced in their respective school and did explained how it's being done. Theme 2 responds to the research question 4 for both the teachers and principals regarding the role principals in supporting peer coaching in school environment. The teachers have agreed to receive support from school administration in the implementation of peer coaching program. The principals too have given affirmation that they do encourage their teachers to participate in this program. Theme 3 describes about the challenges, setbacks and potential barriers in the implementation of peer coaching in the real school culture. In this part, almost all the teachers have complaint about time constraint, excessive workload and scheduling as the largest issue that they face in implementing and participating in peer coaching program. Other than the reasons mentioned before for the challenges of peer coaching practice, the support from the school administration, the school culture and environment influenced teachers in order improve and develop their pedagogical skills. The fourth theme describes the influence of peer coaching in teachers' pedagogical performance. The teachers were also in total agreement on the benefits of peer coaching and they see improvements in their pedagogical skills and style. Apart from giving assistance and guidance in improving teaching skills, the practice has developed a notion of sharing amongst teachers. The sharing included sharing of ideas, knowledge, techniques, experiences, teaching materials and modules.

3.2. Discussion

Teachers are overworked and fatigued due to their tight schedules and administrative responsibilities. Even though the school had a tiny enrolment, the administrative policy compelled the instructors to form several committees, exactly as the larger institution. If these overburdened clerical duties are reduced from the

teacher, the teachers are believed to move forward with their potential in developing students towards better progress in all aspects.

Besides that, they see peer coaching program as an evaluative assessment to review their performance. This response justifies why they may feel stressed and worried on being observed by another peer during their teaching session. Researcher believes that this conception of peer coaching as an evaluative assessment came from their position as junior teachers where the observer often takes it as assessment and the report being presented as well as documented in the said teacher's record. This perception should be enlightened. As mentioned before, the state where teachers were in total agreement on the benefits of peer coaching and they see improvements in their pedagogical skills and style was very positive. Besides providing assistance and direction in improving pedagogical skills, the practice has developed a notion of sharing amongst teachers. Further support from the school administration, the school culture and environment would influence teachers in order to improve and develop their pedagogical skills.

4. CONCLUSION

Based on current research and my own observations, I feel that peer coaching practice has the potential to promote teacher professional development in Malaysian secondary schools. To attain better outcomes in teacher accomplishment, well-managed procedures should be done to organize the peer coaching practice appropriately.

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A CONCEPTUAL PAPER ON THE TEACHER DIGITAL PROFESSIONAL DEVELOPMENT AND ITS DIMENSIONS

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ABSTRACT

Technology brings great potential in the effort to transform teacher learning and delivery methods of teacher professionalism development activities. Digital professional development has become popular for teachers to receive ongoing professional development training. Although teacher professional development is not a new field to be studied in the Malaysian context, most previous studies are more focused on exploring teacher professional development activities to improve teacher pedagogy in a face-to-face situation rather than to explore professional development more deep when it has gone beyond the face-to-face to a digital context. Based on existing literatures, dimensions of teacher digital professional development are proposed to conceptualise teacher professional development in digital context. This conceptual paper contributes to research and advance understanding of teacher professionalism in future and these dimensions are essential in improving the quality of teacher training.

Keywords: Teacher digital professional development; professionalism

1. INTRODUCTION

The systematic discussion about the continuous professional development of teachers started in the early 20th century, Dewey (1904) presented the importance of preparing teachers to be students who are always thinking. The professional development of these teachers is getting more and more attention when the needs of modern society to provide educational opportunities through adult education. This matter was also reported in Faure's UNESCO report in 1972 (Faure et al., 1972) which popularized the concept of lifelong education. This lifelong learning vision was then highlighted in the Delors Report in 1996 (Delors et al., 1996) until a change in philosophy was suggested by some researchers (Darling-Hammond, Hyler, Gardner, & Espinoza, 2017). Philosophical changes in line with the views of Ward and Tikinoff (1976) where it needs to change from the idea of "working on teachers" to the idea of "working with teachers". Teachers' professional learning received attention when professional development was found to be insufficient to meet the needs of teachers and the current context in terms of nature, needs and challenges (Smith, 2017; Zhang et al., 2021). In that regard, Zhang et al. (2021) showed that 82 percent of teachers stated that professional development activities that meet their needs are effective teacher learning activities. In relation to that, the teacher's professional learning is not merely a mechanical process and it requires the active role of the teacher in the learning process in reality.

The term professional learning is widely used to include various forms of learning for the professional development of teachers while professional development such as courses or seminars is seen as one of the components in the ecosystem of Continuous Professional Development (CPD) opportunities that are so wide. Next, professional development reflects the teacher's role is passive and less responsible (Lieberman, 1995; Webster-Wright, 2009; O'Brien & Jones, 2014) while professional learning reflects that the teacher's role is active and responsible (Evans, 2008; Sachs, 2015). Based on past research literature

(Timperley, 2011; Bleicher, 2013; Cordingley et al., 2020), the difference between professional development and professional learning of teachers can be explained based on the following important characteristics:-

- a) The role of an active teacher, whether individual or collective, is said to be a reflective professional.
- b) A process based on context declares the importance for teachers to be responsive to students' learning needs, as well as for schools to meet the needs of the community.
- c) A dimension of teacher evaluation that systematically evaluates the effectiveness of teachers' practical practices.
- d) A long-term process is applied in school life and has a systematic teacher professional development plan
- e) A process that brings changes in knowledge, beliefs and practical practices, or teacher capacity.

The teacher's professional learning needs to reflect a constructivist approach and an internal focus where the teacher becomes an active learner who is responsible for his/her own continuous learning as well as building self-change in the context of the teacher concerned. This change in professionalism is necessary (Day, 2000; Guskey, 2000; Roesken, 2013). In relation to that, it will also bring about a change in the conceptualization of the development of teacher professionalism from a delivery approach to a constructivist approach, as well as directly bring about a change in the structure of the teacher's professionalism development model (Labone & Long, 2014). Although there are different definitions and opinions on teacher professional development, but in this conceptual paper professional development refers to teacher professional development activities that include mentoring, self-study, study groups, workshops and others that are done in the form of either one-off, short-term, or long term (Fishman, 2016). However, when the word digital is added, it refers to teacher professional development activities that are done online either synchronously or asynchronously. Therefore, teacher digital professional development is teacher learning that includes teacher professional learning activities whether in formal or informal forms that are done digitally to actively improve skills and knowledge among teachers (Czerniawski et al., 2018).

2. TEACHER DIGITAL PROFESSIONAL DEVELOPMENT

Technology brings great potential in the effort to transform teacher learning and delivery methods of teacher professionalism development activities. Digital professional development has become a popular choice for teachers to receive ongoing professional development training (World Bank, 2021). Many educational institutions have provided online learning materials or professional development training to support educators in remote learning and provide new opportunities to form virtual professional learning communities (PLCs). Although teacher professional development is not a new field to be studied in the Malaysian context, most previous studies are more focused on exploring teacher professional development activities to improve teacher pedagogy in a face-to-face situation (Mahaliza, 2013; Zuraidah, 2017), but the need to explore professional development more deep when it has gone beyond the face-to-face to a digital technology-oriented context.

The digital professional development of teachers does not only focus on technical skills and knowledge as an 'upskilling' process only and instead needs to constantly grow and change based on the dynamic nature

of the context in which the teacher is (Vanassche et al., 2021). Digital professional development activities need to be introduced widely and need to be provided by meeting the various levels and learning needs of teachers needed throughout the service period (Martins et al., 2019). This matter received attention when the Harvard Graduate School of Education study in the OECD report (2020) recently reported that the provision of professional support and advice to teachers has become one of the main steps in the strategy of continuity of education during school closures due to the pandemic crisis (Reimers & Schleicher, 2020). Such teacher professional development training is usually done through digital platforms to improve the quality of teaching and learning of teachers especially during a pandemic (UNESCO, 2020; Hertz et al., 2022). With that, the development of digital professionalism is increasingly important in today's digital era.

In addition, teachers in Malaysia have 5 days or 42 hours of teacher professional development training in a year (KPM, 2020) and the professional development training is usually held in the form of workshops, seminars, conferences and courses (Tina, Zoraini & Norziati, 2011). Previous studies have shown that teacher development training is very important to help teachers adapt to any changes that will occur (Sharif & Cho, 2015). In the same note, Mohd Hamzah and Sirat (2018) also stated that teachers needed to be equipped with recent information that can be obtained through trainings which are organized by the school or the related parties. Nevertheless, Yahaya (2020) found that teachers face difficulties in understanding and practicing the knowledge they want to convey if the content of the training is too dense and not related to the teacher's practice in school. This situation is in line with the statements of Guskey (2002) and Dede et al. (2016) that most of the professional development activities implemented fail and teachers do not practice in schools after trainings as the activities do not meet the real needs of teachers in schools (Yahaya, 2020). Face-to-face teacher professional development activities held after school or school holidays also create difficulties for teachers where the focus of the teacher's attention is affected (Yahaya, 2017; Ozer, Can, & Duran, 2020). Therefore, how important digital professional development can be done among teachers.

3. DIMENSIONS OF TEACHER DIGITAL PROFESSIONAL DEVELOPMENT

The digital professional development of teachers in this study has six dimensions, namely latest knowledge, experimentation, reflection, collaboration and innovation. All these dimensions are identified based on the highlights of the literature related to the professional development and professional learning of teachers. Table 1 shows the dimensions that have been identified and combined to become dimensions for the digital professional development of teachers.

Dimension Authors	latest knowledge	Experimentatio n	Reflection	Collaboration Teaching and Learning	Collaboration School Improvemen t	Innovatio n
Hallinger et al. (2017)	✓	✓	✓	✓	✓	
Liebman et al. (2005)			✓	✓	✓	
Evers et al. (2015)	✓	✓	✓	✓	✓	
Liu, Hallinger & Walker (2015)			✓	✓	✓	

Hung & Li (2017)						✓
Parlar & Cansoy (2017)						✓
Mohammad Fazli et al. (2020)						✓

Table 1. Dimensions of Teacher Digital Professional Development

Based on Table 1, there are two researchers stating that the latest knowledge, experimentation, reflection, collaboration of colleagues for teaching and learning, collaboration of colleagues for school improvement are aspects or dimensions for the development of a teacher's professionalism (Hallinger et al., 2017) ; Evers et al., 2015). While Liu, Hallinger and Walker (2015) argue that reflection, colleague collaboration for teaching and learning, colleague collaboration for school improvement are aspects of teacher professionalism development. In this study, the dimension of teacher professionalism development stated by Evers et al. (2015) was used. However, the innovation dimension needs to be made as one of the dimensions nowadays because the innovative level of a teacher is linked to the teacher's professional development (žydzūnaitė & Arce, 2021; Mohammad Fazli et al., 2020; Hung & Li, 2017; Parlar & Cansoy, 2017).

3.1. Latest Knowledge

The practice of reading and participation in professionalism development training is a clear strategy in always following the continuous development of education. The goal of reading is to gain new knowledge and insights, whether the teacher obtains information from online or offline sources. For example, teachers always keep up with current developments by studying subject literature, reading education literature (Geijsel et al. 2009; Kwakman, 2003), and now teachers can improve their self-understanding about the practical practices of teaching and learning by browsing online education platforms. Formal and non-formal professional development training is also part of teachers' learning activities in schools. (Cheetham, Graham & Chivers, 2001; Park & Jacobs 2011; Tynjälä 2008) and also a method to acquire new skills and equip oneself with the latest information (Geijsel et al. 2009). For example, short-term formal training courses can be a stimulus to teachers' further professional development in schools (Grip 2008), although the methods of implementing professional development are currently considered limited (Bubb & Earley 2013). Previous studies have shown that training activities and professionalism development in general do not have a significant influence on teacher learning outcomes, especially teacher expertise (Evers et al., 2015).

3.2. Experimentation

Kwakman (2003) described the experimental practice as a teacher's effort to implement and test something new in the classroom. There are several researchers who have studied experimental practices in the development of teacher professionalism. For example, Benson (2010) reports on a case study involving secondary school teachers in Hong Kong. Benson's study (2010) concluded that the effect of teacher education courses is dependent on the teacher's experimental practice with new ideas in the classroom. Accordingly, Geijsel et al. (2009) also classified experimental practice as one of the important professional development activities of teachers and proved that there are several positive indicators

including collaboration among teachers, internalizing school goals into personal goals, and self-efficacy. In addition, the past literature review also presents an issue to distinguish between experimental practice and teacher reflection as a learning activity because these two practices can be distinguished as separate categories. For example, the results of the empirical study of Geijsel et al. (2009) could not distinguish between experimentation and reflective practice. They concluded that this reflective practice is part of experimental practice. However, the view of Hoekstra et al. (2009) and Kwakman (2003) oppose the view of Geijsel et al. (2009) that they think experimental practice and reflective practice (both theoretically and empirically) should be categorized separately for teachers' professional development activities in schools. Therefore, in line with the view of Hoekstra et al. (2009) and Kwakman (2003), experimental practice and reflective practice are seen separately although they are related in this study.

3.3. Reflection

The practice of reflection and feedback questions as a teacher's professional development activity has been frequently studied in the past decade (Avalos, 2011). In various professional development programs, reflective practice has become the main strategy for teachers (Marcos, Sanchez, & Tillema, 2011) and is seen as a landmark in professional development by Schön (1983). The practice of reflection is an activity where teachers give meaning to themselves based on their experiences and these experiences will lead to the formation of theories and teacher solutions that will eventually be tested in a real school context (Daudelin 1996; Retallick 1999). In short, the practice of reflection will lead to the transformation of beliefs, values and practices among teachers (Opfer, Pedder, & Lavicza 2011). Next, Eraut (2007) also found that the practice of reflection in work or the learning process at work often occurs while listening or observing others. The results of his research have reported that the practice of critical reflection plays an important role in enabling teacher learning and change to occur. In addition, Runhaar's (2008) study also showed that the practice of teacher reflection facilitates the learning process from practice. Therefore, feedback questions are the starting point of reflection practice and can be a result of the reflection process because both are interrelated (Prilla, Degeling, & Herrmann 2012; Ramani & Krackov 2012). Feedback is an important element to the professional development of teachers in schools (Mulder & Ellinger 2013). In line with the views of Kwakman (2003) and Evers et al. (2015), researchers make feedback questions an important element for a teacher to reflect.

3.4. Collaboration

Colleague collaboration is important because it provides the necessary support for learning, enables teachers to think critically, and brings new challenges and ideas (Kwakman 2003). There are researchers who see this collaboration as an indicator for non-formal professional development (Geijsel et al. 2009; Hoekstra et al. 2009). However, there are also researchers who see this collaboration as a teacher learning process that occurs while collaborating with each other (Evers et al., 2015). For the second view, it is clearly seen that social interaction is the basis of learning (Vygotsky, 1978). For example, Tynjälä's (2008) study found that learning occurs when collaborating with colleagues. Accordingly, interaction with colleagues is seen as an important source for acquiring professional knowledge (Grangeat & Gray 2007) and teacher professional development (Park et al. 2007). As a result, Little (1990) once concluded that the content of interaction between colleagues can contribute and add value to the professional development

of teachers. Now, with the availability of digital communication platforms such as Twitter, FaceBook, WhatApps, Telegram and others, teachers can collaborate and implement PLC about teaching and learning practices with colleagues anytime and anywhere (Sheninger, 2019)). In this study, the researcher classified teacher collaboration into two categories of colleague collaboration, namely colleague collaboration for teaching and learning and colleague collaboration for school improvement.

3.5. Innovation

Innovation is a purposeful change process (Moreno & Mayer, 2002), which needs to be done to improve the quality of learning based on educational needs with teacher involvement. The involved teacher is an individual or a group of teachers who can change content, attitudes, culture and ideas, model and introduce new methods or utilize new resources and technology in the teaching and learning process in the classroom (Anderson, & Shattuck, 2012). However, no innovation will happen without teacher training. Therefore, it must be related to the professional development of teachers. Professional development helps teachers explore aspects of teaching and learning in depth and allows them to think and create new methods to solve problems in the classroom and then share them with other teachers through digital platforms.

4. CONCLUSION

Training trends, knowledge and skills requirements, as well as educators' behavior, have now changed along with the emergence of education 4.0. It leads to the need for new forms of teaching and learning, and the need to design and rethink education in order to parallel the rapid development of technology (Hashim, 2018). Recent developments and innovations enable unique technology-assisted delivery and learning to be implemented through digital platforms (Omar & Hashim, 2021). Thus, the proposed dimensions of teacher digital professional development help to gain a better comprehension of what teachers need in their professional development in future.

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Educational Leadership in ancient China culture and history: A case study on Confucius

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ABSTRACT

Leadership is generally considered as a key ability that leaders must possess, which integrates the contents of many important fields, such as management, psychology, organizational behavior, etc. Although the modern leadership theory was introduced into China relatively late, as a country with a long history of nearly 5000 years, its educational leaders and experts have formed a set of educational leadership styles and methods with China characteristics during its long educational development in the past. Among them, the thought of Confucius is the most important and prominent in the field of education leadership in ancient China. There are two aspects of his educational leadership thought that have been deeply applied by later ancient Chinese educational leaders: (1) Unifying the roles of students and educational administrators. (2) Paying attention to propagating of values. This research has breakthrough significance and innovative value, which is conducive to the future research on China educational leadership.

Keywords: China education; educational leadership; leadership.

1. INTRODUCTION

The majority people in China usually refers to the time and history before the signing of the Nanjing Treaty with Britain in 1842 as the "feudal society era" or "ancient times". In ancient China, there were 23 dynasties. Most of the dynasties had less academic exchanges with foreign countries. Therefore, despite the vigorous development of education in ancient China, almost all of them developed a set of educational leadership theories independent of modern theories. Although the China education leaders at that time could not accurately describe "what is education leadership" and could not theorize their thoughts, in fact, their education leadership was very prominent and consistent with the social reality at that time. Moreover, most of these ancient educational leaders' related thoughts are also affecting modern China educational leaders and administrators today.

Among them, the most famous education leader in ancient China was Confucius, whose thoughts had a profound impact on China and the world. He was listed as the first of the "world's top ten cultural celebrities". He was respected by all dynasties and modern society in China. It is a very important cultural activity in China to commemorate Confucius.

He is not only a very good educator, but also a famous education leader. He leads an education group with more than 3000 people, which is very rare in the world more than 2500 years ago

This is an in-depth case study, involving in investigation and analysis of this kind of educational leadership in ancient Chinese culture and history, taking Confucius as an example, which is conducive to the further development and propagating of relevant theories of educational leadership, such as the transformational leadership theory, in China and increase their influence.

2. MATERIALS AND METHODS

This study adopts the document analysis method. The main sources of documents are as follows: (1) ancient official historical records. It includes not only the formal history books recorded by the government, but also the unofficial history recorded and handed down by the people. They are usually historical records made in the form of literature, which records some important events at that time. (2) Articles. The papers made by modern researchers in the field of education management are also an important source of data and information for this study. (3) Some modern reports and video materials. After collecting the data through the above channels, the researcher conducted thematic analysis on these data and materials, and finally formed the conclusions for the following questions:

RQ 1: What are the characteristics of educational leadership in ancient China culture and history?

RQ 2: Which major social thoughts were closely related to these characteristics?

3. RESULTS AND DISCUSSION

China's education has a very long history. In China's war States period (476-221 BC), the famous educator and philosopher, Mencius, put forward the idea of "educating the world's talents", which is the source of the word "education" in the Chinese context. The era of Confucius was even earlier than that of Mencius, and many of his thoughts also had an impact on the later Mencius.

At that time, due to the needs of various vassal states in the development of national strength and war, there was an urgent need for a large number of talents with the ability to govern the country. Under such circumstances, education began to develop rapidly.

3.1. 3.1 Unifying the roles of students and educational administrators

A large number of educational organizations centering on a famous educator and taking the apprenticeship system as the core came into being. Among them, the leader of the most famous educational group, Confucius, who has 3000 disciples, including 72 "sages". These "sages" are not only his students, but also the administrators of his educational organization. They learn from Confucius as a student, and at the same time manage the whole organization. This kind of situation is rare under the modern educational leadership thought. However, in China education at that time, this kind of unifying the roles of students and educational administrators was quite common. For example, Confucius and most of his disciples usually live, eat and stay together. Sometimes his first student, Yan Hui, was responsible for finding food (Baidu Baike, 2022). It is quite common for students to undertake the daily life of teachers, such as washing clothes for teachers (Meimei, 2021). This kind of situation that a person is not only a student, but also an education manager and a worker has also appeared continuously in later history.

In ancient China, the older students were usually responsible for the younger students. For example, in the carpentry industry, the older students would tell the younger students how to get along with the teachers, so as to acquire more knowledge and skills (Baimuhui, 2021). It can be seen that this situation has occurred in many industries.

This kind of history can prove that in the history of China education, educational leaders often unifying the roles of students and educational administrators, which is related to the prosperity of apprenticeship. This may be related to some ancient ideas. The China apprenticeship system requires teachers and students to live together. Students work for teachers and create benefits. At the same time, teachers are responsible for the food and accommodation of students. At the same time, students also play the role of managers in the business of teachers. The larger students are responsible for educating and managing the smaller students.

This ambiguity of role is actually a choice under the social reality at that time. 2400-2500 years ago, China's grain productivity was insufficient, and school education could not allow students to participate in full time learning. Part time work and part-time study is of practical significance, and Confucius improved this practice to a certain extent, combining learning with practice, and combining teaching with pleasure, which helps his students' ability to grow. At the same time, the management experience of the school is also conducive to these students to become important officials of various vassal states after graduation, so as to manage the whole country.

3.2. 3.2 Paying attention to propagating of values

As an education leader, Confucius is particularly good at and prefers to spread his values to his education managers (that is, his students). At the same time, he also organized a set of unified guiding theories or concepts, which includes political theory, economic theory, moral theory, etc (Baidu baike, 2022). This was very rare at that time or in the following 2000 years. This systematic unified theory is conducive to the propagating and learning of other people. Which is not only conducive to the propagating of his ideas within educational organizations, but also conducive to the propagating of it to other parts of China.

The core of all Confucius' thoughts are, "benevolence" and "propriety" (Li, 2021). These two ideas are fully reflected in his attitude towards students and others. In the terms of "benevolence", He cared for students, restrained egocentrism, and correctly handled the relationship with students (Ren, 2003). In the aspect of "propriety", he paid attention to the education of etiquette to form the good character of others, which was not only recognized by people at that time, but also has a high degree of recognition in the current China society.

This proves that these two ideological cores of Confucius have great universality, which won him great fame in the whole China at that time. Many of his students became important officials of various countries and continued to spread his ideas. These spread made the Confucianism founded by Confucius grow and become a model respected by emperors of all dynasties. In the Han Dynasty, the emperor established the "superior status on culture" of Confucianism (Sodocs, n.d.). In modern China society, Confucius' thought still has very strong significance and influence (Chen, 2001).

Confucius' thought is also reflected in education leadership. His theories on leadership relations, leadership quality, selection and employment, and leadership methods still have a lot of value and significance today (Pei, Wang, & Sun, 1996).

4. CONCLUSION

Through analyzing a large number of documents, this study takes Confucius as a case to study and analyze the educational leadership in ancient Chinese culture and history. Researchers found that Confucius' educational leadership has two characteristics: (1) unifying the roles of students and educational administrators (2) Paying attention to propagating of values. These practices of Confucius are ahead of time and have prominent significance. These let his thoughts be well spread to other countries, and made him a valuable heritage of Chinese culture. His success in educational leadership is also inevitable. These conclusions are helpful to our follow-up research on Educational Leadership in China, especially on transformational leadership, and have certain significance and value.

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A REVIEW OF “GOLDEN CURRICULUM” ARTICLES PUBLISHED IN CNKI USING CITESPACE

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ABSTRACT-The study aims to uncover the general trends of published researches undertaken in the field of college English teaching in the context of “Golden Curriculum” implementation in China. To this end, journals with a “Golden Curriculum” title and keywords were scanned through CNKI database and analysed through the metrological software CiteSpace. In the study, 1,645 articles published between the years of 2018 to 2021 were suitable for scope of research and were analysed and classified in the study. In the analysis of the data, a review and descriptive statistics such as frequency is utilized. It was found that majority of the articles within the scope of the study were based on prescriptive analysis on Golden Curriculum construction highlighting the importance of blended teaching mostly in public compulsory courses such as college English course in tertiary education. It is acknowledgeable that there is a shared view on implementing quality teaching and learning highlighting Advanced, Creative, and Challenging Golden Curriculum in college English teaching community.

Keywords: Golden Curriculum; college English; concurrence keywords.

1. INTRODUCTION

21st century education highlights a combination of knowledge, specific skills, information literacy, problem solving, flexibility and adaptability, accountability, and proficiency in 4Cs (critical thinking, collaboration, creativity, and communication) necessary to success in work and life with global competitiveness [1]. Major trend skills needed in the 21st century have been identified by organizations and projects such as the Partnership for 21st Century Skills (P21), the Assessment and Teaching of 21st Century Skills (ATC21S) [2], and China Education Innovation Institute of Beijing Normal University [3].

Responding to the 21st century skills, curriculum and instruction need to be supportive to lead to students’ 21st century outcomes today for tomorrow’s society. The Golden Curriculum can be seen as China’s initiative to incorporate 21st century skills into curriculum with the focus on higher order skills in an Advanced, Creative and Challenging (ACC) classroom. The concept of “Golden Curriculum” was firstly proposed in June 2018 and written into government document of *Accelerating the Construction of High-level Undergraduate Education and Comprehensively Improving Talent Cultivation Ability* (No.2 [2018] of the Ministry of Education) aiming at improving teaching quality by comprehensively eliminating the old curriculum which has been watered-down and implementing “Golden Curriculum” with the characteristics of being advanced, creative and challenging [4]. Considering the proposal of “Eliminating the old curriculum which was watered-down (i.e. obsolete contents and inadequate teaching methods) and implementing Golden Curriculum (featured with being Advanced, Creative and Challenging)” for the development of quality undergraduate programs and curriculums, the term “Golden Curriculum” has then triggered a heated discussion centering on its rationale and significance in higher institutions, especially among university EFL teaching community [5][6][7].

There have been plenty of studies conducted regarding “Golden Curriculum”, such as the interpretation of “Golden Curriculum” requirements (Innovative, Challenging and Advanced) [6][7]; and the current situation, problems and countermeasures related to the current university curriculum quality[8].

This present research was undertaken to review the current literature on Golden Curriculum by CiteSpace 5.7.R5 to highlight the top-ranked item by centrality to indicate the focus and trend of Golden Curriculum study. Hence, the research questions of the study were formulated as follows:

1. What are the most frequently studied keywords in research articles titled in “Golden Curriculum”?
2. What are the characteristics of Golden Curriculum distributed in the articles?
3. Where is the status quo and research trends related to Golden Curriculum in the context of college English teaching field?

2. MATERIALS AND METHODS

The present study was conducted via a descriptive and critical analysis based on the publication classification form adopted by [9] with some revisions. The classification form consisted of (1) author(s) and title of the articles, year of study, (2) method, (3) purpose and (4) conclusion.

The chosen articles were published in the journals indexed in the databases of China National Knowledge Internet (CNKI), the most commonly-used database in Chinese. The time interval was chosen as four years between 2018 and 2021 since “Golden Curriculum” proposal was initiated in 2018 and the retrieval data was collected on July 19, 2021. A total of 1,645 articles were obtained by searching “*jinke*” (Golden Curriculum) by title and keywords. The searching steps are as follows:

1. Search keywords “*jinke*” (Golden Curriculum) in CNKI between the year 2018 and 2021.
2. Export the searching results in the form of Refworks and convert the format in CiteSpace 5.7. R5, a literature metrological software.
3. Import converted references into CiteSpace 5.7. R5 with Time Slicing between 2018 and 2021, ticking Keywords for Term Source and Node Types.
4. Generate keyword concurrence map for further analysis.

3. RESULTS AND DISCUSSION

a) 3.1 Information on the articles based on CiteSpace

As shown in Figure 1 below, 339 nodes were generated which means a total number of 339 keywords identified with a density of 0.0248. The Modularity $Q=0.3743$, larger than 0.3, which means a significant clustering structure; the Weighted Mean Silhouette $S=0.69$, larger than 0.5, which means a reasonable clustering.



Figure 1. Keywords related to “Golden Curriculum” concurrence map examined in articles

There are 40 keywords after merging similar keywords with frequencies of more than 10. The top ten keywords following “Golden Curriculum” (1108) are blended teaching (224), Golden Curriculum construction (174), teaching reform (129), higher institutions (117), MOOC (111), vocational colleges (87), curriculum construction (79), college English (66) and Ideological and Political Education Course (63).

Among these top ten keywords, “blended teaching” ranks the second as the most frequently mentioned teaching mode related to “Golden Curriculum”. Together with “MOOC”, the massive opening online courses as the sixth hot word, it can be argued that the current research on Golden Curriculum study focus more on the improvement of the teaching mode by integrating information technology into teaching to make teaching reform happen. Since both “higher institutions” and “vocational colleges” are top ranking keywords, the Golden Curriculum construction is mostly initiated in tertiary education. As can be seen from the two keywords “college English” and “Ideological and Political Education Course”, these two heatedly-discussed public compulsory courses may indicate the urgency of curriculum reform on quality teaching for compulsory courses for all college students.

b) 3.2. Golden Curriculum characteristics distributed by keywords

The “Golden Curriculum” characterized by ACC, that is, being advanced, creative and challenging was interpreted by Wu [7] as follows: an advanced course is the integration of knowledge, ability and attitude, aiming at fostering comprehensive ability of solving complex problems and high-order thinking; a creative course is represented in three perspectives, namely, the content is new and recent, the teaching method is advanced and interactive, and the learning outcomes are explorative and individualized; a challenging course requires both the teacher and students to spend time and effort.

Therefore, Golden Curriculum matches some of the core 21st century skills highlighting high-order thinking such as critical thinking ability, creativity, and problem-solving to implement effective classroom instruction. Since classroom instructional quality and its relationship to learning outcomes serve as a critical lever for educational change [10].

The ACC characteristics of Golden Curriculum were frequently mentioned in 2019 as a holistic concept since the first article on “Golden Curriculum construction” published in *Chinese University Teaching* in 2018. Each characteristic was discussed individually mainly in 2019 with the characteristic of being creative mentioned more than another two standards, which may indicate the importance of creativity for the Golden Curriculum.

c) 3.3. Research trends related to Golden Curriculum in the context of college English teaching field

Golden Curriculum refers to any subject offered in universities. Based on the articles examined, there are 29 subjects with a total occurrence of 221, among which College English course ranked the first with the occurrence of 66. Since College English course has become a research hotspot, a literature matrix of 14 articles chosen from 2018-2021 is performed. It can be argued that most papers are centered on the interpretation of Golden Curriculum and its characteristics, the application in college English teaching from a macro view. Only one article is a case study on the curriculum design of Golden Curriculum to focus on teaching mode, which shows that the Golden Curriculum study is on the initial stage of theoretical discussion and curriculum planning. Therefore, future studies could focus on specific course design, teaching and learning mode, instructional skills which demonstrate the three perspectives of being innovative, advanced, and challenging.

4. CONCLUSION

A review analysis was conducted in accordance with Golden Curriculum studies published in the last four years via the software CiteSpace. It was found that majority of the articles within the scope of the study were based on prescriptive analysis on Golden Curriculum construction highlighting the importance of blended teaching mostly in public compulsory courses such as college English course in tertiary education. Future studies may focus on various aspects of Golden Curriculum implementation in China.

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