Research Article:

Primary School Teachers' Implementation of Inclusive Education during Emergency Remote Teaching in Malaysia: Findings from a Small-Scale Study

Tishalini Menon Jothinathan, Clara Xuan Lim and Tze Peng Wong[*]

School of Education, Faculty of Social Sciences, University of Nottingham, Jalan Broga, 43500 Semenyih, Selangor, Malaysia

*Corresponding author: TzePeng.Wong@nottingham.edu.my

ABSTRACT

The rapid shift to online teaching or emergency remote teaching (ERT) following the COVID-19 pandemic requires a high level of inclusiveness in teaching efforts to ensure children who are at risk for learning are not left behind. Using a mixed-method design, this small-scale study (a) explored the relationship between Malaysian private and international primary school teachers' attitude towards inclusive teaching during ERT, teaching efficacy, TPACK mastery, and burnout, and (b) identified ERT-specific factors that are associated with the teachers' attitudes and experiences during ERT. A total of 28 teachers participated in an online survey that comprised four established scales to measure the teachers' inclusive attitude, teaching efficacy, TPACK, and teacher burnout. The online survey also consisted of open-ended questions about their ERT teaching experiences. Two of the teachers who completed the questionnaire were then interviewed online. Attitude towards inclusive teaching was not correlated with all other variables, but (a) teaching efficacy correlated positively with TPACK mastery, and (b) high teaching efficacy, and high TPACK correlated with low burnout. Thematic analysis of the qualitative data generated four themes that supported the correlational findings: inclusion attitude during ERT, exclusion strategies, prolonged online teaching at home, and parental involvement. Findings imply that pre-pandemic inclusive teaching practices and TPACK were insufficient to fully support inclusive teaching attitude during ERT. New inclusive practices that support prolonged online teaching and effective parental involvement are needed to prevent digital exclusion during ERT. This small-scale study challenged the accessibility of online teaching during ERT and calls for the need to modify or reinvent our understanding of effective support for students with additional needs in fully online and distance learning conditions.

Keywords: inclusion, COVID-19 pandemic, emergency remote teaching, Malaysia

INTRODUCTION

Due to the outbreak of COVID-19 pandemic in March 2020, governments of many countries including Malaysia imposed a series of lockdowns to curb the rise of COVID-19 cases. These lockdowns involved closure of schools that required teachers to quickly shift their conventional mode of face-to-face classroom teaching to online teaching, a phenomenon known as Emergency Remote Teaching (ERT) (Aguliera & Nightengale-Lee, 2020; Hodges et al., 2020). ERT is a short-term solution of sustaining learning through online and distance education during an emergency or crisis. In Malaysia, in comparison to other types of schools, it was observed that private and international schools were generally able to shift to ERT quickly, within a couple of weeks following the first nationwide lockdown.

While regular online teaching is an educational design that takes place through a carefully planned digital network and implemented from the start of teaching, ERT is a means of temporary access to learning to quickly replace the loss of regular learning during a crisis (Aguliera & Nightengale-Lee, 2020). Prior to the COVID-19 pandemic, online and remote teaching were mainly implemented in higher education institutions through distance and massive open online courses (Teräs et al., 2020). At the school level, before the pandemic, digital technologies such as smartboards, learning apps and visual aids were used to augment classroom content delivery. In Malaysia, the use of technology in classroom teaching was common in private and international schools. However, with the sudden shift to ERT, teachers were required to replace physical classroom teaching completely with only virtual teaching, within very limited preparation time.

Although ERT aims to minimise disruptions in learning while reducing transmission of COVID-19 from school grounds, new challenges that create barriers to teaching and learning emerge from ERT. Firstly, students with limited access or limited knowledge and skills to access technology, including those from low social-economic status and with additional learning needs, are at higher risks of receiving less educational support than their peers (Viner et al., 2020; UNESCO, 2021). There is therefore a heightened need to understand the inclusivity of ERT for all students. Secondly, the immediate change from a physical to virtual classroom requires not just skills and technical support in using information and communication technologies, but skills in choosing and manoeuvring different digital platforms to support students' attention span during prolonged screen time (Khanna & Kareem, 2021). The challenges are intensified when teaching primary school students and students with additional needs who need constant attention, and physical monitoring and support in the classroom (Florian & Linklater, 2010). Thirdly, as teachers balance drastic changes in teaching and their personal lifestyles, ERT may lead to an increase in stress, which may then cause teacher burnout. Teachers' effectiveness in being inclusive and ameliorating teaching burnout have been associated with their teaching knowledge (Ewing et al., 2018), and teaching efficacy (Hofman & Kilimo, 2014). Thus, an exploration of teachers' attitude and use of inclusive approaches during ERT, and the relationships between their ERT inclusivity and factors like teaching efficacy, knowledge in teaching using technology, and burnout, is warranted.

TEACHERS' ATTITUDE TOWARDS INCLUSIVE EDUCATION

Inclusive experience takes place when teachers are responsive to all students' needs by providing them with equal learning opportunities and experiences in any classroom setting (Florian & Spratt, 2013). Inclusive pedagogy eliminates marginalisation of students in the community of the classroom (Spratt & Florian, 2015). Teachers' actions that restrict a student's participation in activities that are accessible to other students, or teaching strategies that isolate a student from their peers, such as remedial classes, are forms of exclusion. Inclusive education thus allows all children, regardless of abilities to learn together in a context where all individuals are appreciated and can participate in school activities actively without barriers (Florian & Spratt, 2013). Teachers who are inclusive provide different levels of support by creating learning materials, instructions and assessments that correspond to their students' learning levels and increase their learning attainment (Strogilos et al., 2017). Teachers' propensity towards inclusivity in the classroom, or the extent to which they apply inclusive educational policy and practice in their teaching is associated with their attitudes towards inclusive education (De Boer et al., 2011).

Teachers with a positive attitude towards inclusive education are willing to be responsible for the learning of all learners and are willing to include students with additional needs in the mainstream classroom (Varcoe & Boyle, 2013), create successful inclusive learning environment (Savolainen et al., 2012), regularly monitor student, and attentively involve parents in their teaching (De Boer et al., 2011). Teachers with adequate knowledge and skills regarding special education are more aware of the importance of their attitude in practising inclusion than teachers' with inadequate knowledge and skills (Sokal & Sharma, 2014). Contrastingly, teachers with a negative attitude towards inclusive education believe that students with additional needs would learn only in segregated special schools that deliver high quality level of support (Ewing et al., 2018). Teachers with a negative attitude also view teaching students with additional needs as an unnecessary addition to their workload (Srivastava et al., 2015), are not willing to provide a nurturing and engaging learning environment, and marginalise students with additional needs from the mainstream environment (Boyle et al., 2020). Amor et al.'s (2018) review of inclusive attitudinal studies from 2002 to 2016 found mixed results in the attitudes of teachers from different contexts.

Teaching Efficacy

Teachers' attitude is associated with their teaching efficacy (Sharma et al., 2011). Teaching efficacy stems from the concept of self-efficacy or an individual's belief in their ability to perform a task (Bandura, 1997). A teacher's perceived efficacy of their capabilities to teach is teaching efficacy. Teaching efficacy can be influenced by teacher factors such as knowledge and skills, and environmental factors such as classroom size, types of students, behavioural issues, and teacher-student relationships (Skaalvik & Skaalvik, 2010).

Teachers with high teaching efficacy are inclined to create successful inclusive environments by adopting hands-on teaching methods, and humanistic approaches in their lessons (Sharma et al., 2011), having high teaching commitments in the use of instructional practices, and being open to challenges (Klassen & Tze, 2014). When involving students with additional needs in the classroom, teachers with high teaching efficacy implement inclusive pedagogical methods and effective classroom management strategies (Loreman et al., 2013), introduce innovations in the classroom, and share the responsibilities of keeping students with disabilities on task (Hofman & Kilimo, 2014). High teaching efficacy is directly related to students' achievement and motivation towards learning (Klassen & Tze, 2014).

Digital Competence

Due to the sudden shift to ERT, teachers' use of technological knowledge to teach is vital to ensure continuity in meeting their students' diverse needs. The use of technology to enhance inclusivity in the classroom is embedded in the principles of Universal Design for Learning (UDL), a flexible approach to curriculum that involves designing a variety of student-centred course materials, instructional and learning processes, activities and assignments that widen students' access to learning (Hodges et al., 2020; Rose & Meyer, 2006). UDL places a strong emphasis on the integration of technology to remove barriers between learners of different abilities in the same classroom (Hall et al., 2015). For example, the use of screen readers, close-captioned videos, and other software enables access to the same learning materials albeit in a different format, and hence promotes equal access to learning (Dell et al., 2015; Kent, 2015).

Unlike conventional classroom teaching which integrates technology into the physical classroom lessons, ERT requires high reliance on the use of technology to enable learning to occur remotely without any close or physical support from the teacher. Thus, to teach online inclusively during ERT, good digital competence, or the instructor's ability in using technological devices in a professional setting, is needed to design instructions that build students' knowledge through suitable online platforms. Teachers and students with low digital competency are likely to lack behind in online learning (Adedoyin & Soykan, 2020). Past studies demonstrated a positive relationship between teaching efficacy and digital competency (Hatlevik, 2017; Teo, 2014), further supporting the importance of high teaching efficacy and good digital competence even amidst an unprepared environment.

In education, teachers' digital competency requires more than the use of technological devices to teach. They have to be able to integrate technological, pedagogical and content knowledge (TPACK) to facilitate students' acquisition of content through suitable pedagogy and technology devices (Pamuk et al., 2015). Developed from Schulman's (1986) theory of pedagogical content knowledge (PCK), TPACK is strongly related to six other core knowledge bases, namely, technological knowledge (TK) – knowledge of operating technological tools and resources such as software; pedagogical knowledge (PK) – knowledge about planning instruction; content knowledge (CK) – knowledge

of subject matters such as science or history to be comprehend or taught; technological content knowledge (TCK) – knowledge about the content illustrated through technology; and technological pedagogical knowledge (TPK) – knowledge of applying technology to incorporate various instructional approaches, and PCK – knowledge in integrating pedagogy and teaching content. During ERT, it is thus reasonable to expect teachers' TPACK mastery to be strongly associated with their online teaching attitudes and sense of teaching efficacy.

Burnout

Burnout occurs when individuals are unable to cope with heavy work pressure, leading to "an exhausted state of emotion, attitudes, and behaviour that arises from a prolonged experience of stress" (Yu et al., 2015, p. 702). Teachers' perceptions of themselves were found to bring about consequences that affect students' academic performance, their pedagogical skills, and psychological state including burnout (Alibakhshi et al., 2020). Shoji et al.'s (2016) review of job burnout and self-efficacy found that teachers, just like other professions, can be protected from burnout by high self-efficacy. Specifically, Lauermann and König (2016) revealed that teachers' general pedagogical professional knowledge and teaching efficacy negatively predicts burnout. Zhu et al. (2018) concluded that both self-concept and self-efficacy simultaneously contribute to how teachers assess their teaching competence and eventually impact their burnout levels.

A few Malaysian studies examined the likelihood of teacher burnout among different types of teacher demographics, prior to the COVID-19 pandemic. These studies have so far only examined teacher demographics like gender, age, teaching contexts, and personal commitments as possible contributing factors of teacher burnout (Jamshidirad et al., 2012; Mukundan & Ahour, 2010; Mukundan & Khandehroo, 2011) but none had associated teacher burnout with inclusive teaching, teaching efficacy, and teaching-related knowledge and skill competency. Given the additional demands of high technology proficiency and having to cope with the challenges of sustaining students' attention remotely, an examination of the relationship between attitudes of teachers towards inclusive education, their teaching-efficacy, TPACK, and burnout during ERT will provide insights that could potentially support the development of effective inclusive education in ERT classrooms.

This study thus aimed to first, explore the relationships among primary school teachers' attitude towards inclusive education, teaching efficacy, TPACK, and burnout during ERT in Malaysia. Based on past findings, it is hypothesised that inclusivity in the virtual classroom during ERT, teaching efficacy, and TPACK mastery are positively correlated with each other. It is also hypothesised that teachers' positive attitude towards inclusion, high teaching efficacy and high TPACK mastery are correlated with low burnout during ERT. Second, this study aimed to identify plausible ERT-unique factors that explain the relationships between teachers' inclusive teaching attitudes, teaching efficacy, TPACK, and burnout.

METHODOLOGY

Research Design

This research used a concurrent mixed-method design that consists of an online survey and online semi-structured interviews. The online survey comprises (a) Likert-based items related to four variables: teachers' inclusive attitude, teaching efficacy, TPACK, and burnout, and (b) open-ended questions about inclusive teaching practices and challenges faced during ERT. The online interview focused on teachers' online teaching experiences during ERT. We used the correlational analysis to examine the relationships between the variables measured. Thematic analysis was used to analyse answers from the survey's open-ended questions, and interview questions.

Participants

This study targeted only primary school teachers from private and international schools in Malaysia because of these schools' ability to immediately change to online teaching after the first lockdown in Malaysia. Data was collected about 10 months after the first transition to online teaching in Malaysia to ensure that the teachers had spent a considerable amount of time with ERT. The teacher participants were recruited via dissemination of information through social media of professional teaching organisations, schools, and personal connections. Due to low participation following recruitment, the snowball sampling method was used to invite teachers who responded to the survey to share the survey's online link with their colleagues and personal connections. A total of 46 teachers responded to the online questionnaire but only data from 28 teachers who met the inclusion criteria were analysed. At the end of the questionnaire, the participants were asked to indicate their willingness to be interviewed. Among these 28 teachers, eight teachers indicated willingness to be interviewed but when contacted, only two teachers attended the follow-up interviews.

Table 1 presents the demographic data of the teachers. 54% of them had teaching experience for 6–20 years. 69% of the teachers were homeroom teachers while others were teachers of additional learning needs. Homeroom teachers refer to teachers who were responsible to lead a particular class. Their responsibilities included teaching the core subjects, ensuring students receive their learning materials, coordinating their designated classes' teaching with other teachers, and communicating with parents and the school management. Teachers of additional learning needs provided extra guidance and support to students across the school who have difficulties with learning, such as those with low language proficiency, special needs, or low academic achievements. They also coordinated their guidance and support with other teachers. The majority of the teachers, 79% of them, did not have regular online teaching experience prior to the Covid-19 pandemic but had been consistently involved in ERT since the first lockdown in Malaysia in March 2020. They had also been conducting short teaching periods of hybrid classes with students learning in their classrooms and learning remotely from home,

when schools were considered safe to physically open. However, whenever schools were instructed to close, the teachers would switch to ERT immediately. The two interview participants were a homeroom teacher (Teacher 1) and a teacher of additional learning needs (Teacher 2). Teacher 1 had 12 years of teaching experience in teaching students with additional needs while Teacher 2 had four years.

Table 1. Participants' demographic data

Items		*n*	(%)
Teaching experience	1–5 years	13	46
	6–20 years	15	54
Type of teachers	Homeroom	19	69
	Additional learning needs	9	32
Online teaching experience prior to the COVID-19 pandemic	Yes	6	21
	No	22	79
Frequency of conducting online class during the pandemic	Always	25	89
	Often	3	11
	Less than often	0	0

Instruments

The teachers' data on inclusive attitude, teaching efficacy, TPACK, and burnout during ERT were collected through a 30 minute online survey on Qualtrics that comprised demographic items, four established questionnaires and self-developed open-ended questions. To measure the teachers' inclusive attitude, the Multidimensional Attitudes Toward Inclusive Education Scale (MAITES) by Mahat (2008) was used. MATIES consists of 18 items with 6-point Likert scale answers ranging from *strongly agree* (1) to *strongly disagree* (6). The items of MATIES represent inclusion attitudes from three attitudinal dimensions, namely cognitive, affective and behavioural. The cognitive dimension refers to the teachers' beliefs in the role and benefits of inclusive education for all students (e.g., I believe that an inclusive school is the one that permits academic progression of all students regardless of ability); the affective dimension refers to the teachers' emotions when managing students with disabilities (i.e., I get frustrated when I have difficulty communicating with students with a disability); and the behavioural dimension refers to the teachers' willingness to support students with disabilities (e.g., I am willing to encourage students with a disability to participate in all social activities in the regular classroom). To ensure that low ratings consistently reflect a positive attitude toward inclusive education, we reversed the scores of eight items on this questionnaire (e.g., I believe that students with a disability should be taught in special education schools). The internal consistency of the MATIES items among our participants was good, α = .73

To measure teachers' teaching efficacy, we used the short form of Tschannen-Moran and Hoy's Teachers' Sense of Efficacy Scale (TSES) revised by Nie et al. (2012). It comprises 12 items with a 5-point Likert scale, ranging from *very well* (1) to *not well at all* (5). TSES' items focus on teachers' sense of teaching efficacy in instructional strategies (e.g., How well can you respond to difficult questions from your students?); motivation (e.g., How well can you help your students value learning?); and student's engagement and classroom management (e.g., How well can you make your expectations clear about student behaviour?). The data from our participants showed high internal consistency among all items (α = .91).

To measure the TPACK, the seven TPACK items from Pamuk et al.'s (2015) questionnaire that required responses ranging from *strongly agree* (1) to *strongly disagree* (5) were used. An example of the TPACK item is, "I can use technology in teaching the specific content within the defined pedagogical approach in a given context." Pamuk et al. (2015) reported that their TPACK score was predicted by 80% of the variance in TK, PK, CK, TPK, TCK, and PCK. Among our participants, the items of TPACK showed a high Cronbach's alpha of .88.

To measure the teachers' burnout during ERT, 16 items from the Oldenburg Burnout Inventory (Demerouti et al., 2010) with a 5-points Likert scale ranging from *strongly agree* (1) to *strongly disagree* (6) were used. The Oldenburg Burnout Inventory measures two dimensions of burnout at work, disengagement (e.g., I always find new and interesting aspects in my work), and exhaustion (e.g., I can tolerate the pressure of my work very well). The ratings of seven items (e.g., I talk about work in a negative way) were reversed to ensure that a high rating consistently reflects high burnout level. The internal consistency of the Oldenburg Burnout Inventory items among our participants was high, α = .92.

Finally, six open-ended questions (Appendix A) were included at the end of the online survey to obtain specific information about the incorporation of inclusive methods from their physical classes into online teaching during the pandemic, the challenges that they faced during the ERT, and the effects of the pandemic on their teaching and well-being. 23 out of the 28 participants completed the open-ended questions.

The semi-structured interview consisted of a total of 20 questions that were aimed to understand further the participants' teaching practices (Appendix B) that they reported in the survey. The interview questions focused on the participants' perception of ERT due to the pandemic, the use of inclusive approaches when conducting online teaching especially for students with additional needs, and the driving factors and barriers to inclusive teaching during ERT. In particular, the survey's open-ended questions enriched the quantitative data by providing brief information about the teachers' transition to ERT whereas the interview questions provided in-depth information that explains why or how the teachers' ERT used certain practices in relation to the challenges that they faced because of the pandemic.

Data Collection

Data collection was conducted in two phases. In the first phase, data were collected through the online survey. In the second phase, online semi-structured interviews were conducted via the Microsoft Teams application. The interviews lasted between 30 and 50 minutes per respondent.

Data Analysis

The total scores of each individual questionnaire were used to measure the participants' attitudes towards inclusion, their teaching efficacy, TPACK, and burnout levels. The lower the total MAITES, TSES, and TPACK scores, the higher the teachers' positive inclusive attitude, sense of teaching efficacy, and TPACK mastery, respectively. Inversely, the higher the Oldenburg Burnout Inventory total scores, the higher the teachers' burnout level.

The nonparametric Spearman's correlation test, performed through IBM SPSS Statistics (Version 25) was used to examine the correlations between the teachers' inclusive attitude, teaching efficacy, TPACK and burnout during ERT. To analyse the open-ended responses from the online survey and interview data, the audio recordings of the interviews were first transcribed. The first and second authors resolved discrepancies in transcriptions and then analysed the data through thematic analysis using Braun and Clarke's (2012) six steps of familiarising, coding, generating, reviewing, defining the themes, and finally writing the data. The themes generated were reviewed with the third author. The process of reviewing and resolving discrepancies aimed to strengthen dependability of data coding. Data credibility was achieved by triangulating data from three sources of information, questionnaire scores, open-ended questions from the survey, and interviews.

Ethical Considerations

The study received ethical approval from the School of Education, University of Nottingham Malaysia. It adhered to the ethical guidelines of the University of Nottingham (2020) and British Education Research Association's Ethical Guidelines for Educational Research (2018).

RESULTS

The Relationship between Inclusive Attitude, Teaching Efficacy, TPACK, and Burnout

An initial descriptive analysis (Table 2), shows that the means of the teacher participants' inclusion attitude on the MATIES (M = 48.50, SD = 9.0), sense of teaching efficacy

measured through the TSES (M = 25.74, SD = 7.03), and TPACK mastery measured using the TPACK items (M = 13.37, SD = 3.56) correspond to the lower ratings (i.e., agreements) of each questionnaire's Likert scale, thus, demonstrating a tendency of positive attitudes towards inclusion, and a relatively high sense of teaching efficacy, and high TPACK mastery. Their burnout scores, M = 40.46, SD = 12.01, give a general impression of low to slightly below mid range of the burnout scale among the teachers.

The Spearman's correlation test revealed three key findings (Table 2). First, as hypothesised, there was a significant positive correlation between teaching efficacy and TPACK (ρ = .59, p = .001), indicating that the higher the teacher participants' TPACK mastery, the higher their teaching efficacy, and vice versa, the lower the teachers' TPACK mastery, the lower their teaching efficacy. Second, contrary to our hypotheses, there were no significant correlations between inclusion attitude and all other variables. Third, as expected, we found significant positive correlations between teaching efficacy and burnout (ρ = .62, p = .001), and TPACK and burnout (ρ = .45, p = .02). These correlations indicate that the lower the teachers' sense of teaching efficacy or TPACK, the higher their levels of burnout. The correlational findings are supported by the qualitative findings from the survey's open-ended questions and interview data.

Table 2. Mean, standard deviation and Spearman's correlation coefficient

	Variable	n	M	SD	1	2	3	4
1	Inclusion attitude	28	48.5	8.95	–			
2	Teaching efficacy	28	25.74	7.03	.25	–		
3	TPACK	26	13.37	3.56	.04	.59**	–	
4	Burnout	26	40.46	12.01	.22	.62**	.45*	–

Note. M and SD represent mean and standard deviation. * indicates p < .05. ** indicates p < .01.

Transfer of face-to-face inclusive teaching and practices to online platforms.

Interview responses from Teacher 1 and Teacher 2, and the 23 teachers who completed the survey's open-ended questions were analysed. Each survey participant was coded as ST1, ST2, ST3, …. The thematic analysis generated four main themes: inclusion attitude, exclusion strategies, prolonged work at home, and parental involvement (Figure 1).
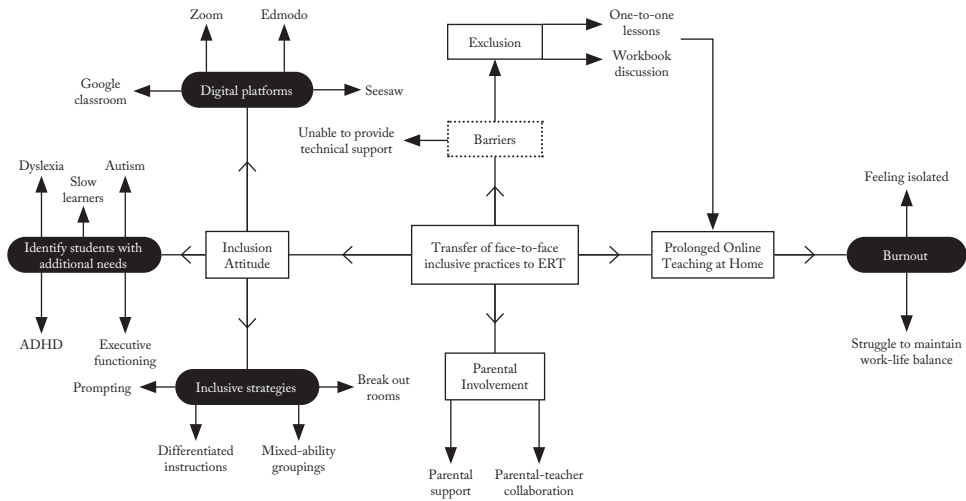
Figure 1. Thematic map of the teachers' inclusive teaching experience during ERT

Inclusion Attitude during ERT

The teachers implemented inclusive teaching by first identifying students with additional needs in the classroom, then transferring inclusion strategies that they were already practising in regular face-to-face teaching to their new mode of online learning through various digital platforms. In the survey and interviews, the teachers indicated that they were always aware of the presence of students with additional learning needs in their classrooms. These were students with autism, attention deficit hyperactivity disorder (ADHD), dyslexia, slow learners, and difficulties with executive functioning. Having the awareness of their students' additional needs helped them differentiate teaching and learning. At the interview, Teacher 1 shared, "… have a small population of students with additional needs such as children who a diagnosed with ADHD, dyslexia and mild autism."

To be inclusive during ERT, the teachers used various digital platforms, including Zoom and Google Classroom (ST1, ST2, ST22), Edmodo (ST1), video, quizzes, and games (ST1, ST2, ST3), digital books (ST2, ST10), and EdPuzzle (ST22). These platforms were selected to create instructional videos, assign projects, create breakout rooms for small group learning, and upload homework. The teachers further stated that they learnt how to use the chosen platforms through training provided by their respective schools before teaching, and through learning on their own.

> The first thing I did was to learn how to use Zoom and Google Classroom, because these two were the chosen platform, and I have never used them before. The school also gave us training in terms of how to use zoom and how to navigate through Google Classroom and all so that we are more technically informed. (Teacher 2)

The inclusion strategies listed in the survey includes:

1. Differentiation of materials and learning instructions (ST28).
2. Mixed-ability grouping using breakout groups (ST2, ST8), and focus group conferences (ST17).
3. Creating equal opportunities for classroom participation (ST1, ST2).
4. Breaking down learning objectives to reduce cognitive overload and facilitate mastery of skills (ST2).
5. Additional promptings to remove social-emotional barriers in classroom participation (ST22, ST28).

Teacher 2 during the interview, stressed the importance of applying the social model of disability which prioritises removal of learning barriers over planning according to student differences when differentiating learning materials, and further elaborated that adherence to the social model helped create learning materials that were user friendly enough to support students with additional needs.

> I break down scheme of work into smaller bite-size chunks, limit lesson objective to one, maximum two per session to be able to track and access master easily. It helped the students to be more focused from being overload by information. I tried to be very mindful when designing the teaching materials and instructional activities to make sure they are user friendly enough. On the other hand, I was also very mindful to make sure I give all students an opportunity to voice out their opinions. Utilising break out rooms through mixed-ability grouping help my teaching a lot. (Teacher 2)

Exclusion strategies

While the teachers in this study listed inclusion strategies in their responses, they also commented that the inclusion strategies they knew were insufficient for their online classes. Nine teachers listed exclusion strategies such as providing one-to-one lessons after classes, and four teachers organised individual workbook discussions with certain students. According to ST9, "After classes, I would arrange extra classes for those who were of lower ability or did not understand the topic that was taught." Although the provision of additional lessons after classes is a common practice to support students with additional needs, these teachers were aware that those were exclusion strategies, and were able to contrast them with inclusion strategies. Their awareness suggests an understanding of the concept and practices of inclusive education, and understanding that the additional classes were conducted in the form of isolation rather than inclusion.

Without close physical contact, the teachers had difficulty managing their students' behaviour, and providing technical assistance to them. There were also technical or device limitations that prevented them from being effective with their previous ways of differentiating instructions or activities. In the interview, Teacher 1 elaborated,

"… it's virtual learning and there's so much you can't control from a distance as teacher. It's quite difficult to provide technical support for the students from a distance."

The teachers' responses suggested that their use of exclusion strategies was not related to their lack of knowledge of inclusion, but used as compensatory strategies to support their students due to technological limitations to implement the wide range of inclusive practices that they used to deliver in regular physical classroom teaching.

> I have a designated time after class, when I'm free, and I will conduct a one-to-one lesson which wouldn't be inclusive but exclusive. We will have conversation, use a lot of digital resources that allows to form and facilitate the conversation online. (Teacher 1)

Prolonged Online Teaching at Home

According to the teachers, ERT extended their work hours because of the constant need to find or innovate different approaches and solutions to support students who were not able to learn from online classes. In the survey, three teachers mentioned that exclusion strategies such as additional one-to-one classes led to longer working hours from home, and six teachers mentioned that they needed extensive hours to prepare their online classes. ST22 stated, "It takes a significant amount of extra time to make high-quality video from planning, filming, editing and publishing and deliver a live lesson." ST13 also mentioned that "The extra work we have to put in for online teaching such as preparing for lessons, having live lessons every morning, uploading tasks beforehand, and marking through the day is a tiring daily routine."

In preparation to formulate these compensatory strategies to promote inclusion, the teachers had to endure prolonged screen time which could lead to increased levels of stress and "Zoom fatigue," eventually leading to feelings of burnout. During the interview, Teacher 2 elaborated,

> My school requires all teachers to record their sessions and check attendance and all that. And let's say within five minutes, if I don't get a full attendance, I will need to contact one of my teachers immediately. So, you know, just a few procedures that you have to follow and at the same time, you're going to manage the class that is already there waiting for you. So that was very exhausting.

When the teachers' working hours were constantly prolonged during the pandemic, they struggled to achieve and maintain a proper work-life balance. "There really isn't a balance between work and home anymore. Home is work and work is home" (ST11). Thus, they felt overwhelmed and exhausted from having to continuously push themselves to commit to both work and personal commitments at home. ST4 mentioned, "As a working mum, I had to learn to have work life balance, and ensure my kids are also taken care of." Other than that, Teacher 1 also shared,

> What I found myself was that I was online twice as much as my other colleagues due to the fact that I was supporting Key Stage One kids and Key Stage Two kids… I find myself thoroughly exhausted from facing the screen the whole day from morning.

At the interviews, the teachers shared that they became easily agitated and anxious as being isolated at home for a long period could lead to a rise of negative emotions and affect their mental wellbeing since "adapting to a new lifestyle that you weren't used to…cause a lot of frustration" (Teacher 1). Although the teachers' Oldenburg Burnout Inventory's mean scores corresponded to low to slightly below mid levels of burnout on the rating scale, 17 of the survey participants indicated that they were exhausted by ERT. However, the teachers expressed that having a good support network of friends, family and colleagues helped to alleviate the shortcomings of working from home. Teacher 2 shared, "it's that collective sense of us being in this situation together that helped me adapt really well to this new mode of working."

Parental involvement

Parental involvement emerged in five survey responses and both interviews as a supporting factor, and barrier to teaching and teaching preparation. The teachers viewed parental involvement as essential to support their inability to provide physical prompts and effective monitoring to students with additional needs during online classes. Useful parent-teacher collaboration strategies listed in the survey included effective communication between the teacher and parent to discuss ways to support the child, and parental supervision to monitor and ensure student attendance, participation, and engagement. At the interview, Teacher 1 shared:

> I think having support from parents is one of the major thing because we can't do so much from a distance. Since we are working remotely, communicating with parents and discussing on solutions and strategies to help the child was the only way we could at that time. (Teacher 1)

The teachers also shared that when parents were not as supportive as needed to create a conducive home learning environment, the students became easily distracted or even regressed in their skills.

> …besides that, I think lack of parent's support is a major challenge as well especially dealing with children with special needs who requires more support from their parents. . . When we returned to physical lesson, that child forgotten how to write his own name, things like that, because it's almost a year, right, almost a year of online learning. And then they are not really being supported from home. (Teacher 1)

Without strong parental involvement, the teachers had to constantly innovate strategies and tools that could support students who were falling behind online classes. The increased amount of time and efforts required to develop these alternative approaches and solutions increased their workload and stress levels, and risks of burnout over time.

In summary, contrary to past studies, this study's teachers' inclusion attitude was not significantly correlated with their sense of teaching efficacy and TPACK. However, other correlational findings are consistent with past findings: (a) their sense of teaching efficacy increases as their TPACK mastery increases, and (b) as sense of teaching efficacy or TPACK decreases, burnout level increases. The teachers' qualitative data provided plausible explanations to these relationships. The teachers' positive inclusion attitude, sense of teaching efficacy and TPACK mastery were demonstrated through a myriad of online teaching practices, their awareness of the limitations of their practices, and actions taken to mitigate the limitations faced. They were aware of and used inclusive practices such as knowing their students' additional needs; use of differentiated instructions, multiple forms of materials, instructions, activities and assignment production; and formed mixed-ability groupings. They were also aware of what online platforms could and could not provide to support their students with additional needs, and that technological limitations restricted inclusivity in their online classrooms. In fact, it was their understanding of their students' needs, content delivery, the constraints of existing online platforms in providing physical support and close monitoring of student progress, and their students' learning gaps, that motivated the use of exclusion strategies for students who could not cope with online learning. While the teachers' burnout scores were generally low to slightly below mid levels on the Oldenburg Burnout Inventory's rating scale, they reported feelings of exhaustion. The qualitative data revealed two ERT-unique challenges when supporting students with additional needs - prolonged working hours, and the lack of parental engagement.

DISCUSSION

Relationships between Inclusion Attitude, Teaching Efficacy, TPACK and Burnout

The positive correlation between teaching efficacy and TPACK was corroborated by our qualitative data that reflected high, if not sufficient teachers' confidence with their teaching, and the use of wide range of technological platforms and teaching strategies. This finding is consistent with past evidence that shows teachers with sufficient knowledge in an area would show higher teaching efficacy through their confidence (e.g., Tschannen-Moran & Woolfolk Hoy, 2001). Concurrently, the correlations between high burnout with low sense of teaching efficacy, and high burnout with low TPACK mastery, also parallel past findings that established high burnout with low perceptions of one's teaching or skill efficacy, and teaching knowledge (e.g., Lauermann and König, 2016; Shoji et al., 2016; Zhu et al., 2018). Altogether, the interconnections

between teaching efficacy, TPACK and burnout levels, reiterate the need for continuous professional training to develop teachers' specific knowledge and skills in using technology and teaching using technology, to not just build their sense of efficacy (Gacs et al., 2020) but well-being (Puertas Molero et al., 2019).

There were no significant correlations between the teachers' inclusion attitude and teaching efficacy, and TPACK. These lack of correlations differed from previous studies that showed a significant positive relationship among teachers' attitude towards inclusion and teaching efficacy for inclusive practice, and teachers' attitude and teaching using technology (e.g., Sharma & Jacobs, 2016). Although the lack of significance could be due to our small sample size, the teachers acknowledged that they could not be fully inclusive during ERT. In fact, it was the teachers' confidence in their knowledge of inclusive practices and technology, and their knowledge of the insufficiency of technology to support certain inclusive strategies, that motivated them to use exclusion strategies to support students with additional needs. Hence, a lack or limited association between inclusion attitude and sense of teaching efficacy and TPACK. Pantić and Florian (2015) stressed that in the implementation of inclusive pedagogy, it is important that teachers become agents of change of social justice, possess competency that allows them to identify and address exclusion and underachievement among students, autonomously interact with other stakeholders, and engage in reflective practices to analyse and evaluate their practices. We argue that our study's teacher participants, although limited by technological constraints demonstrated the capacity of agents of change of social justice.

Inclusivity of ERT

Specifically, the qualitative data revealed that it was not possible for the primary teachers in this study to transfer all face-to-face inclusive teaching and practices from their conventional classrooms to ERT. The teachers managed to transfer UDL features that reduced barriers in online learning through differentiated instructions, collaborative learning, mixed ability groupings and prompting to their virtual classes (Rao, 2021). Although these strategies accommodate students' learning needs (Strogilos et al., 2017) and increase their engagement in academic-related responses (Gillett-Swan, 2017), they do not support effective observation, monitoring and management of learning behaviours from a distance. The teachers' awareness of their use of exclusion strategies also suggest that they were playing a formative role in navigating and supporting their students' learning process as well as adopting an open mind to innovative trends and approaches, especially for students who require more help in achieving their learning milestones during online classes (Tejada et al., 2012).

Exclusion takes place when students are unable to learn or adapt due to lack of sufficient support in a learning environment that supports the learning of other students (Hansen et al., 2020). While the teachers in this study used exclusion strategies to compensate the lack of inclusivity in online teaching through additional one-to-one sessions, this exclusion and other strategies raise other issues such as social exclusion and poor

communication skills (Hansen et al., 2020; Parmigiani et al., 2020) in the long run since the classes were conducted separately after school hours. Toquero (2021) argued that the opportunities for students to voice their learning are somewhat constrained in an online environment. Hence, ERT in the context of this study had indirectly marginalised students with additional learning needs, and supported digital exclusion to some extent. Our new finding of the teachers' use of exclusion strategies while acknowledging their non-inclusivity has implications for future advancement of our understanding of inclusive education during ERT. Firstly, there is a need for an effective replacement of physical and personal prompts and monitoring for students with additional needs in virtual classrooms (Parmigiani et al., 2020). Secondly, there is a need for the development of research instruments that fully capture the experiences of online teaching during ERT.

Parent-teacher Collaboration

Parent-teacher collaboration emerged as a strong factor that could ameliorate the challenges that the teachers face when supporting students with additional needs. In regular teaching, parental support is crucial for implementing any form of effective educational reform movement that will positively impact on their children's learning achievement (LaRocque et al., 2011). Strong parental involvement in online classes bridge learning in students with additional needs through coaching, provision of continuous feedback, emotional support (Parmigiani et al., 2020) and monitoring of task completion (Lawrence & Fakuade, 2021). Effective communication between parents and teachers, a practice adopted by the teachers of this study, allows teachers to arrange effective learning activities, implement inclusive practices successfully (Smith et al., 2016), and develop a common understanding of learning goals between teachers and parents (LaRocque et al., 2011). According to Daniel (2020), providing reassurance to the parents through communication strengthens the relationship between parents and teachers, which subsequently improves the students' distance learning outcomes as it helps to reduce parents' anxieties while assisting their children in a deprived situation.

Our qualitative data provide further insights to understand the relationship between low sense of teaching efficacy, and low TPACK mastery with high burnout. To constantly modify strategies that were no longer effective and innovate other exclusion strategies, the teachers had to put in additional hours of work that extended to their personal time. Constant prolonged work hours that compromise a healthy work-life balance is a common factor of burnout (Lawrence et al., 2019). The identification of parental involvement as a plausible burnout ameliorating factor during ERT calls for the development of policies and guides to support and enhance parent-teacher collaboration. This is pertinent especially for teachers who lack the experience and knowledge in collaborating with parents, and parents who cannot afford to provide adequate physical support to their children during online learning. Fostering good parent-teacher relationships build a foundation of trust that encourages constant parent participation rather than a one-time event (LaRocque et al., 2011) and can help to reduce teacher burnout in the long run.

IMPLICATIONS

This small-scale study problematised the phenomenon of exclusion due to technological limitations during ERT. Using multiple means of collaborations with parents during ERT could complement the lack of existing inclusive approaches such as UDL during ERT. Although technology through UDL allows multimedia presentation of multiple means of engaging with students, representations of teaching and learning materials, and assessing learning (Rose & Meyer, 2006), it is constrained in addressing attentional issues that the teachers used to monitor via face-to-face interactions. Teachers and parents therefore need to be supported with guidelines and training to use suitable digital platforms to communicate, and fully support their children's learning (Lawrence & Fakuade, 2021).

LIMITATIONS

This research is a small representation of primary teachers from private and international schools who switched to ERT soon after the first lockdown in Malaysia. The small sample size restricts generalisation of our findings to the actual population. We therefore suggest replication of the study and an extension to understand how differences in the teachers demographic data, and environmental factors such as school climate and leadership contribute to their inclusion attitude, teaching efficacy, TPACK, and burnout levels. Additionally, the ERT-unique factors revealed in this study suggest a need for the development of inclusion attitude, teaching efficacy, TPACK, and burnout scales that are ERT-specific. Students learning attainment, an important outcome measure of inclusive education could be included in future studies, to ascertain the effectiveness of inclusive and other support strategies used by teachers.

CONCLUSION

Our findings strengthen the interconnections between teaching efficacy and digital competence in teaching (i.e., TPACK), and the associations of teaching efficacy and TPACK with teachers' well-being. Although inclusion attitude has been shown as associated with teaching efficacy and digital competence for teaching during non-ERT periods by past studies, this present study did not find similar results, thus, providing new insights to our understanding of the constraints of technology and remote learning in implementing inclusive practices in virtual classrooms for primary school students. We argue that there is insufficiency in existing models of inclusive teaching for online primary classrooms. Additionally, to compensate for the lack of existing teaching model and infrastructure for students with additional learning needs during ERT, the teachers were subjected to risks of burnout through additional teaching preparation hours. Strong parental involvement could potentially reduce digital inequality and risks of teacher burnout, but parents and teachers need to be provided with systematic guidance to collaborate effectively during distance learning.

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APPENDICES

Appendix A: Survey's Open-Ended Questions

1. How did you transform your classroom teaching to online teaching?

2. How did you reach out to students of different learning abilities and needs in your online classes?

3. Do you think you experienced/are experiencing burnout from teaching online classes from home during the Covid-19 pandemic? If so, what do you think are the possible causes for it?

4. How has your duty as a teacher been affected by the pandemic?

5. How has your well-being in general been affected by the pandemic?

6. Apart from the questions that we have asked you, is there anything else that you'd like to comment about online teaching during the pandemic?

Appendix B: Interview Questions

Experiences of ERT:

1. What was your reaction to schools closing when the Covid-19 pandemic escalated?

2. How did you prepare yourself when you had to transition to online classes?

3. How did your students and parents take to the change in online learning?

4. Which students have been able to cope?

5. Which students struggle? What are they struggling with? What do you do with these students?

6. Do you have any students with special needs in your class? Tell me more about them.

7. How are the students with special needs coping in online learning. How do you include them in your online classes?

Types of challenges encountered and support:

1. What challenges have you faced while creating an online inclusive environment?

2. How do you overcome them?

3. How do the school you are working at respond to online teaching and the pandemic?

4. Have you received any support from the school when you were conducting online classes?

5. What kind of support have you received?

6. What support would you have liked to receive or you think can be done better?

Teachers who experience burnout (as indicated on their survey answers):

1. You mentioned in one survey that you were/are experiencing exhaustion/burnout whilst teaching online for the past few months. Is that true?

2. What makes you feel exhausted?

3. Have you tried reducing your exhaustion/burnout levels, and what are the outcomes?

4. What support would you have liked to receive or you think can be done better?

Teachers who do not experience burnout (as indicated on their survey answers):

1. You mentioned in the survey that you do not seem to have experienced exhaustion/ burnout whilst you are teaching online? Is that true?

2. What helped you get through the problems/obstacles that may have come your way during online teaching?

3. What support would you have liked to receive or you think can be done better?