Running Head: PRESCHOOL TEACHERS' PERCEIVED STRESS AND ATTITUDES TOWARDS

A Study of Preschool Teachers' Perceived Stress And Their Attitudes Towards Using ICT In Teaching Young Children

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A Research Project

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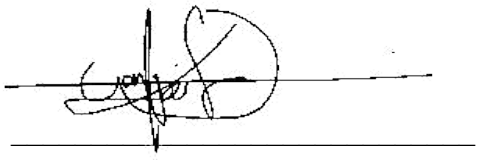
HWONG CHEE EN

Approval Form

This research paper attached here to, entitled “Preschool Teachers’ Perceived Stress and Their attitudes towards using ICT in teaching young children” prepared and submitted by Hwong Chee En in partial fulfilment of the requirements for the Bachelor of Early Childhood Education (Hons) is hereby accepted.



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Declaration

I declare that the material contained in this paper is the end result of my own work and that die acknowledgment has been given in the bibliography and references to ALL sources be they printed, electronic or personal.

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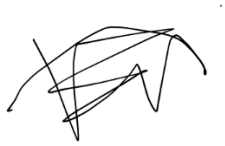

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Abstract

Teaching has been viewed as a stressful occupation; hence, preschool teachers are frequently reported to struggle striking a balance between work and personal life. Consequently, this will increase stress in general and decrease their attitudes towards using ICT. However, there are still limited research related to preschool teachers' perceived stress and their attitudes towards using ICT are being discussed in local context. This research aims to study the significant relationship between preschool teachers' perceived stress and their attitudes towards using ICT in teaching young children in Rawang, Selangor. This study applies the Transactional Model of Stress Thiery and Technology Acceptance Model (TAM) to investigate the correlation ship between teachers' perceived stress and their attitudes towards using ICT in teaching young children. Quantitative research method and correlational research design are used in this study. Two questionnaires which are Perceived Stress Scale (PSS-10) by Cohen et.al (1998) and Attitudes Scale of Technology Tool Usage In Preschool Education by Kol (2012) are used. Convenient sampling is used and 79 local preschool teachers in Selangor are involved in this study. Descriptive analysis method is used to analyze the descriptive statistics included demographic profiles, mean and standard deviation of stress and job satisfaction, while Statistical Package for the Social Science (SPSS) is used to analyze the inferential statistics. The current finding's result shows that there is a significant negative relationship between preschool teachers' perceived stress and attitudes towards using ICT ($r=-.539$, $p>0.001$). This study is found limited in the generalizability and sample size. As recommendation, this study suggests extending the generalizability by extend to other states and respondents for analysis and scheduling a better data collection period to improve participation willingness.

Keywords: Preschool teachers, Perceived stress, Attitudes towards using ICT

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List of Abbreviations

DV	Dependent Variable
IV	Independent Variable
PSS	Perceived Stress Scale

Chapter I

Introduction

Topic: A Study of Relationship Between Teachers' Perceived Stress and Their Attitude in Using ICT in Teaching Young Children.

Introduction

This study aims to study the relationship between preschool teachers' perceived stress and their attitudes towards using ICT in Rawang, Selangor. This chapter will discuss the background of the study and the problem statement regarding the research topic and the necessity of conducting this study. This chapter also consists of the research objective, research questions, and hypothesis that needed to be achieved and identified at the end of this study. Besides, this chapter discussed the significance of the study and the definition of terms which include both conceptual and operational definitions.

Background of the study

The past several years has seen a swift assimilation of Information and Communication Technology (ICT) into the processes of instruction and learning within the educational landscape (Ertmer, 1999). As technology gradually becomes more widely used in the education sector, teacher need to change from traditional teaching methods to become using technology to educate children. This may cause teachers feel stress by the rapid pace of technological advancements and they need to constantly adapt to new tools and platforms can contribute to stress (Ertmer, 2005). The relationship between teachers' stress levels and their attitudes towards information and communication technology (ICT) has been a topic of conversation and research in today's educational environment. Given that it directly affects both the quality of teaching and the general

well-being of educators, it is imperative to comprehend the dynamics of teacher stress and ICT attitudes in the local environment. The importance of researching teacher stress and ICT attitudes will be emphasized in this introduction, along with pertinent citations to back up the claims.

Problem Statement

In much research on teacher stress and ICT attitudes among preschool teachers, current references are still heavily based on Western country. Even in Malaysia, topic of teacher stress and ICT attitudes among preschool teachers is not common in Early Childhood Education (ECE) context. There are only two research on teacher stress and ICT attitudes in Malaysia and many others are from other countries which is from Finland by Antti (2016), Israel by Zikka (2021), Turkey by Tamer (2011) and Greek by Papadakis (2024). This shows that the research of this topic in the field of early childhood in Malaysia is limited. There are much of advantages by doing research of the topic "Teacher Stress and their ICT attitudes among preschool teacher" in Malaysia. According to Teo (2011), Research findings have the potential to improve teacher preparation programs. Targeted professional development programs for teachers can be created with the assistance of identifying stressors and obstacles associated with ICT adoption. This research may help the school or the educational institution to have a good planning in ICT training to teachers. The same philosophy as Teo, Mohd Majid Konting, M., Jaafar, A., & Ismail, M. (2016) also mention that research on ICT attitudes and teacher stress can give Malaysian policymakers important information and the creation of supporting policies can be influenced by an understanding of the difficulties instructors have when incorporating information and communication technology (ICT) into their lesson plans. Last but not lease, understanding the correlation between teacher stress and ICT attitudes can lead to recommendations for effective

classroom practices. This can effectively reduce the pressure on teachers and make the classes more effective while using technology to conduct the lesson in the classroom (Ertmer, 2012).

Besides that, there are much more of research on teacher's stress and ICT attitude in local context are commonly being studies separately. For example, research involving teachers stress are often related with Pandemic Covid-19, risk factors of stress, special education, and working environment. For example, there is a research on teacher stress, anxiety, and depression at the beginning of the academic year during the COVID-19 Pandemic by Santamaria (2021), Assessment of Stress and Its Risk Factors Among Primary School Teachers in the Klang Valley, Malaysia by Samad (2010), Stress among Special Education Teachers in Malaysia by Ghani (2014), and The Relation of Work Environment and Stress in Classroom Management among Preschool Teachers by Hashim (2010). These are all the topics that had found related with teacher stress which have not related with attitudes of ICT. Similarly, topics of ICT attitudes by preschool teacher in Malaysia are also related to other variables such as factors information and communication by using ICT, ICT attitudes among rural community leaders in Malaysia, preschool teacher experience, teacher level of ICT integration, easiness of ICT in teaching preschool children, demographical characteristics, and teacher's background. For examples, Discovering Teachers' Attitudes toward Use of Information and Communication Technology (ICT) in Preschool by Ahmad (2013), Teachers' level of ICT integration in teaching and learning: A survey in Malaysian private preschool by Kamaruddin (2017), Effects of Demographic Characteristics, Educational Background, and Supporting Factors on ICT Readiness of Technical and Vocational Teachers in Malaysia by Alazzam (2012), Factors That Influence Attitude Towards ICT Usage among Rural Community Leaders in Malaysia (2010), Teachers' Perception of Technology Integration Easiness in Teaching Preschool Children by Ali (2021), and The role of ICT in early childhood education:

Scale development and research on ICT use and influencing factors by Kerckert (2015). As the result shows that there are less topics that are related teacher stress and ICT attitudes. Hence, this forms the research gap that needs better attention.

Research Objectives

1. To determine the level of Stress and Attitude in Using ICT among Preschool Teachers in Rawang, Selangor.

2. To determine the relationship between Stress and Attitude in Using ICT among Preschool Teachers in Rawang, Selangor.

Research Questions

1. What is the level of Stress and Attitude in Using ICT among Preschool Teachers in Rawang, Selangor.

2. Is there any relationship between Stress and Attitude in Using ICT among Preschool Teachers in Rawang, Selangor.

Research Hypothesis

1. H_A: There is a significant relationship between Stress and Attitude in Using ICT.

Significant of study

This research can provide contributions to preschool teacher population in Rawang Selangor. Firstly, research on the level of stress and attitude in sing ICT among preschool teachers in Rawang Selangor can provide the updated statistic to reveal their stress level and ICT attitude. As the data shown in problem statement, there are only few research in Malaysia on stress and ICT attitudes among preschool teachers in Malaysia, so this research is expected to fill up local

literature by providing latest information about local preschool teachers' stress and ICT attitudes. This information can help to alert the preschool teachers to do early prevention for stress and having low ICT attitude. The data of the research will contribute to the center of Rawang Selangor, and the center will get the result of the stress level and ICT attitudes of teachers it provides the ideas for Rawang Early Childhood Education administrator to have the training to teacher such as activity that can reducing teacher's stress and the conducting the training for teachers to improve their ICT level and attitude.

To determine the relationship between stress and attitude in using ICT among preschool teachers in Rawang Selangor. the r level and p level in SPSS can be used to measure the relationship between stress and attitude in using ICT among preschool teachers. The contribution of getting the data of the relationship between stress and ICT attitudes among preschool teachers in Rawang Selangor is to validate the current limited local studies in the stress and attitude in using ICT among preschool teachers in Malaysia area. There is fewer research in Malaysia that shows stress and ICT attitudes among preschool teachers in Malaysia, and this research can extend the local literature and to get the most recently data for the studies in this area. In the same way, this research can also help to alert the local research and start to focus on whether teacher stress would be a significant variable that relating to ICT attitude based on the statistical evidence. As response to the initial problem statement that mention: "In local context Teacher's stress and ICT attitudes are more commonly being studies separately.". Many local researchers may not recognize stress as an important factor to concern when researching into the field of ICT attitudes. Therefore, this research may help to add up the data base of local context and it can express directly to the local researcher that teacher's stress and ICT attitude among preschool teachers in Malaysia is a significant topic to study and focus on.

Definition of Terms

Conceptual Definition:

Stress: Dobson & Smith (2000) propose that stress emerges when individuals find it challenging to cope with their environment. Furthermore, Selye (1950) suggests that stress can be defined as the disturbance of the human adaptation system in reaction to a perceived threat. It materializes as the body's response to unfavorable demands from the environment, indicating an individual's struggle to adapt to adverse conditions (Selye, 1984). The experience of stress occurs when individuals encounter environmental pressures that jeopardize their well-being.

Attitudes towards using ICT: According to Tinmaz (2009), attitudes towards using ICT defined as the extent to which one person feels about using and learning technology. Besides that, attitudes toward technology encompass notions, concepts, and thoughts that shape behaviors (David, 2020). Attitudes towards ICT can be described as the responses of instructors to the importance of ICT (Saxena, 2022).

Operational Definition:

Perceived Stress: The current research utilizes the Perceived Stress Scale (PSS) developed by Cohen et al. (1983) to measure levels of perceived stress. This well-established tool allows for an assessment of how various situations affect an individual's perceived stress levels (Cohen et al., 1983). Comprising 10 items, the scale is designed to assess to what degree individuals perceive their lives as chaotic, beyond their control, and overloaded over the past month (Lee, 2012).

Attitudes of Preschool Teachers towards using ICT: The tool "Attitudes of Preschool Teachers towards Using Information and Communication Technologies" is utilized to examine the

attitudes of early childhood educators regarding the integration of technology in teaching young children. Developed by Kol (2012), this scale comprises 20 items rated on a five-point Likert scale and assesses preschool teachers' attitudes toward the use of technological tools and materials (Konca, 2016).

Conclusion

In conclusion, this study seeks to explore the correlation between perceived stress levels and attitudes towards integrating ICT in teaching young children among preschool educators in Rawang, Selangor. By delving into this relationship, the research aims to assist preschool teachers in recognizing and managing their stress levels, thereby potentially impacting their stance on utilizing ICT tools. Furthermore, given the scarcity of research in this specific local context, the study endeavors to enhance the understanding of how stress influences preschool teachers' views on incorporating ICT in early childhood education.

Chapter II

Literature Review

Introduction

This chapter focuses on the discussion between the two variables, preschool teachers' perceived stress and their job satisfaction. Here, the researcher discusses various journal articles across different studies regarding the two variables. This chapter also discusses the theoretical framework that is applied in this study. The conceptual framework explains how the two variables are correlated with one another.

Perceived Stress

Stress, as defined by Scott (2022), encompasses any form of change that induces physical, emotional, or psychological strain. It arises when individuals perceive that the demands placed on them exceed their available personal and societal resources (Bhargava & Trivedi, 2018). The existence of stressors, which include factors challenging an individual's adaptability or affecting their physical and mental well-being, determines the presence of stress (Bhargava & Trivedi, 2018). Essentially, a variety of environmental, psychological, biological, and social factors can contribute to stress. Individuals who struggle to effectively cope with these challenges are likely to experience stress, which can ultimately have detrimental effects on their physical and psychological well-being.

Research has consistently demonstrated the detrimental effects of perceived stress on physical and mental health outcomes. High levels of perceived stress have been linked to an increased risk of developing various health problems, including cardiovascular disease, depression, anxiety disorders, and compromised immune function (Cohen et al., 2007;

Schneiderman et al., 2005). Moreover, perceived stress has been associated with poorer health behaviors, such as unhealthy eating habits, sedentary lifestyle, and substance abuse (Cohen et al., 2007). Perceived stress also influences cognitive processes, including attention, memory, and decision-making. Chronic perceived stress has been shown to impair cognitive function, leading to difficulties in concentration, learning, and problem-solving (McEwen, 2007). Moreover, individuals experiencing high levels of perceived stress may exhibit cognitive biases and negative thinking patterns, further exacerbating their stress levels (Beck, 2008).

Studies have established a significant relationship between teacher perceived stress and attitudes towards using ICT in education. For example, Akcaoglu and Lee (2016) discovered that teachers with higher stress levels were more inclined to hold negative attitudes towards ICT integration. Similarly, Frazier et al. (2017) noted a reluctance among stressed teachers to incorporate ICT tools into their teaching practices. Stress can exacerbate cognitive load, heighten fear of failure, and diminish perceived control, all of which contribute to negative attitudes towards adopting new technologies (Akcaoglu & Lee, 2016; Frazier et al., 2017). Addressing teacher perceived stress is essential for fostering positive attitudes towards ICT integration in education. Interventions designed to reduce stress levels, such as stress management programs and professional development opportunities, can help alleviate the barriers hindering ICT adoption (Akcaoglu & Lee, 2016; Frazier et al., 2017). Moreover, creating a supportive school environment that prioritizes teacher well-being and offers resources for coping with stress can facilitate a more favorable attitude towards using ICT in teaching practices.

Attitudes towards using ICT

Attitudes towards Information and Communication Technology (ICT) refer to individuals' beliefs, perceptions, and feelings regarding the use of technology in various aspects

of their lives, including education (Tinmaz, 2009). These attitudes encompass factors such as acceptance, interest, comfort, and confidence in utilizing ICT tools and resources for teaching and learning purposes. According to a study by Ertmer (2005) found that teachers who reported positive attitudes towards technology integration experienced lower levels of stress related to instructional challenges. Teachers who hold positive attitudes towards integrating ICT into their teaching practices may experience reduced stress levels. Embracing technology as a tool for enhancing teaching and learning can lead to feelings of competence, efficacy, and enjoyable may approach their work with greater confidence and motivation, contributing to a sense of fulfillment.

Conversely, Research by Akcayir (2017) found that teachers' negative attitudes towards ICT were associated with higher levels of perceived stress related to technological challenges and workload. teachers who hold negative attitudes towards using ICT in teaching young children may experience increased stress levels. Resistance to technology integration, whether due to lack of training, perceived ineffectiveness, or concerns about its impact on teaching practices, can contribute to feelings of frustration, overwhelm, and inadequacy. Teachers who feel ill-prepared or unsupported in incorporating technology into their classrooms may experience heightened stress as they navigate unfamiliar tools and methods.

Several factors may mediate the relationship between teachers' attitudes towards using ICT and their perceived stress. For instance, the availability of professional development opportunities, technical support, and resources may influence teachers' confidence and competence in using technology, thereby impacting their stress levels. Research by Tondeur et al. (2012) highlights the importance of supportive school environments and teacher training programs in mitigating stress associated with technology integration. Additionally, organizational

factors such as school culture, leadership support, and workload demands can shape teachers' experiences with ICT integration and contribute to their overall stress levels.

The Association between Perceived Stress and Attitudes Towards using ICT

According to a study conducted by Abatogun (2010), there is a positive correlation between teachers' perceived stress and their attitudes toward using ICT. The research involved 454 teachers from Ogun State, United Kingdom, and analysis revealed a strong and positive relationship between perceived stress and attitudes toward ICT use ($r= 0.98$, $p<0.05$). The study suggests that high-stress environments can actually foster creativity and innovation, prompting individuals to explore alternative approaches such as the use of ICT tools and platforms. During periods of stress, individuals may be more inclined to experiment with new technologies to streamline processes, collaborate with others, or access resources more efficiently. Stressful situations can encourage individuals to think creatively and consider unconventional solutions.

In a study conducted by Jena (2015), it was discovered that teachers' perceived stress is inversely correlated with their attitudes toward using ICT. The research involved 216 teachers from various schools in India, and the analysis revealed a negative impact of perceived stress on attitudes toward ICT use ($r=-.34$, $p<0.05$). The study suggests that elevated levels of stress can result in cognitive overload, making it challenging for individuals to concentrate, process information, and learn new technologies. When overwhelmed by stress, individuals may find it difficult to effectively utilize ICT tools and platforms, leading to frustration and unfavorable attitudes toward technology adoption.

Kim et al. (2016) conducted a study which also concluded that teachers' perceived stress is inversely related to their attitudes toward using ICT. This research involved 312 teachers from

South Korea, and the analysis revealed a negative impact of perceived stress on attitudes toward ICT use ($r=-0.4$, $p<0.05$). According to this study, perceived stress can be viewed as threats, eliciting a "fight or flight" response that prioritizes immediate survival over long-term goals such as learning or adopting new technologies. Individuals under stress may perceive ICT as an additional source of pressure or complexity, leading to avoidance and resistance towards technology utilization.

Ismail et al. (2020) conducted a study that also revealed a negative correlation between teachers' perceived stress and their attitudes toward using ICT. This research involved 525 teachers from Malaysia, and the analysis demonstrated a detrimental effect of perceived stress on attitudes toward ICT use ($r=-0.18$, $p<0.05$). According to this study, persistent stress may lead to emotional exhaustion, resulting in reduced motivation and enthusiasm for utilizing technology in the classroom. The ongoing stress experienced by teachers might diminish their willingness to explore innovative teaching methods, particularly those involving ICT.

Salanova et al. (2020) conducted a study that also revealed a negative correlation between teachers' perceived stress and their attitudes toward using ICT. This research involved 140 teachers from Spain, and the analysis indicated a detrimental effect of perceived stress on attitudes toward ICT use ($r=-0.17$, $p<0.05$). According to this study, time constraints and an increase in workload are common stressors among teachers. Teachers, already burdened with busy schedules, may perceive technology adoption and learning as time-consuming tasks they cannot afford, fostering distrust or outright rejection of these technologies.

Atabek (2020) conducted a study which similarly concluded a negative correlation between teachers' perceived stress and their attitudes toward using ICT. This research involved 451 teachers from the southwestern region of Turkey, and the analysis revealed a detrimental impact of perceived stress on attitudes toward ICT use ($r=-0.30$, $p<0.05$). According to this study, stress can exacerbate its effects if technology integration lacks sufficient support. Teachers may feel ill-equipped to manage technical challenges if they lack access to training, troubleshooting assistance, or peer support networks, further contributing to their negative perceptions of technology.

Theoretical Framework

Transactional Model of Stress and Coping

The Transactional Model of Stress and Coping, developed by Richard Lazarus and Susan Folkman in 1984, aims to offer a comprehensive understanding of stress by highlighting its dynamic and transactional nature. This model focuses on cognitive appraisal, coping strategies, and individual differences. Stress, as outlined by Lazarus and Folkman (1984), refers to the specific relationship between an individual and their environment, perceived as taxing or surpassing their resources and threatening their well-being. It emphasizes that stress is more about how an individual perceives the event rather than the event itself, considering factors such as threat, susceptibility, and coping abilities (Gunawan, 2013). Cognitive appraisal, as defined by Folkman et al. (1986), is the process by which individuals evaluate whether an encounter with the environment is relevant to their well-being and, if so, in what ways. Lazarus (1991) further delineates cognitive appraisal into two types: primary appraisal and secondary appraisal. Primary appraisals involve the conscious or unconscious evaluation of situations to determine their

emotional significance, distinguishing between whether they are perceived as benign, non-stressful, or stressful (Rev, 2017).

The secondary appraisal, as described by Lazarus and Folkman (1984), involves a multifaceted evaluation process that considers the available coping options, the likelihood of their effectiveness, and the individual's perceived ability to apply them effectively. It encompasses assessing which coping strategies are at one's disposal, their potential success in addressing the stressor, and the individual's confidence in implementing these strategies (Lazarus and Folkman, 1984, pg35).

Coping is defined as an ongoing process of cognitive and behavioral efforts aimed at managing specific external and/or internal demands that are perceived as exceeding one's personal resources (Lazarus and Folkman, 1984, pg141). Following the secondary appraisal, two primary coping mechanisms emerge: problem-focused coping and emotion-focused coping. Problem-focused coping entails directly addressing the stressor with the aim of minimizing distress and effectively managing the situation when the individual possesses the ability to influence the stressor (Jensen, 2016). For example, an individual may alleviate distress by starting an assignment earlier, thereby minimizing temporary stress associated with looming deadlines. On the other hand, emotion-focused coping is focused on managing the emotions and feelings triggered by a stressor when altering or mitigating the stressor itself is not feasible (Jensen, 2016). For instance, individuals experiencing disappointment over an unchangeable assignment grade may seek social support to manage their emotional response.

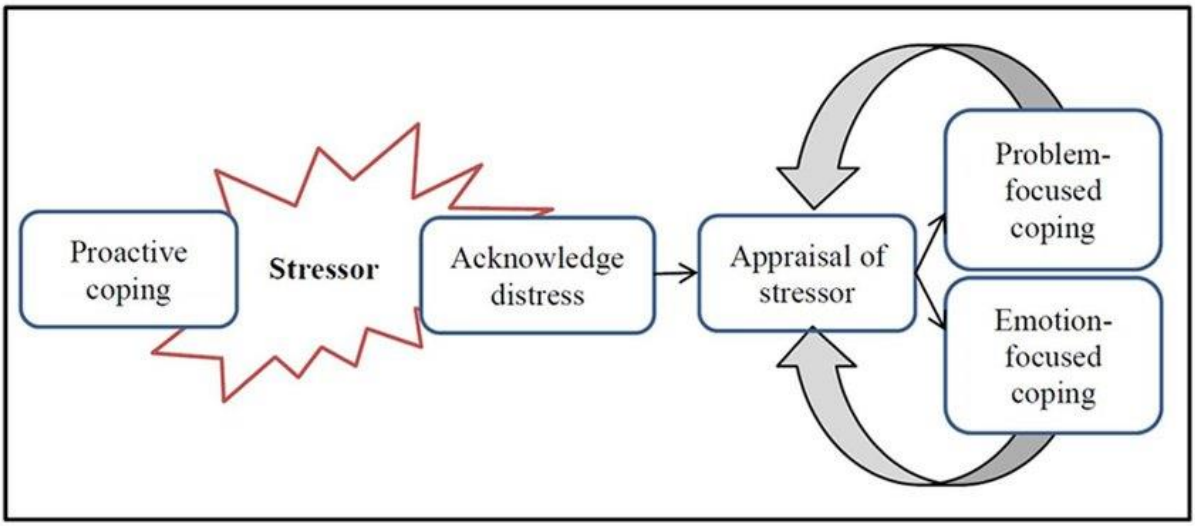

Figure 1: Transactional Model of Stress and Coping (Lazarus & Folkman, 1984)

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Fred Davis in 1986, aims to provide insights into the mechanisms underlying technology adoption, allowing for the prediction of technology behavior, and offering theoretical foundations for effective technology utilization (Davis, 1989). TAM proposes that technology acceptance is a three-step process, wherein external variables (system features) evoke cognitive responses (perceived usability and ease of use), leading to effective responses (behavioral intention or actual use of technology), thereby influencing usage behavior (Davis, 1989; Davis, 1993).

As noted by Jimenez (2020), TAM is widely applied across various domains, including e-learning, agriculture, and virtual reality, where external variables play a pivotal role. Factors such as computer anxiety, perceived enjoyment, and self-efficacy are identified as critical determinants influencing technology acceptance. Perceived usefulness refers to an individual's belief regarding the potential benefits of using a particular technology (Davis, 1989). Perceived

ease of use, as described by Thong et al. (2002), reflects the extent to which a prospective user believes using a system would be effortless.

Furthermore, TAM suggests that perceived usefulness has a direct and positive impact on intention to use, while perceived ease of use influences adoption intention or perceived intention to use an information technology (IT) both indirectly and directly. Perceived ease of use directly influences perceived usefulness, contributing to both indirect and direct drivers of intention to use, as proposed by Thong et al. (2002).

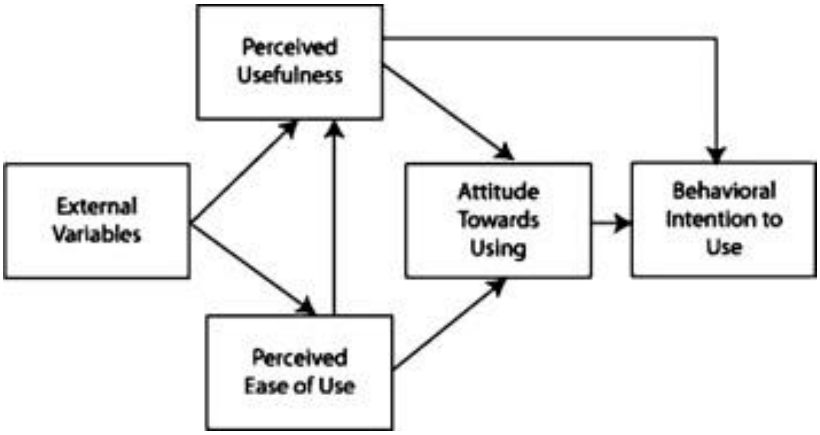

Figure 2: Technology Acceptance Model (TAM) (Davis, 1986)

Applied Transactional Model of Stress and Coping and Technology Acceptance Model into current study

As per Scherer (2019), the Technology Acceptance Model (TAM) serves as a framework for understanding teachers' adoption of technology. Additionally, Jimenez (2020) highlights the widespread application of TAM across various sectors such as e-learning, agriculture, and virtual reality, where external variables play a crucial role. Notably, several authors, including

Venkatesh (2000), Charness et al. (2010), and Rosli (2022), have identified psychological factors like computer anxiety, perceived enjoyment, and self-efficacy as significant determinants of technology acceptance. Drawing from this literature, authors like Venkatesh, Charness, and Rosli have consistently suggested that teachers' stress levels may influence their technology beliefs and usage. Thus, it is plausible to consider psychological factors such as stress as important determinants impacting the development of teachers' attitudes and usage of ICT. In this context, external variables in TAM may refer to stress variables.

In this study, perceived usefulness in TAM may align with the concept of primary appraisal in the Transactional Model of Stress and Coping. Primary appraisal involves assessing the relevance of an event to one's well-being (Lazarus and Folkman, 1984), which could be where stress management and appraisal occur. Subsequently, this appraisal process determines the user's perceived usefulness and ease of use of the technology. In summary, these two theories can be employed to elucidate the relationship between teachers' perceived stress and their attitudes toward using ICT.

Conceptual Framework

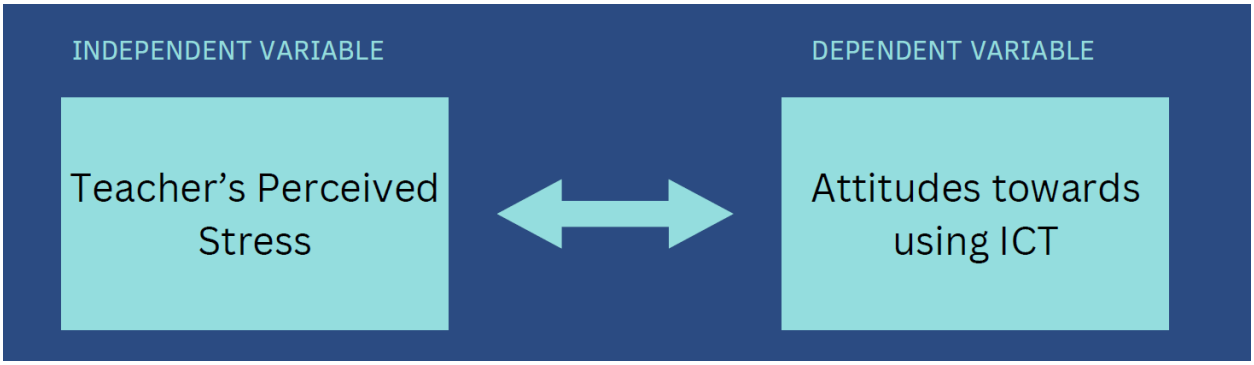

Figure 3: Conceptual Framework of the Study

This research was carried out to examine the relationship between teacher's perceived stress (IV) and their attitudes of preschool teachers towards using ICT (DV). The study hypotheses that teacher's perceived stress is related to their attitudes towards using ICT. This assumption is supported by past literature. For example, Jena (2015) found that there is a relationship between teacher's stress and the attitudes towards ICT same as the research of Coklar (2016), Kim (2016), Tammi (2016). The summarize of all these research shows that pressure to use technology has increased teacher stress and technostress impacts negatively on intensions to use technology.

Conclusion

The researcher has delved into subtopics pertinent to the subject matter, encompassing stress and attitudes towards using ICT. Additionally, previous studies have been examined to ascertain the link between perceived stress and attitudes towards ICT usage. The theoretical framework, comprising the Transactional Model of Stress and Coping alongside the Technology Acceptance Model, has been thoroughly discussed, aligning with the conceptual framework presented accordingly.

Chapter III

Research Methodology

Introduction

Chapter 3 of the research paper consists of the research design, sampling and respondents, research instrument, data analysis, and research procedure.

Research Design

According to Luiz (2011), quantitative research methods are often chosen for their ability to handle complex data collection and analysis processes. However, the reliance on mathematical formulations and numerical outputs may obscure underlying issues within the system being studied. Additionally, following the definition provided by Aliaga and Gunderson (2000), quantitative research involves explaining phenomena through the collection of numerical data analyzed using statistically based methods. Similarly, John (2016) defines quantitative research as the application of established mathematical techniques to numerical data for hypothesis testing, typically involving samples and variables. In summary, quantitative research methods, as described by these sources, entail the systematic collection and analysis of numerical data using mathematical approaches. Correlational design, as outlined in the literature, is a type of nonexperimental research that aims to predict and explain relationships between variables.

Sampling method, respondents, and population

The population of the sampling are Malaysian teachers in Rawang, Selangor who teach preschool children. The quantity of sample sampling from the respondents which is the preschool teachers in Rawang Selangor minimum be 60 and the more the better. In the sample

characteristics, the participants must be Malaysian and preschool teachers who teaches preschool children in a physical mode.

According to Simkus (2023), convenience sampling is a non-probability sampling method that involves gathering data from a readily accessible population. The sample is composed of individuals who are most conveniently available to the researcher, rather than being representative of the entire population. In this particular research, convenience sampling is employed in preschools located in Rawang, Selangor. The researcher will provide the questionnaire to the principals of the preschools in Rawang, Selangor, who will then distribute the questionnaire to the preschool teachers working in their respective preschools.

Research Instrument Description

For data collection in this study, both online and physical questionnaires will be administered to the participants. The survey is divided into three sections: Section A, Section B, and Section C. Section A is dedicated to gathering demographic details from the respondents, providing a succinct overview of the study participants' backgrounds. This section will gather information on seven demographic variables, including respondents' names, genders, ages, ethnicities, years of teaching experience, education levels, and primary languages.

Perceived Stress Scales 10 (PSS-10)

In Section B, the tool used to measure the independent variable (IV) is the Perceived Stress Scale 10 (PSS-10), developed by Sheldon Cohen and Williamson in 1998. This instrument aims to assess the extent to which individuals perceive situations in their lives as stressful. It consists of 10 items in total, with items 4, 5, 7, and 8 being positively worded, while items 1, 2, 3, 6, 9, and 10 are negatively worded. In terms of scoring, the scores for the positively worded

items need to be reversed. For instance, scores of 0 become 4, 1 becomes 3, 2 becomes 2, 3 becomes 1, and 4 becomes 0. According to Baik (2017), the reliability score (Cronbach's Alpha) of the instrument is 0.78. The total PSS score is calculated by summing up the scores of all 10 items after reversing the scores of the positively worded items. In terms of interpreting the scores, higher scores on the PSS-10 indicate higher levels of perceived stress. The possible scores range from 0 to 40, using a 5-point Likert scale where 'Never' is scored as 0, 'Almost never' as 1, 'Sometimes' as 2, 'Fairly often' as 3, and 'Very often' as 4.

Attitudes Scale of Technology Tool Usage in Preschool Education

In Section C, the instrument used to measure the dependent variable (DV), which calculates the attitudes of preschool teachers towards the use of technology, is the Attitudes Scale of Technology Tool Usage in Preschool Education by Kol in 2012. This instrument specifically targets preschool teachers and aims to investigate their attitudes towards integrating technology into teaching young children. It comprises 20 items in total, divided into two subscales: positive items (1, 2, 4, 5, 7, 8, 10, 12, 14, 15, 17, 18, 19, 20) and negative items (3, 6, 9, 11, 13, 16).

When scoring, the scores for the negative items (3, 6, 9, 11, 13, 16) need to be reversed. For example, a score of 1 becomes 5, 2 becomes 4, 3 becomes 3, 4 becomes 2, and 5 becomes 1. According to Kol (2012), the reliability score (Cronbach's Alpha) of the instrument is 0.92. The Likert scale used is a 5-point Likert scale with options including 'Strongly Disagree' (1), 'Disagree' (2), 'Undecided' (3), 'Agree' (4), and 'Strongly Agree' (5). The total attitude score is calculated by summing up the scores of all items, after reversing the scores of the negative items, and then dividing the total by 20 to generate an average score. Regarding score interpretation, higher scores on the scale indicate a more positive attitude towards technological tool and material use. According to Konca (2016), scoring is categorized as follows: scores between 1 and

2.33 indicate low attitude, scores between 2.34 and 3.67 indicate moderate attitude, and scores between 3.68 and 5.00 indicate high attitude.

Data analysis

The researcher utilizes descriptive analysis to examine the demographic profiles of the participants and the total scores of the two main variables: perceived stress and attitudes towards using ICT. This analysis employs statistical measures such as mean, standard deviation, tables, frequencies, percentages, and histograms to summarize the collected data. The mean, representing the arithmetic average, is calculated by summing all values and dividing the total by the number of observations. It provides insight into the average scores of variables, including the overall Perceived Stress-10 and the Attitudes of Preschool Teachers towards Using Information and Communication Technologies. Standard Deviation (SD) measures the average extent of variability within a dataset, indicating the average distance of each value from the mean (Bhandari, 2023).

Additionally, tables, frequencies, and percentages are used to summarize demographic data such as gender, age, race, education level, years of teaching experience in the ECE industry, language, and ethnicity. Histograms, as defined by Chen (2024), visually represent data points arranged into predefined ranges specified by the user.

Inferential analysis is employed to investigate the linear relationship between perceived stress and attitudes towards using ICT among preschool teachers, using linear inferential statistics. A Pearson product-moment correlation coefficient is utilized to analyze this relationship. The Pearson correlation coefficient (r) value indicates the magnitude of the linear association

between the two random variables (Zhou et al., 2016). According to Faizi (2023), the degree of linear correlation between two variables is assessed by the Pearson correlation coefficient, which ranges from -1 to 1. A value of -1 indicates a completely negative linear correlation, 0 indicates no correlation, and +1 indicates a fully positive correlation. Cohen (1992) provides guidelines for interpreting effect sizes: r values from 0.10 to 0.29 indicate a small effect size, 0.30 to 0.49 indicate a medium effect size, and 0.50 to 1.00 indicate a large effect size. The significance level (alpha) is set at 0.05, where $P > 0.05$ indicates no significant relationship between variables, and $P < 0.05$ indicates a significant relationship.

Research Procedure

The data collection phase is anticipated to last approximately two weeks. Before commencing data collection, the researcher will create a questionnaire using Google Forms and draft a consent letter for potential respondents. Subsequently, the researcher will conduct a survey in the Selangor area to gather contact information of preschool principals. Once this information is obtained, the researcher will contact these principals via WhatsApp, explaining the research objectives and requesting their consent to participate.

After receiving consent and approval from the preschool principals, the researcher will share an online questionnaire link for distribution among teachers. Additionally, if agreed upon by the principals, physical questionnaires will be distributed during visits to expedite data collection. Participating teachers will be required to sign a consent form and complete the questionnaire. Throughout the two-week data collection period, the researcher will send follow-up reminders to the principals. This process will continue until a sample of 70 preschool teachers actively participates in the study. The questionnaire is designed to be completed within 5 to 10 minutes.

The attached consent letter, along with the questionnaire link, ensures that respondents voluntarily agree to participate and retain the freedom to withdraw at any point. Contact information will be provided for respondents with inquiries about the study. In the event that a preschool principal declines assistance with distribution, the researcher will cease contact and seek alternative preschools willing to participate.

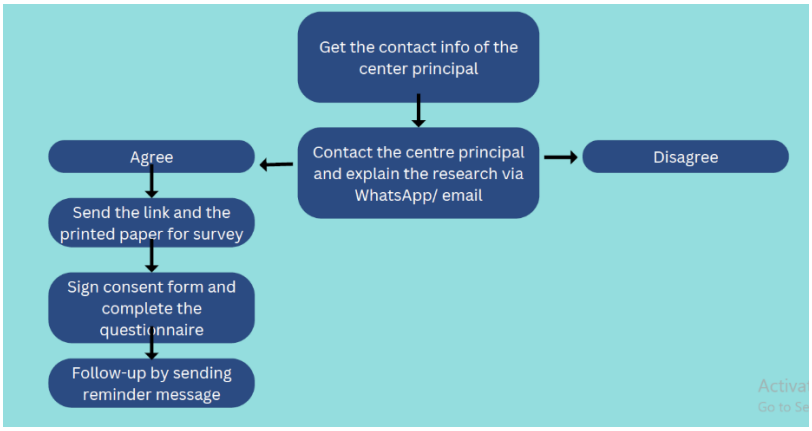

Figure 4: Flow Chart of Data Collection

Conclusion

In conclusion, for research design this research is a quantitative based research and correlational design using two questionnaires which are Perceived Stress Scale 10 and Attitudes of Preschool Teachers towards using Information and communication technology. For sampling and respondents, the population of the research is Malaysian preschool teachers who teach preschool children physically and 80 teachers as a sample to the research. The sampling method use in the research is convenient sampling. For the research instrument, there are 8 items in demographic information, and two questionnaire which are Perceived Stress Scale 10 to measure the stress of the preschool teachers and Attitudes of Preschool Teachers towards using Information and communication technology to measure the attitudes of preschool teachers about ICT. For data analysis, we use descriptive analysis to descript analysis refers to the statistical methods used to summarize and describe the main features of a dataset. For the inferential analysis, the analysis tool used is from Pearson correlation coefficient moment. The important values are P and R values. Last but not least is the research procedure, first is to identify and problem, provide objective and hypothesis, after that do the research design, choose the target audience, research instrument and data analysis. Lastly request permission, sent out the survey form and follow up to the teachers.

Chapter IV

Findings and Analysis

Introduction

In this chapter, the researcher will present the descriptive analysis and inferential analysis result that investigated the relationship between preschool teachers' perceived stress and attitudes towards using ICT. The data analysis for this study has been conducted using IBM SPSS Statistics 26.0.

Descriptive Statistics and Analysis

The demographic items will be presented included gender, age, ethnicity, year of teaching experience, educational level, early childhood education background, training related to ICT usage.

Table 1

Gender of Teachers

Gender	Frequency (N)	Percent (%)
Female	73	92.4
Male	6	7.6
Total	79	100.0

Most the teachers involved in this study are female. Table 1 shows 73 teachers (92.4%) are female and 6 (7.6%) are male.

Table 2

Age and Ethnicity of Teachers

Item		Frequency (N)	Percent (%)
Age	25 years old and below	17	21.5
	26 - 30 years old	18	22.8
	31 – 35 years old	13	16.5
	36 – 40 years old	12	15.2
	41 – 45 years old	11	13.9
	46 years old and above	8	10.1
	Total	79	100.0
Ethnicity	Malay	1	1.3
	Chinese	76	96.2
	Indian	2	2.5
	Total	79	100.0

Table 2 shows the age and ethnicity of the teachers. Majority of the teachers are fall between the ages of 26 – 30 years old, with the frequency of 18 (22.8%), followed by 17 teachers are 25 years old and below (21.5%), 13 teachers are 31 – 35 years old (16.5%), 12 teachers are 36 – 40 years old (15.2%), 11 teachers are 41 - 45 years old (13.9%) and 8 teachers are 46 years old and above (10.1%).

For ethnicity, 76 teachers are Chinese (96.2%), followed by 2 teachers are Indian (2.5%) and 1 teacher is Malay (1.3%).

Table 3

Teacher Years of Teaching Experience

Years of Teaching Experience	Frequency (N)	Percent (%)
1 to 5 years	39	49.4
6 to 10 years	19	24.1
11 to 15 years	13	16.5
16 years and above	8	10.1
Total	79	100.0

Table 3 shows the years of teaching experience. Majority of the teachers have teaching experience with 1 to 5 years are 39 (49.4%), followed by 19 teachers with 6 to10 years of teaching experience (24.1%), followed by 13 teachers with 11-15 years of teaching experience (16.5%), and 8 teachers with 16 years and above teaching experience (10.1%).

Table 4

Education Level of Teachers

Education Level	Frequency (N)	Percent (%)
SPM/ STPM/ Pre-University	25	31.6
Diploma	47	59.5
Bachelor	7	8.9
Master	0	0.0
PhD	0	0.0
Total	79	100.0

As shown in Table 4, majority of the teachers has the certificate in Diploma (59.5%), the followed by 25 teachers certified with SPM/ STPM/ Pre-University (31.6%). There are 7 teachers has the certificate in Bachelor (8.9%), and there has no teacher with Master and PhD education level.

Table 5

ECE Educational Background

ECE Educational Background	Frequency (N)	Percent (%)
Certificate in ECE Area	1	1.3
Diploma	4	5.1
Bachelor	4	5.1
Master and Above	0	0.0
No	70	88.6
Total	79	100.0

Table 5 shows the teachers ECE educational background, majority of the teachers have no ECE educational background (88.6%). There are both 4 teachers have diploma and bachelor in ECE educational background (5.1%). Followed by a teacher has certificate in ECE area (1.3%) and no teacher has ECE educational background on master and above.

Table 6

Training related to ICT usage

Training related to ICT usage	Frequency (N)	Percent (%)
No	73	92.4
Yes	6	7.6
Total	79	100.0

Table 6 shows teacher attend training related to ICT usage, there are 73 (92.4%) teachers does not attend training related to ICT usage before and 6 (7.6%) teachers attend training related to ICT usage before. In the following question is state the name of the training if the teachers attend before the ICT usage training. There are 73 teachers answer never attend before and 6 teachers attend before has forget the name of the training.

Table 7

Mean and Standard Deviation of Total Perceived Stress Scale 10 (PSS-10)

	N	Mean (M)	Standard Deviation (SD)
Total PSS-10	79	24.78	8.964

Table 7 displays the Mean (M) and Standard Deviation (SD) of the independent variable (IV), perceived stress, with a sample size (N) of 79. The analysis reveals that the mean perceived stress score is 24.78, with a standard deviation of 8.964.

Table 8

Mean and Standard Deviation of Attitudes Scale of Technology Tool Usage in Preschool Education (1-2.33 Low, 2.34-3.67 Moderate, 3.68-5.00 High) (Konca, 2016).

	N	Mean (M)	Standard Deviation (SD)
Total Attitudes Scale of Technology Tool Usage in Preschool	79	2.82	1.103

Table 8 presents the Mean (M) and Standard Deviation (SD) of the independent variable (IV), attitudes towards using ICT, based on a sample size (N) of 79. The analysis indicates that the mean score for attitudes towards technology tool usage in preschool is 2.82, with a standard deviation of 1.103.

Table 9

Frequency and Percentage of Attitudes Scale of Technology Tool Usage in Preschool Education

Total Attitudes Scale of Technology Tool Usage in Preschool Education	Frequency (N)	Percent (%)
Low (1 – 2.33)	42	55.7
Moderate (2.34 – 3.67)	9	11.4
High (3.68 – 5.00)	28	32.9
Total	79	100.0

Table 8 shows the most 42 teachers' attitude towards using ICT usage in preschool education is low (55.7%), followed by 28 teachers attitudes towards using ICT usage in preschool education is high (32.9%) and 9 teachers are moderate (11.4%).

Inferential Statistics and Analysis

In the current study, inferential analysis involves using the Pearson correlation coefficient to examine the relationship between the independent variable (IV), perceived stress, and the dependent variable (DV), attitudes towards using ICT, among 79 local preschool teachers in Rawang, Selangor.

Hypothesis: There is a significant relationship between perceived stress and attitudes towards using ICT among preschool children in Rawang, Selangor.

Table 10

Correlation between Total perceived stress and Total attitudes towards using ICT among preschool children

	N	r	P
Total PSS	79		
Total attitudes towards using ICT among preschool children	79	-.539*	0.001

According to Table 10, the results reveal a significant negative relationship between teachers' perceived stress and attitudes towards using ICT among preschool children ($n=79$, $r=-0.539^*$, $p<0.001$). Cohen (1992) suggests that a correlation coefficient (r) falling between -0.50

and -1.0 indicates a strong relationship between variables. A negative r value indicates a negative linear relationship between the variables under study. Therefore, it implies that higher levels of perceived stress are likely to decrease preschool teachers' attitudes toward using ICT, and vice versa. The p-value provided in the table is 0.001, which, based on Beacom's (2023) criteria of significance ($p \leqslant 0.05$), confirms the findings as statistically significant. In summary, the hypothesis is accepted.

Summary

The research question of this study asked is there a significant relationship between preschool teachers' perceived stress and their attitudes towards using ICT among preschool children. This study hypothesized that there is a significant relationship between preschool teachers' perceived stress and their attitudes towards using ICT among preschool children. The result of this study reported that a strong negative significant relationship was found between preschool teachers' perceived stress and their attitudes towards using ICT among preschool children ($r=-0.539^*$, $n=79$, $p=0.001$). Hence, the hypothesis of this study can be accepted.

Chapter V

Discussion and Conclusion

Introduction

In this chapter, the researcher will discuss the descriptive and inferential analysis findings in Chapter 4. This chapter also included implications, limitations of the study, and recommendations for future study and conclusion.

Descriptive Analysis and Discussion

The present study indicates that Rawang preschool teachers' perceived stress levels fall within the middle range of the stress score (M=24.78), suggesting that these teachers may be at risk of experiencing some degree of stress. Further examination reveals that the majority of the respondents have between 1 to 5 years of teaching experience. Followed by Dolezel (2018), teacher with teaching experience within 1 to 5 years are consider as freshman, normally in this stage the salary of the preschool teachers might be lower than the teacher that had teaching experience more than 5 years. According to Hamid et.al (2019), preschool teachers in Malaysia often struggle to meet their basic living expenses, including food, clothing, rent, and transportation, especially considering the significant increases in these costs. This may be expected to be possessed certain life stress to the preschool teachers. On the other side, the frustration experienced in work (as preschool teacher) is expected to contribute a part to general life stress too. As noted by Roseli et al. (2023), teachers contend with a multitude of responsibilities such as teaching, administrative tasks, and managing student behavior, all of which contribute to their overall workload and potentially lead to stress. This perspective offers

valuable insights indicating that Rawang preschool teachers could indeed be susceptible to experiencing stress due to the demanding nature of their roles.

Additionally, the current findings suggest that Rawang preschool teachers' attitudes towards using ICT have reached a moderate level on average. The mean attitude towards ICT use is 2.82, indicating a moderate level, as reported by Konca (2015). This aligns with expectations, given that most participants are under 40. Egan (2019) categorizes this age group into two generations: Y (born 1981–1995) and Z (born 1996–2015), both known for their affinity for cutting-edge technology (Reicher et al., 2018). Additionally, Incik (2022) added that preschool teacher in Z generation preferred using technology for lesson preparation. Hence it is expected that young teachers from Y and Z generation usually will have a good skill in manipulating technology devices and might posed a better attitude in using in general. Therefore, the participants result of attitudes towards using ICT is expected because of participant are mostly below aged 40 which falls on Y and Z generations.

In the present study, the current survey “Attitudes Scale of Technology Tool Usage in Preschool” aimed to measure Rawang preschool teacher perception in educational use specifically in ICT usage. In this case, the teacher might be demand for measure specific skill and knowledge in the use of ICT for their work preparation and usage. Based on the current finding, a significant proportion (87.5%) of Rawang preschool teachers are lack a background in early childhood education (ECE). According to Martin (2019), well trained early childhood educators generally hold more positive opinions about the effectiveness of ICT as a teaching tool. This is because those teachers who undergoes ECE courses are better expose to the technics and benefits of ICT usage in teaching young children. According to Aditya et. al (2021), ECE courses has been shown to foster creativity and innovation in utilizing technology for teaching

young children. In contrast, Martinez (2020) said a lack of skills or exposure in technology among preschool teachers can lead to lower technological attitudes, Therefore, it can be inferred that teachers who have not undergone tertiary education or extensive ECE educational may have limited awareness of how ICT can benefit their work.

Lastly, the result of the teachers ICT training shows there are 90% of Rawang preschool teachers did not ever attend the ICT training before. According to Davis (2020), based on TAM theory the duration of teachers' participation in ICT training programs can influence how frequently they utilize ICT. Teachers who participated in extended training sessions did, in fact, show a higher inclination to use ICT into the teaching process (Saprikis et.al, 2019). This suggests that workplace or higher institution ICT training opportunities for preschool teachers could enhance their ICT skills and subsequently impact their attitudes toward ICT. Hence, relating back to the current study, Rawang preschool teachers who majority did not attend ECE course and ICT relevant training is expected may not having sufficient intention and awareness in using ICT especially in their teaching. This may justify why the present group of teachers, who are quite young (Y and Z generations) but get only posed a moderate ICT attitude towards the integration of technology in teaching young children.

Inferential Analysis and Discussion

The study's findings demonstrate a significant negative relationship between preschool teachers' perceived stress and attitudes towards using ICT ($r=-0.539$, $p<0.001$). This result aligns with the conclusions drawn from several reviewed studies, including those by Jena (2015), Kim et al. (2016), Ismail et al. (2020), Salanova et al. (2000), and Atabek (2020).

The finding shows that total perceived stress is significantly correlated with attitudes towards using ICT in a negative direction. To explain, author Jena (2015), research indicates that elevated stress levels can result in cognitive overload, hampering individuals' ability to concentrate, comprehend information, and adapt to new technologies. When confronted with excessive stress, individuals may find it challenging to proficiently utilize ICT tools and platforms, resulting in frustration and fostering negative perceptions towards technology adoption. Added by Kim et.al (2016), research suggests that when individuals perceive stress, they often interpret it as a threat, which triggers a primal "fight or flight" response geared towards immediate survival rather than long-term goals like learning or adopting new technologies. Under stress, people may view information and communication technology (ICT) as an added source of pressure or complexity, fostering avoidance and resistance towards its use.

Added by Ismail et.al (2020), indicated stress that doesn't go away might cause emotional tiredness, which lowers motivation and enthusiasm for using technology in the classroom. Persistent stress can cause emotional tiredness, which lowers instructors' desire to try out novel teaching strategies, especially ones that incorporate ICT. Continue by Salanova et.al (2000), time constraints and an increase in workload are common causes of stress among teachers. Teachers' already busy schedules may make them view technology adoption and learning as time-consuming tasks that they cannot afford, which can breed distrust or outright rejection of these technologies. Lastly, added by Atabek (2020) indicated that stress can worsen its effects if technology integration is not supported enough. Teachers may feel unable to handle technical issues if they lack access to training, troubleshooting help, or peer support networks, which could exacerbate their unfavorable views toward technology. Based on the current descriptive analysis, 94% of preschool teachers does not attend any ICT training and 88.6 % of them did not attend

ECE courses, these factors may cause lack of knowledge of teachers in using ICT and face stress on using technology to teach young children. Afterall, the viewpoint of Salanova et.al (2000) and Atabek (2020) as helped to supported and explained further the present result to justify the significant negative relationship between teacher perceived stress and attitudes towards using ICT, also to explain the strong connection between the two variables (r= -0.539).

Implication

This current research study holds significant implications as it provides up-to-date information regarding the levels of stress and perceptions of ICT among the local population, based on ECE and Malaysian samples. Based on the present result, the preschool teachers in Rawang might be at risk to feel stress and showed moderate positivity in their ICT attitude. For suggestion to principal, having an in-house pedagogy training and courses for Rawang preschool teachers who majority posed no ECE background and ICT training background is necessary. This can be a technic to reduce their stress related to work (e.g. resolving technical issues facing when using ICT), as well as to improve their skills in manipulating ICT devices. Supported by to Sandilos (2017), these training and courses might help teachers access to extensive professional development opportunities that concentrate on time management strategies, stress management techniques, and successful classroom technology integration can provide them the tools they need to face difficulties head-on. Apart from that, cultivating a supportive workplace environment has the potential to boost morale and alleviate stress. Principals have the opportunity to nurture an atmosphere that values, motivates, and empowers preschool teachers, promoting their professional success while safeguarding their mental and emotional health.

The second implication of the present study is to provide important insight to local literature that perceived life stress is one of a significant variable that related to ICT perception in

teaching young children. In other research there are much of other external variables such as experience, computer self-efficacy, perceived enjoyment (Jimenez, 2021) being suggested to related to ICT based variable. The present research has helped to add important evidence by proving the significant negative relationship between perceived stress and attitudes towards using ICT. Besides, the present study also revealed a unique finding showed stress and ICT perceptions are correlated at the large effect size (r=-.539) based on the local samples. Compared to the past literature, the authors often found both variables are likely to posse small to medium effect. For example, the research result of Jena (2015) shows r value is -.34, Kim et.al (2016) r=-.40, Ismail et.al (2020) r=-.18, Salanova et.al (2000) r=-.17, and Atabek (2020) r=-.30. The inconsistency of the result may be due to two reasons. First, past literature has been focused to investigate a different type of stress, for example the Techno stress (Jena, 2015) and (Kim et.al, 2016). The present result has given an important insight that general life stress may generate a larger effect to ICT perceptions, hence, it is worth to further study. Secondly, the inconsistency of finding (on r effect size) may be due to the nature of the population being studied. Based on the descriptive findings of the present study, the local preschool teachers' sample are majority lack of ECE education and ICT training background, in which these variables may be external factors (Jinmez, 2021) that influence how the stress and ICT perceptions are correlation. This provide important information for future research to take note the nature characteristic of respondents might also posed certain effect now those two variables are correlated.

Limitation

A significant limitation of this research study is that the results are restricted to Rawang, Selangor, thereby limiting the generalizability of the findings to other regions or populations. This may be due to the employment of which is a non-sampling method, where the inclusion of

participants is based on their ease of accessibility to where many participants are possibly joined to attend this survey based on friends or colleagues (Kassiani, 2023). This research also limits the generalizability of finding because it only applicable to Rawang preschool teacher's population. As per Kassiani (2023), generalizability pertains to the extent to which the findings of a study can be extrapolated to broader contexts. It is considered achieved when research results can be consistently applied across diverse populations, contexts, and situations. However, the demographic profile of the participants in this study suggests a concentration within a limited scope. The majority of respondents have relatively low teaching experience, typically ranging from 1 to 5 years, and their educational attainment is primarily at the SPM to Diploma levels. Consequently, the study's applicability to a broader population of preschool teachers in Rawang, Selangor, is restricted.

Besides, another limitation of this study is the language used in survey slows down the data collection process. As the current location of study is in Rawang and based on convenience sampling, majority of respondents are Chinese. In addition, in the respondent's kindergarten, they used to use Mandarin as their medium of communication. Hence, many of the respondents tend to reject or withdraw the survey, and some of them frequently ask for clarification on language. This has cause to delay in completive and also prolong the data collection process. As the current situation, the participant requests the researcher to translate the questionnaire into the familiar language of the participant. Therefore, the increasing of tendency to withdraw halfway answering survey also happens when participants get the English questionnaire (Einola, 2020).

Furthermore, another limitation of this research is the reliance on quantitative methodology. Quantitative research employs numerical data and graphical representations to test or validate theories and hypotheses, aiming to establish generalized facts about a subject through

systematic data analysis (Streefkerf, 2023). Closed questions, as described by Steele (2019), gather quantitative data by providing respondents with a limited selection of predefined options to choose from. Because quantitative data are easier to analyze compared to qualitative data, closed questions are commonly used and preferred in research. Quantitative methods prioritize objective measurements and involve statistical, mathematical, or numerical analysis of data obtained through polls, questionnaires, surveys, or manipulation of existing statistical data using computational techniques (Babbie, 2010). Consequently, the research results may lack in-depth insights into the detailed opinions of the participants.

Recommendation

To address the first limitation mentioned earlier, it is recommended that future studies expand their research to include other states in Malaysia to enhance generalizability. By broadening the scope of the investigation, researchers can gather samples with diverse characteristics, better reflecting the population under study from various locations. Additionally, utilizing probability sampling methods, such as random sampling, can ensure the inclusion of respondents with a range of relevant characteristics, including workplace area, age groups, and racial backgrounds (Elfil & Negida, 2017). For example, random sampling could be implemented to ensure representation from both urban and rural areas, considering potential differences in stress levels and attitudes towards ICT due to economic disparities and variations in training and resource accessibility related to ICT. Makhlouf (2021) supported this notion by finding that teachers in rural areas tend to exhibit lower positive attitudes towards ICT use due to limited technology equipment in their schools. Consequently, achieving generalizability in the study becomes feasible, as the results can be applied to a broader geographical area.

To solve the limitation on language barriers of the participants, it is recommended to provide translation of the questionnaire to the participants. According to Moradeke (2022), multilingual questionnaire can get better data quality and lower survey drop off rates. This can enhance the willingness and understanding of the participants when they are answering the questions with their familiar languages. Multilingual questionnaire also enables to widen the participants, for example Chinese, Malay languages can help teachers who are familiar with these languages answer the questionnaire well and accurate.

To address the limitations associated with using a quantitative method in this study, it is recommended to adopt a mixed-methods research approach, integrating both quantitative and qualitative methods. As emphasized by Sharada (2022), a mixed-methods approach necessitates proficiency in both quantitative and qualitative methodologies, along with the capability to effectively merge the two to leverage their strengths while mitigating their weaknesses. This approach enables the scientific rigor and generalizability of quantitative data to be complemented by the nuanced insights provided by qualitative data, thus yielding a more comprehensive understanding of the phenomenon under investigation. For instance, qualitative surveys can facilitate a deeper exploration of participants' circumstances, such as their living environment, financial situation, or daily routines, enhancing the richness and persuasiveness of the research findings. Moreover, mixed-methods research aims to integrate the benefits of both traditional approaches while addressing their individual limitations and biases. Therefore, future research endeavors are advised to embrace a mixed-methods research methodology to overcome the identified limitations and provide a more nuanced perspective on the perceptions and experiences of preschool teachers.

Conclusion

In essence, the researcher has determined that there's a notable correlation between the stress perceived by preschool teachers and their attitudes regarding the integration of ICT in early childhood education. Life stress could potentially act as an external factor leading to a diminished inclination among teachers to utilize ICT in their teaching methods. The study also brings forth a distinctive revelation, suggesting that stress experienced by preschool teachers emerges as a particularly influential factor shaping their attitudes towards ICT adoption within the early childhood education setting.

Conclusion

In conclusion, the study discusses about the relationship between preschool teachers' perceived stress and their attitudes towards using ICT in teaching young children in Rawang, Selangor. The current study aims to address the gap between the limited studies that focus on local context on preschool teachers' perceived stress and their job satisfaction since the discussion concerning teachers' stress and attitudes towards using ICT still heavily rely based on Western evidence. Furthermore, particularly among preschool teachers, there is less concern about the link between stress and attitudes towards using ICT. Therefore, this study intends to investigate how perceived stress and attitudes towards using ICT relate in preschool teachers. The quantitative method is used in this research and tow questionnaires are used, which are Perceived Stress Scale (PSS-10) and Attitudes scale of Technology Tool Usage in Preschool Education.

Based on the descriptive findings, the respondents have reported having a moderate stress level and also attitudes towards using ICT in teaching young children. The moderate level of attitudes of using ICT may because of the life stress. Hence, the current finding has implications for alerting Rawang, Selangor preschool teachers about their stress levels and attitudes towards using ICT. Additionally, according to the study analysis, which shows a large effect size, stress is one of the significant determinants that is significantly and negatively related to attitudes towards using ICT. There are some limitations during this research, including restricted generalizability of the findings, language used in survey slows down the data collection process, and quantitative research implemented. Some recommendations can be made to improve future research, including extension of generalizability to obtain better result, create multilingual questionnaire to reduce withdraw, and apply mix method to get depth in survey result.

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Appendix

Appendix A: Questionnaire

Preschool Teachers' Perceived Stress and Attitudes in Using ICT in Teaching Young Children

Dear participant,

My name is Hwong Chee En. I'm conducting this research at University Tunku Abdul Rahman (UTAR) as part of my final year project. This study aims to explore the relationship between preschool teachers' perceived stress and attitudes in using ICT in teaching young children in Rawang Selangor. You are invited to take part in this study and the information obtained is for academic purposes.

A. Purpose of Study

To investigate the relationship between preschool teachers' perceived stress and attitudes in using ICT in teaching young children in Rawang Selangor.

B. Benefits

The data of the research can help to provide update statistic to reveal teacher's stress level and ICT attitudes and also provide ideas for Rawang Early Childhood Education administrator to have the training to teacher such as activity that can reducing teacher's stress and the conducting of training for teachers to improve their ICT level and attitudes.

C. Participation

You are invited to complete this questionnaire to investigate the study of the relationship between preschool teachers' perceived stress and attitudes in using ICT in teaching young children in Rawang Selangor. The surveys are designed to identify the stress level and the attitude on preschool educator's perception towards technology. It may take about 10 to 15 minutes for completion.

D. Confidentiality

For the research study, your information will be anonymous. Participant data will be kept confidential. The researcher will ensure your confidentiality is preserved at all costs. Your responses will be reported as a combined total. Only the researcher and her supervisor will know your answers to the questionnaire.

E. Contact Information

If you have any concerns or questions regarding the study, you may contact the researcher, Hwong Chee En via hwongcheeen@1utar.my .

F. Voluntary Participation

Your participation in this study is completely voluntary. If you decide to take part in this study, you will have to read the consent form. If you are doing the questionnaire, you are still free to withdraw at any time and without giving a reason.

Years of teaching experience *

- 1 to 5 years
- 6 to 10 years
- 11 to 15 years
- 16 years and above

Education Level *

- SPM/STPM/UEC/Pre-University
- Diploma
- Bachelor
- Master
- PhD

Do you have an ECE educational background? *

- Certificate in ECE area
- Diploma
- Degree
- Master & above
- No

Have you ever attended any training related to ICT usage? *

- No
- Yes

If yes, please state the name of the training *

Short answer text

Section B: Perceived Stress Scale 10 (PSS-10)

The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:

- 0- Never
- 1- Almost never
- 2- Sometimes
- 3- Fairly often
- 4- Very often

In the last month, how often have you been upset because of something that happened unexpectedly? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you felt that you were unable to control the important things in your life? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you felt nervous and stressed? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you felt confident about your ability to handle your personal problems? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you felt that things were going your way? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you found that you could not cope with all the things that you had to do? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you been able to control irritations in your life? *

	0	1	2	3	4	
Never	○	○	○	○	○	Often

In the last month, how often have you felt that you were on top of things? *

	0	1	2	3	4	
Never	◯	◯	◯	◯	◯	Often

In the last month, how often have you been arranged because of things that happened that were outside of your control? *

	0	1	2	3	4	
Never	◯	◯	◯	◯	◯	Often

In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? *

	0	1	2	3	4	
Never	◯	◯	◯	◯	◯	Often

Section C: Preschool teachers' attitudes towards the integration of technology in teaching young children

There is no wrong answer, each response will be treated as a correct one. Your opinion what is required in this study. Do not think long about each statement. It should take you around 10 minutes to complete.. For each statement, put a dot (.) to show your level of agreement; **Strongly disagree, disagree, agree, and strongly agree**. Do not have two answers.

- 1- Strongly disagree
- 2- Disagree
- 3- Undecided
- 4- Agree
- 5- Strongly agree

Technology tools are essential for me. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Use of technology supports early childhood education *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Use of technology in instructional activities is a waste of time. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools make early childhood teachers' work easy. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Use of technological tools increases the quality of early childhood education. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools undermine the teacher's role. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools highly motivate young children. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools make early childhood instructional activities more enjoyable. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools distract young children's attentions. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

My technical skills are adequate enough to use the technological tools. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The use of technology in early childhood education is not necessary. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools are suitable for instructional methods used in early childhood education. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Experienced teachers do not need technological tools to deliver quality instruction. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools are essential for visualization in early childhood education activities. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools make early childhood teachers more effective. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools decrease teacher-student interaction. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools help the learner retain new knowledge longer. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The instructional activities containing technological tools help improve young children's developmental levels. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The use of technology positively contributes to young children's development. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Technological tools are influential in making abstract concepts concrete. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Appendix B: Original Data

Table 1

Gender of Teachers

Gender	Frequency (N)	Percent (%)
Female	73	92.4
Male	6	7.6
Total	79	100.0

Table 2

Age and Ethnicity of Teachers

Item		Frequency (N)	Percent (%)
Age	25 years old and below	17	21.5
	26 - 30 years old	18	22.8
	31 – 35 years old	13	16.5
	36 – 40 years old	12	15.2
	41 – 45 years old	11	13.9
	46 years old and above	8	10.1
	Total	79	100.0
Ethnicity	Malay	1	1.3
	Chinese	76	96.2
	Indian	2	2.5
	Total	79	100.0

Table 3

Teacher Years of Teaching Experience

Years of Teaching Experience	Frequency (N)	Percent (%)
1 to 5 years	39	49.4
6 to 10 years	19	24.1
11 to 15 years	13	16.5
16 years and above	8	10.1
Total	79	100.0

Table 4

Education Level of Teachers

Education Level	Frequency (N)	Percent (%)
SPM/ STPM/ Pre-University	25	31.6
Diploma	47	59.5
Bachelor	7	8.9
Master	0	0.0
PhD	0	0.0
Total	79	100.0

Table 5

ECE Educational Background

ECE Educational Background	Frequency (N)	Percent (%)
Certificate in ECE Area	1	1.3
Diploma	4	5.1
Bachelor	4	5.1
Master and Above	0	0.0
No	70	88.6
Total	79	100.0

Table 6

Training related to ICT usage

Training related to ICT usage	Frequency (N)	Percent (%)
No	73	92.4
Yes	6	7.6
Total	79	100.0

Table 7

Mean and Standard Deviation of Total Perceived Stress Scale 10 (PSS-10)

	N	Mean (M)	Standard Deviation (SD)
Total PSS-10	79	24.78	8.964

Table 8

Mean and Standard Deviation of Attitudes Scale of Technology Tool Usage in Preschool Education (1-2.33 Low 2.34-3.67 Moderate 3.68-5.00 High) (Konca, 2016).

	N	Mean (M)	Standard Deviation (SD)
Total Attitudes Scale of Technology Tool Usage in Preschool	79	2.82	1.103

Table 9

Frequency and Percentage of Attitudes Scale of Technology Tool Usage in Preschool Education

Total Attitudes Scale of Technology Tool Usage in Preschool Education	Frequency (N)	Percent (%)
Low (1 – 2.33)	42	55.7
Moderate (2.34 – 3.67)	9	11.4
High (3.68 – 5.00)	28	32.9
Total	79	100.0

Table 10

Correlation between Total perceived stress and Total attitudes towards using ICT among preschool children

	N	r	P
Total PSS	79		
Total attitudes towards using ICT among preschool children	79	-.539*	0.001