The Effectiveness and Applicability of MPTKP Based on Perma in Preschools

Wan Kit Yee

NCDRC, Universiti Pendidikan Sultan Idris, 35900 Tanjong Malim, Perak, Malaysia
Email: kityee_93@hotmail.com

Tee Ying Qin

Department of Early Childhood Education, Universiti Pendidikan Sultan Idris, 35900 Tanjong Malim, Perak, Malaysia
Email: emyyq7@gmail.com

Pau Kee

Department of Guidance and Counseling, Universiti Pendidikan Sultan Idris, 35900 Tanjong Malim, Perak, Malaysia
Email: pau_kee@fpm.upsi.edu.my

Abstract

The increasing integration of digital technology in early childhood education necessitates instructional approaches that not only support learning engagement but also promote children's psychological well-being. However, technology use in preschool settings often lacks structured pedagogical guidance, resulting in limited attention to children's emotional and social development. Addressing this gap, this study aims to develop and evaluate the effectiveness and applicability of the Technology Teaching Module for Psychological Well-Being (MPTKP) in early childhood education. Grounded in the PERMA model, the study employed a Design and Development Research (DDR) approach encompassing needs analysis, module development, and evaluation phases. Data for the analysis phase were collected through semi-structured interviews with six preschool teachers, classroom observations, and document analysis. The findings identified key challenges in technology integration, including limited ICT facilities, insufficient teacher training, and the absence of structured technology-based activities that explicitly support children's psychological well-being. In response, the MPTKP module was developed to provide systematic, flexible, and teacher-friendly guidance for integrating technology meaningfully into preschool teaching. Evaluation results indicate that the module demonstrates high applicability and effectiveness in enhancing core elements of psychological well-being, including positive emotions, self-confidence, social relationships, and student engagement. Overall, the study highlights the practical utility of

MPTKP in supporting preschool teachers and underscores the role of structured technology integration as an effective 21st-century pedagogical approach for fostering children's holistic development.

Keywords: Early Childhood Education, Educational Technology, Psychological Well-Being, Perma Model, Design And Development Research

Introduction

Information and Communication Technology (ICT) has become an integral component of contemporary society and is increasingly embedded in early childhood education. Children today are frequently described as digital natives due to their early and continuous exposure to digital devices such as tablets, smartphones, and computers. Empirical evidence indicates that nearly 98% of children under the age of eight have access to some form of digital technology, offering significant potential for exploration, concept development, and the enhancement of cognitive and communication skills. This widespread exposure highlights the importance of understanding not only how technology is used in early learning contexts, but also how it influences children's overall development.

In preschool settings, ICT is no longer viewed solely as a supplementary instructional tool; rather, it plays a critical role in supporting children's holistic development, including language, cognitive, social, and literacy domains (McArthur, Tough, & Madigan, 2023). Despite these potential benefits, concerns remain regarding the unstructured and inconsistent use of technology in early childhood classrooms. Without clear pedagogical guidance, technology use may prioritise surface-level engagement or academic outcomes while overlooking children's emotional needs, social interactions, and psychological well-being. Given that early childhood is a foundational period for emotional regulation, self-confidence, and social competence, the way technology is integrated during this stage is of particular importance.

Existing literature emphasises that technology exposure in early childhood must be carefully guided, developmentally appropriate, and systematically planned to ensure positive outcomes. The active involvement of teachers and parents is essential to prevent passive or excessive screen use and to transform technology into a meaningful learning experience that supports children's well-being. However, many preschool teachers face practical challenges in achieving this goal, including limited ICT facilities, insufficient professional training, and the absence of structured teaching resources that explicitly integrate technology with psychological well-being. As a result, teachers often lack practical frameworks to guide the purposeful use of ICT in daily classroom practice.

In response to these challenges, the Technology Teaching Module for Psychological Well-Being (MPTKP) was developed to address the need for a structured, practical, and teacher-friendly approach to technology integration in preschool education. The module is designed to promote the purposeful, meaningful, and safe use of ICT while simultaneously supporting key aspects of children's psychological well-being. Rather than positioning technology as a standalone digital tool, MPTKP guides teachers in designing learning activities that foster self-confidence, positive emotions, social relationships, and active student engagement (Sangeeta, Malik, Saini, & Renu, 2025). Its effectiveness lies in its systematic

design, step-by-step implementation guidance, and flexibility to accommodate children's diverse abilities and learning needs.

Overall, this study underscores the importance of integrating ICT in preschool education through a structured module such as MPTKP. When guided by a systematic and psychologically informed framework, technology can function as an effective 21st-century pedagogical tool that supports not only learning engagement but also children's emotional and social development. By addressing both practical classroom needs and children's psychological well-being, this study highlights the relevance, utility, and effectiveness of MPTKP in strengthening holistic early childhood education.

Literature Review

Children's psychological well-being has received increasing global attention, particularly within educational contexts. Psychological well-being is commonly conceptualised through two complementary dimensions: the hedonic dimension, which focuses on happiness and positive emotions, and the eudaimonic dimension, which emphasises personal functioning, purpose, and life satisfaction (Nieva & Prudente, 2022). Within education, schools play a crucial role not only in delivering academic knowledge but also in nurturing students' emotional, social, and psychological competencies to enable them to manage life with confidence and resilience.

In the digital era, technology has emerged as a significant factor influencing children's psychological well-being. Research indicates that technology use can be effective and highly applicable in learning contexts when it is systematically planned and guided by teachers and parents (Almulla & Al-Rahmi, 2023). Interactive learning applications, educational games, and structured digital activities have been shown to enhance motivation, attention, early literacy skills, problem-solving abilities, and social interaction through collaborative learning experiences. Moreover, the integration of technology through approaches such as blended learning allows children to engage flexibly with a combination of digital and real-world experiences, thereby creating learning environments that are more meaningful, enjoyable, and responsive to contemporary educational needs.

However, technology also poses potential risks when used without adequate supervision or control. Excessive screen exposure or inappropriate digital content may negatively affect children's emotional regulation, attention span, and overall lifestyle balance (Mallawaarachchi et al., 2023). Consequently, the effectiveness and applicability of technology in early childhood education depend largely on active monitoring, appropriate content selection, and a balanced integration of digital and non-digital activities.

In summary, technology has the potential to serve as a highly effective tool in supporting children's psychological well-being and holistic development, provided that its use is structured, balanced, and reinforced through the collaborative roles of teachers and parents.

Methodology

This study adopted a Design and Development Research (DDR) approach, which is an educational research model that emphasises systematic processes in the design,

development, and evaluation of instructional interventions (Richey & Klein, 2014). This research design was selected to fulfil the objectives of developing and evaluating the Technology Teaching Module for Psychological Well-Being (MPTKP) based on the PERMA model.

The analysis phase aimed to identify issues and needs related to the use of technology in early childhood education, particularly in relation to preschool children's psychological well-being. Data were collected using three methods:
(i) Semi-structured interviews with six preschool teachers,
(ii) Classroom teaching observations, and
(iii) Document analysis, including daily lesson plans and school financial planning documents.

Interview and observation data were analysed using In conclusion, this study successfully achieved its objectives by identifying issues related to technology integration in preschools, examining the need for the development of the MPTKP, and demonstrating both the applicability and effectiveness of the module in enhancing children's psychological well-being. Although the findings indicate the presence of challenges related to facilities, training, and support, the study also highlights a significant need for structured modules that leverage technology to promote children's psychological well-being.

Overall, the MPTKP represents a valuable contribution to the field of early childhood education. The module serves as a technology-based instructional guide aligned with the demands of 21st-century pedagogy, while emphasising a balanced approach between learning outcomes and children's psychological well-being.

Interview and observation data were analysed using thematic analysis following the procedures proposed by Braun and Clarke (2006). The findings from the analysis phase revealed several key issues, including limited technological facilities, insufficient teacher training, and the need for technology-based activities that support children's psychological well-being. These findings formed the foundation for the development of the module components in the subsequent phase, which were structured according to the five domains of the **PERMA model** (Seligman, 2011).

Validity and Reliability
In this study, the validity and reliability of the research instruments were examined for two main instruments: the **interview protocol** and the **Personal Wellbeing Index–School Children (PWI-SC).** This process was undertaken to ensure that the instruments were valid and reliable for achieving the research objectives. **Table 1** presents the content validity results of the interview instrument for Phase 3, as evaluated by five experts in the fields of early childhood education, psychology, counselling, and educational technology.

Table 1
Content Validity of the Interview Instrument

Expert	Position	Validity (%)
Expert 1	Senior Lecturer, Universiti Putra Malaysia (UPM)	93%
Expert 2	Senior Lecturer, Universiti Teknologi Malaysia (UTM)	80%
Expert 3	Lecturer, Wawasan Open University (WOU)	73%
Expert 4	Senior Lecturer, Universiti Antarabangsa (UNITAR)	78%
Expert 5	Senior Lecturer, Universiti Sains Malaysia (USM)	85%
Overall		**82%**

The results indicate that the content validity scores ranged from 73% to 93%, with an overall average of 82%, which is categorised as highly satisfactory. This finding confirms that the interview instrument possesses an adequate level of content validity for use in the actual study. The content validity of the **PWI-SC instrument** was also evaluated by the same group of experts, as shown in **Table 2**.

Table 2
Content Validity of the PWI-SC Instrument

Expert	Position	Validity (%)
Expert 1	Senior Lecturer, Universiti Putra Malaysia (UPM)	95%
Expert 2	Senior Lecturer, Universiti Teknologi Malaysia (UTM)	88%
Expert 3	Lecturer, Wawasan Open University (WOU)	63%
Expert 4	Senior Lecturer, Universiti Antarabangsa (UNITAR)	60%
Expert 5	Senior Lecturer, Universiti Sains Malaysia (USM)	100%
Overall		**81%**

The results show that the content validity scores ranged from 60% to 100%, with an overall mean of 81%, indicating that the instrument is suitable for use in this study.

In addition, a pilot study involving 30 preschool children was conducted to assess the suitability of the instrument in terms of language, terminology, and sentence structure. The reliability of the PWI-SC instrument was tested using internal consistency analysis through Cronbach's Alpha, as presented in Table 3.

Table 3
Reliability of the PWI-SC Instrument

Instrument	Number of Items	Cronbach's Alpha
PWI-SC (N=30)	8	0.884

According to George and Mallery (2019), a Cronbach's Alpha value exceeding 0.80 is considered good. The Cronbach's Alpha value obtained in the pilot study was 0.884, indicating a very high level of reliability. Therefore, the PWI-SC instrument is deemed reliable for use in this study.

Findings and Discussion
The applicability of the Technology Teaching Module for Psychological Well-Being (MPTKP) was examined through qualitative interview data and supported by questionnaire findings.

The analysis of interview transcripts yielded one overarching theme, Preschool Teachers' Experiences in Using MPTKP, with two subthemes: (1) Compatibility of the Module with Teaching Practices and (2) Comprehensibility and Ease of Module Implementation. These themes directly address the research question by capturing teachers' practical experiences and perceptions regarding the use of the module in real classroom contexts.

The emergence of a single main theme with two focused subthemes reflects the consistency of teachers' responses across participants. This thematic structure was deemed sufficient to explain the applicability of the module, as the issues raised were recurrent, salient, and directly related to classroom implementation. As summarised in Table 4, teachers consistently reported that the module content aligned well with the preschool curriculum and that its activities could be seamlessly integrated into daily teaching routines. In addition, teachers highlighted the clarity of the module instructions and the practicality of preparing activity materials, indicating that the module reduced instructional burden rather than adding complexity to their teaching practices.

Table 4 presents a summary of the interview analysis conducted during the evaluation phase to examine the applicability of the MPTKP.

Table 4
Summary of Interview Analysis on MPTKP Applicability

Theme	Subtheme	Full Codes	Code Labels	Participants
Preschool Teachers' Experiences in Using MPTKP	1.1) Compatibility of the Module with Teaching Practices	a) Module content aligned with curriculum b) Activities easily adapted to daily routines	KM 1 KM 2	P3 P5 P7
	1.2) Comprehensibility and Ease of Implementation	c) Clear and understandable instructions d) Activity materials easy to prepare	KF 1 KF 2	P2 P4 P6

Table 4 summarises the interview findings related to the applicability of the MPTKP among preschool teachers. Two key subthemes were identified. The first subtheme, Compatibility of the Module with Teaching Practices, indicates that the module content aligns well with the preschool curriculum and that its activities can be easily integrated into teachers' daily teaching routines. The second subtheme, Comprehensibility and Ease of Implementation, confirms that the module instructions are clear and easy to understand, while the required materials are simple and practical to prepare for classroom use.

To further support the interview findings, a questionnaire was administered as a supplementary data source. Table 5 presents the classification of module applicability levels based on a five-point Likert scale, as proposed by Boone and Boone (2012). Table 6 presents

the descriptive statistics for each questionnaire item measuring the applicability of the MPTKP.

Table 5
Levels of Module Applicability

Likert Scale	Score Interval	Applicability Level
1 – 2	1.00-2.60	Low
3	2.61-3.40	Moderate
4 – 5	3.41-5.00	High

Source: Boone & Boone (2012)

Table 6
Applicability of the MPTKP by Item

	Item	N	Mean (M)	SD
1	Module content is appropriate	6	4.83	0.41
2	Instructions are easy to understand	6	4.67	0.52
3	Agreement with module design	6	4.50	0.55
4	Helps the teaching process	6	5.00	0.00
5	Activity materials are easy to prepare	6	4.67	0.52
6	Overall satisfaction with the module	6	4.50	0.55
	Overall Mean		**4.70**	**0.43**

The questionnaire data further corroborated the interview findings. Based on the applicability classification proposed by Boone and Boone (2012), the descriptive statistics presented in Table 6 indicate that the overall applicability of the MPTKP was very high (M = 4.70, SD = 0.43). All six items recorded mean scores within the high applicability range, demonstrating strong agreement among teachers regarding the usefulness and usability of the module. The highest-rated item, "Helps the teaching process" (M = 5.00, SD = 0.00), reflects unanimous consensus that the module meaningfully supported classroom instruction. Although the item "Agreement with module design" received the lowest mean score (M = 4.50, SD = 0.55), it remained within the high applicability category, suggesting only minor variations in individual preferences rather than fundamental concerns.

Taken together, the integration of qualitative and quantitative findings provides robust evidence that the MPTKP is highly applicable for preschool teachers. The module's curriculum alignment, clarity, flexibility, and ease of implementation contribute to high levels of teacher satisfaction and teaching support. These findings suggest that the structured design of the MPTKP effectively addresses common barriers to technology integration in early childhood education and facilitates its practical adoption in preschool settings.

Research Question 2: Is there a significant effect of the MPTKP in improving preschool children's psychological well-being?
Null Hypothesis (H_{01}): There is no significant effect of the MPTKP on improving preschool children's psychological well-being.

To evaluate the effectiveness of the MPTKP, children's psychological well-being was assessed using the Personal Well-Being Index – School Children (PWI-SC) through a pre-test and post-test design. The descriptive statistics presented in Table 7 indicate a substantial increase in mean scores following the implementation of the module. Specifically, the mean post-test score (M = 4.25, SD = 0.31) was markedly higher than the mean pre-test score (M = 2.31, SD = 0.68), demonstrating a clear improvement in children's psychological well-being after exposure to the MPTKP activities.

The Wilcoxon Signed-Rank Test results further confirm the statistical significance of this improvement. As shown in Table 8, a significant difference was observed between pre-test and post-test scores (Z = –9.664, p < .001), leading to the rejection of the null hypothesis (H_{01}). This finding provides strong quantitative evidence that the MPTKP had a significant positive effect on improving preschool children's psychological well-being.

Table 7
Descriptive Statistics of Pre-Test and Post-Test Scores (N = 125)

Test	Minimum	Maximum	Mean	SD	Median
Pre-test	1.25	4.38	2.31	0.68	2.13
Post-test	3.63	4.88	4.25	0.31	4.25

The results indicate that the mean post-test score (M = 4.25, SD = 0.31) was substantially higher than the mean pre-test score (M = 2.31, SD = 0.68), demonstrating a marked improvement in children's psychological well-being following the implementation of the MPTKP.

Table 8
Wilcoxon Signed-Rank Test for Pre-Test and Post-Test Scores

Test Statistic[a]	
	sumIS - sumI
Z	-9.664[b]
Asymp. Sig. (2-tailed)	.000

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

The Wilcoxon Signed-Rank Test results reveal a statistically significant difference between the pre-test and post-test scores (Z = -9.664, p < .001). Therefore, the null hypothesis (H_{01}) is rejected. This finding confirms that the implementation of the MPTKP had a significant positive effect on improving the psychological well-being of preschool children.

This section examines the perceptions of six preschool teachers regarding the effectiveness of the MPTKP in enhancing children's psychological well-being. A questionnaire was administered to evaluate the extent to which the module contributed to improvements across the five PERMA dimensions: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment.

Interpretation of Effectiveness Levels

Table 9

Interpretation of Module Effectiveness Levels

Mean Score	Average Score	Effectiveness Level
1 – 2	1.00-2.60	Low
3	2.61-3.40	Moderate
4 – 5	3.41-5.00	High

Source: Boone & Boone (2012)

Table 10

Module Effectiveness by Item

No	Item	N	M	SP
1	Children's response	6	4.50	0.55
2	P: Positive emotion	6	5.00	0.00
3	E: Engagement	6	4.67	0.52
4	R: Relationships	6	4.50	0.55
5	M: Meaning	6	4.67	0.52
6	A: Accomplishment	6	5.00	0.00
	Overall Mean		**4.72**	**0.36**

To complement the statistical findings, teachers' perceptions of the module's effectiveness were examined using a questionnaire based on the PERMA framework. As summarised in Table 10, the individual PERMA dimensions all recorded high mean scores, with an overall mean of M = 4.72 (SD = 0.36). The dimensions of Positive Emotion and Accomplishment achieved the highest scores (M = 5.00, SD = 0.00), indicating unanimous agreement among teachers that the module effectively enhanced children's emotional experiences and sense of achievement. High scores were also observed for Engagement, Relationships, and Meaning, suggesting that the module supported multiple interconnected aspects of psychological well-being.

To deepen the interpretation of these findings, semi-structured interviews were conducted with the same preschool teachers. The thematic analysis yielded one main theme, Role of the MPTKP in Preschool Settings, supported by three subthemes: (1) Children's Engagement and Interest, (2) Increased Self-Confidence and Emotional Well-Being, and (3) Strengthening Social Skills and Interaction (Table 11). Teachers consistently reported increased enthusiasm, sustained attention, and enjoyment among children during technology-based activities. Moreover, children demonstrated greater confidence in completing tasks, improved emotional regulation, and more positive peer interactions, indicating that the module supported both individual and social dimensions of well-being.

The thematic analysis of interview transcripts yielded one main theme and three subthemes, as summarised in Table 11.

Table 11
Summary of Interview Analysis on Module Effectiveness

Theme	Subtheme	Full Codes	Code Labels	Participants
Role of the MPTKP in Preschool Settings	1. Children's engagement and interest	a) Excitement in using the module b) Increased interest in learning	PK1 PK2	P4 P5 P6
	2. Increased self-confidence and emotional well-being	c) Confidence in completing activities d) Module supports emotional regulation	KK1 KK2	P1 P6 P5 P3
	3. Strengthening social skills and interaction	e) Activities encourage communication f) Learning to cooperate and understand peers	SK1 SK2	P1 P3 P2

Table 11 highlights the main theme concerning the role of the MPTKP in preschool education, supported by three subthemes. The convergence of quantitative and qualitative findings provides compelling evidence that the MPTKP is effective in enhancing preschool children's psychological well-being. The statistically significant improvement in PWI-SC scores, combined with teachers' positive evaluations and classroom observations, underscores the value of structured, theory-driven technology integration. These findings suggest that when technology use is guided by a systematic and psychologically informed module, it can function as an effective pedagogical tool that supports emotional, social, and psychological development alongside learning engagement in early childhood education.

Implications of the Study and Future Directions
This study demonstrates that the Technology Teaching Module for Psychological Well-Being (MPTKP) has significant implications across theoretical, practical, policy, and methodological domains. The findings confirm that the module is both highly effective and highly applicable in preschool contexts, thereby contributing meaningfully to the advancement of early childhood education, particularly in the area of technology integration that supports children's psychological well-being.

From a theoretical perspective, this study extends existing literature by establishing a clear and empirically supported link between technology integration and preschool children's psychological well-being. While much of the prior research has focused primarily on technology's role in enhancing motivation, engagement, or academic outcomes, this study demonstrates that structured, theory-driven technology use can also support deeper dimensions of psychological well-being, including emotional regulation, self-confidence, social relationships, and a sense of accomplishment. By grounding the module in the PERMA framework, the study contributes to a more holistic conceptualisation of digital pedagogy in early childhood education and reinforces the relevance of well-being-oriented learning models in post-pandemic educational settings.

From a practical standpoint, the findings highlight the strong utility of the MPTKP as a teacher-friendly instructional resource. The module's clear structure, step-by-step guidance, flexible activity design, and manageable material requirements enable preschool teachers to integrate technology confidently into their daily teaching practices. Teachers' positive perceptions and observed improvements in children's engagement, emotional expression, and social interaction indicate that the module not only supports teaching effectiveness but also enhances the overall quality of learning experiences. These findings align with previous studies emphasising the importance of guided and purposeful technology use in early childhood education (Radesky, 2020; Waters, Loton, & Jach, 2021). As such, the MPTKP may serve as an effective pedagogical intervention tool for promoting psychologically supportive learning environments in preschool settings.

In terms of policy, this study underscores the critical role of institutional and systemic support in ensuring the successful implementation of technology-based teaching modules. Consistent with the findings of Nordin and Alias (2023), the results indicate that adequate technological infrastructure, administrative support, and targeted professional development are essential factors influencing effective technology integration. Therefore, education authorities, particularly the Ministry of Education, should consider strengthening the provision of basic ICT facilities in preschools and offering specialised training programmes that focus on using technology to support children's psychological well-being. Such policy initiatives would facilitate the wider adoption of modules such as the MPTKP and promote more equitable and sustainable integration of technology in early childhood education.

Despite the positive outcomes reported in this study, several directions for future research are recommended. First, future studies may involve a larger and more diverse sample across different preschool settings to enhance the generalisability of the findings. Second, longitudinal research could be conducted to examine the long-term effects of the MPTKP on children's psychological well-being and developmental outcomes. Third, future research may explore the adaptation of the module for different age groups or educational contexts, including inclusive or special education settings. Finally, experimental or quasi-experimental designs involving control groups could further strengthen the evidence base regarding the causal effectiveness of the module. These future research directions would contribute to the continuous refinement and broader application of technology-based interventions aimed at supporting psychological well-being in early childhood education.

Recommendations for Future Research

While the broader research directions have been outlined earlier, this section proposes specific and actionable recommendations for future investigations. Future studies should examine the implementation of the MPTKP across diverse geographical contexts, including urban, rural, and remote preschool settings, to better understand contextual influences on module effectiveness. Such comparisons would provide practical insights into how infrastructural and environmental factors shape technology integration in early childhood education.

In addition, future research may focus on integrating emerging digital technologies, such as interactive applications, augmented reality (AR), and digital learning platforms, within the MPTKP framework. Investigating these technologies would allow researchers to assess

how different technological affordances influence children's engagement and psychological well-being.

Finally, researchers are encouraged to employ more fine-grained measurement approaches by examining specific dimensions of psychological well-being, including emotional regulation, empathy, resilience, and creativity. The use of multidimensional psychometric instruments and advanced mixed-method designs would enhance measurement precision and contribute to a deeper understanding of how technology-based modules support children's psychological development.

Conclusion

In conclusion, this study successfully achieved its research objectives by identifying key issues related to technology integration in preschool education, establishing the need for a structured Technology Teaching Module for Psychological Well-Being (MPTKP), and empirically demonstrating the module's applicability and effectiveness in enhancing preschool children's psychological well-being. Although challenges related to technological facilities, teacher training, and institutional support were identified, the findings clearly highlight the importance of structured, theory-driven interventions that guide the meaningful use of technology in early childhood settings.

Overall, the MPTKP represents a significant contribution to early childhood education by providing a practical, user-friendly, and psychologically informed instructional framework. By integrating technology with the principles of psychological well-being, the module supports a balanced approach to 21st-century pedagogy that values not only learning engagement but also children's emotional, social, and psychological development. The findings of this study underscore the potential of structured technology integration to enhance holistic learning experiences and offer a valuable reference for educators, researchers, and policymakers seeking to promote sustainable and child-centred educational practices in preschool contexts.

References

Almulla, M. A. & Al-Rahmi, W. M. (2023). Integrated social cognitive theory with learning input factors: The effects of problem-solving skills and critical thinking skills on learning performance sustainability. *Sustainability*, *15*(5). https://doi.org/10.3390/su15053978

Boone, H. N. & Boone, D. A. (2012) Analyzing Likert Data. *The Journal of Extension, 50*, 1-5.

Braun, V. & Clarke, V. (2006) Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

George, D., & Mallery, P. (2019). IBM SPSS Statistics 26 Step by Step: A Simple Guide and Reference (16th ed.). Routledge.

Mallawaarachchi, S. (2023). Early Childhood Screen Use Contexts and Cognitive & Psychosocial Outcomes. *JAMA Pediatric, 178*(10), 1017-1026. Doi:10.1001/jamapediatrics.2024.2620

McArthur, B. A., Tough, S. C., & Madigan, S. (2021). Screen time and developmental and behavioural outcomes for preschool children. *Pediatric Research, 91*(6), 1463-1471. https://doi.org/10.1038/s41390-021-01572-w

Nieva, A. & Prudente, J. (2022). Online self-regulated learning, academic performance, and well-being of Senior High School Students in the NCR: A mediation analysis. *Bedan Research Journal, 7*(1). https://doi.org/10.58870/berj.v7i1.32

Nordin, A. S. M., & Alias, B. S. (2023). Digitalization of education. *International Journal of Academic Research in Progressive Education and Development, 12*(2), 2652-2661. http://dx.doi.org/10.6007/IJARPED/v12-i2/18094

Radesky, J. S. (2020). Advocating for a child-centered digital environment. *Zero to Three, 41*(2), 4-11. Retrieved 15 September, from https://www.zerotothree.org/wp-content/uploads/2020/12/41-2-Radesky.pdf

Richey, R. & Klein, J. (2014). *Design and Development Research (1st ed.).* Taylor and Francis. Retrieved Oct 10, 2022, from https://www.perlego.com/book/1608666/design-and-development-research-pdf

Sangeeta, Malik, P. & Saini, A. & Renu. (2025). The influence of animated media: Cartoon on child development-cognitive, social and emotional perspectives. International *Journal of Social Sciences Review, 13*(01), 199-203

Waters, L., Loton, D. & Jach, H. (2021). Effects of positive psychology interventions on the well-being of young children: A systematic literature review. *International Journal of Environmental Research and Public Health, 18*(22), 12065. https://doi.org/10.3390/ijerph182212065