Technology Learning in Early Childhood Education, Case Study in Taiwan

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Abstract. The purpose of this research is aimed to find out how technology can have a significant positive impact on the children in Taiwan, which enhances their engagement and learning motivation. This study has principally used the TPACK theoretical framework to give the participants a self-evaluate how their perceptions of their teaching have fared, as well as how their comprehension and understanding connect to the teaching of technology. The present study utilizes questionnaires and interviews to the private schools' teacher and principal in Taiwan Hsinchu. Since the COVID-19 pandemic, the majority of teachers and students have adapted to and are accustomed to engaging in technology activity, which means that young children are increasingly communicating and interacting through technology, which has now become the new normal. Nevertheless, the majority of kindergarten and primary school teachers, lack official and professional training in technological expertise, according to this case study in Taiwan, notwithstanding the fact that this might have a detrimental effect on children's development and future careers. Main findings were: 1) Technology learning can help the improve students' self-learning ability and learning motivation, 2) Teacher's technology knowledge can significantly effect on children's' learning outcome; 3) Taiwanese Teacher confronting huge challenge in teaching with technology. Identify what professional ICT training for teachers is necessary. This research has Kindergarten teachers must develop their personal character and cultural connotation in addition to their professional theoretical understanding. Therefore, the teacher's knowledge of information technology must be strengthened in order to provide students with accurate, reliable, and superior information on technology learning.

Keywords: TPACK, Technology learning, Early childhood education, online learning, human development, Technology Intergration.

1. Introduction

In modern society, technology has become a ubiquitous learning tool that integrates into children's learning commonly, in the meanwhile, it facilitates teaching methods for teachers and enhances learning motivation. A great many people and countries have reconsidered and assessed the role of technology as a useful resource and material that may provide a variety of beneficial effects and unconventional learning outcomes. Some researchers believe that the use of technologies may impede these children's social, emotional, physical, and cognitive development [1]. This illustrates how technology may have a variety of effects on youngsters' psychological and physical development. However, In Taiwan, most kindergarten and primary school teachers believe that technology is a learning tool that is utilized as a tool to facilitate communication and understanding in addition to traditional teaching methods. This research has collected their thought and experiences on their teaching and technology incorporation. According to this study's findings, approximately more than 70 % of instructors that found in this research lack any professional or recognized training in the use of online educational resources. Lack of formal training for kindergarten and primary teachers can have a significant detrimental effect on how children learning development and the effectiveness of teaching. According to Fox-Turnbull and Moreland, Jones and Chambers (2001), they have "identified that teachers' technology content knowledge (TCK) influenced the quality of their teaching in technology" [2]. Therefore, the lack of authorization and formal ICT training can bring about baneful on students' learning performance. In order to provide young children with a high-

quality technological education technique and a method of enhancing teachers' ICT skills, this research has listed the prospective and practical recommendations.

Hypothesis:

- Technology learning can enhance children's learning motivation and increase their self-learning ability.
- Promoting a professional technology teaching training for teacher is mandatory and can have significant impact on children absorb knowledge and learning outcome.
- Improve quality of technology & online learning curriculum and class can giving children more accuracy knowledge and potentially develop on their future career and pave for students' academic path.

2. Literature References

2.1 Information and Communication Technology (ICT) in Early childhood Education

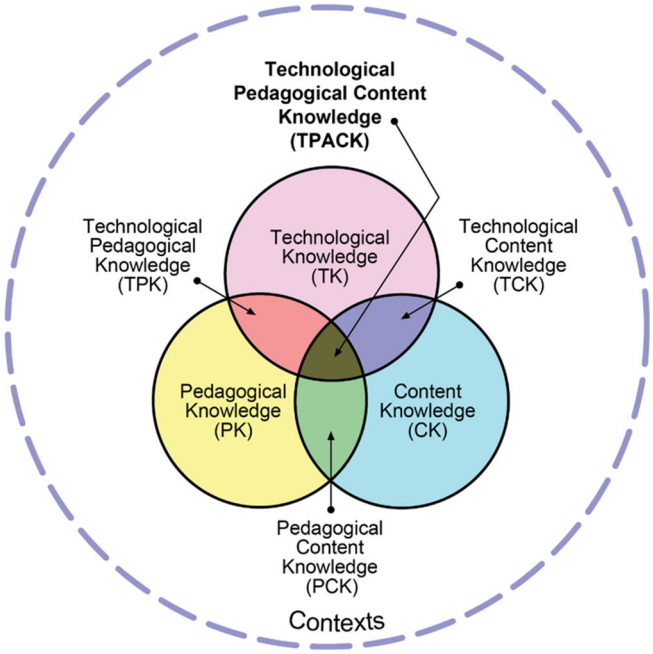
According toTino's study in 2003, Information and communication technologies (ICTs) are a "diverse range of technical tools and resources used to communicate, and to produce, transmit, store, and manage information," according to the definition provided in this primer. Computers, the Internet, radio and television transmission, and telephone are some of these technologies. [3]. The information education infrastructure plan, which serves as the overarching framework for information education in elementary and kindergarten, has been advocated by Taiwan's Ministry of Education since 1997 [4]. Information integration into instruction is a teaching method or technique that builds on the idea of computer-assisted instruction (CAI). Information technology, including audio, video, and the Internet, provides the foundation for the incorporation of IT into education. Children are vibrant, active people who are incredibly interested about everything. As a result, engaging and innovative teaching strategies may grab students' attention and encourage participation in educational activities, and the use of information technology can successfully modernize teaching strategies. Children love information technology because it is highly visible and intuitive. Children's activities can be carried out by teachers using information technology in a flexible way. Furthermore, ICTs that use computers, such movies or video games. Through the use of music and visuals, realistic and interesting information may be used to engage students in learning activities. Interactive audio, which uses sound effects, music, dramatizations, it also inspires students. Additionally, it gives children more space and opportunity to improve their social interaction. This argument suggests that ICT is bringing about a significant transformation in education globally and that ICT education may provide instructors with virtually endless options for designing lesson plans and adopting new technology into them. According to Judge, the author has claims that by encouraging creativity, curiosity, discovery, cooperation, and problem solving in the classroom, technology has a favorable impact on the quality of children's play and learning, influencing early cognitive development [5]. ICT integration into the classroom lesson may therefore provide numerous benefits to development and give children's abilities an unheard-of growth. Information technology offers a lot of potential and opportunity. It can open up an unlimited future and create opportunities for the youngsters. Kindergarten education must properly blend information technology and educational administration. Information technology may be utilized to improve instructional techniques and boost educational content, as well as to promote information and better organize children's lives. Early childhood education and technology are seamlessly intertwined.

2.2 Technological Pedagogical Content Knowledge (TPCAK)

Technological Pedagogical Content Knowledge (TPCK) was introduced to the educational research field as a theoretical framework for understanding teacher knowledge required for effective technology integration [6]. This paradigm divides teachers' expertise into three primary categories: curriculum, pedagogy, and technology. The interconnections between and among these bodies of knowledge, represented by PCK, TCK (technological content knowledge), TPK (technological

pedagogical knowledge), and TPACK, are equally crucial to the concept. Educators need to be capable of efficiently use technology in the classroom, and the main factor is whether the teacher has more than enough TPACK. How can teachers use technology to increase teaching effectiveness has become a subject of much interest in the era of digitalization. Teacher Professional Development: Building and Comprehensive analysis Taiwanese Teachers' Teaching Knowledge Teaching Technology Content Practical Methods and Developments of Teacher Professional Development. Through into the TPACK framework, it is attainable to clearly observe how well or not teachers comprehend the material and have the capacity to link it to the course, giving them the chance to evaluate their own levels of technological and educational expertise. has claim that "The question of what teachers need to know in order to appropriately incorporate technology into their teaching". It is a focused representation of a teacher's knowledge and experience in the classroom. To encourage teachers' self-reflection and enhance the integration of technology and teaching, it is crucial to monitor and uncover the features and current issues of teachers' TPACK use in the curriculum. The portion has been divided into seven components using TPACK. (View Table 1).

Table1. The Seven Components of TPACK (http://matt-koehler.com/tpack2/tpack-explained/)



The meanings of each item and its definition are given below, and it is introducing by Punya Mishra and Matthew J. Koehler in 2009.

- Technological Knowledge (TK): Comprehension of specific approaches to using and thinking about technology, resources, and instruments. Not simply the traditional teaching methods (whiteboard, paper, or pencils), but also integrating technology into the lesson plan.
- Content Knowledge (CK): This knowledge would comprise understanding of concepts, theories, ideas, organizational frameworks, understanding of evidence and proof, as well as understanding of established processes and methods for acquiring such information, as mentioned by Shulman (1986) [7]. Teachers need to be aware of the material they will be teaching and how different curriculum areas require different types of expertise.
- Pedagogical Knowledge (PK): It is instructors' extensive understanding of the procedures, techniques, and approaches used in teaching and learning. They cover a variety of topics, including general educational ideals, values, and purposes. This type of information is applicable to lesson design, general classroom management, student evaluation, and an understanding of how students learn [8].

- Technological Pedagogical Knowledge (TPK): It is an awareness of the potential changes that might occur in teaching and learning when specific technologies are applied in specific ways. In order to do this, one must be aware of the pedagogical benefits and limitations of a variety of technology instruments in relation to discipline- and developmentally appropriate educational designs and tactics.
- Technological Content Knowledge (TCK): Technology might limit the sorts of representations that are feasible, but it can also make it possible to create newer and more diversified representations. It implies that instructors know, in order to effectively teach using a particular technology, they must be deeply knowledgeable about how the subject matter is taught in addition to the subject matter itself.
- Pedagogical Content Knowledge (PCK): Teachers need to be knowledgeable in the principles of the subjects they teach. It combines pedagogy and content with the goal of improving teaching techniques in the subject areas.
- Technological Pedagogical Content (TPACK): Teachers who effectively teach material using the right pedagogical techniques and technological tools have an intuitive awareness of the intricate interactions between the three fundamental components of knowledge (CK, PK, and TK). Knowledge needed by instructors to incorporate technology into their instruction in any subject area is referred to as technical pedagogical content knowledge.

Overall, the main corhert of TPACK is to show how teachers' understandings of technology, pedagogy, and content may interact with one another to provide successful discipline-based teaching challenges, TPACK places an emphasis on the linkages between technologies, curriculum material, and particular pedagogical techniques. For time-strapped instructors, staying current with technology advancements may quickly become daunting. The TPACK framework provides the basis for several the questions that were used in this study's inquiry and survey. This research has utilized TPACK as framework to investigate teacher experiences' of integrate the technology and their course to teach the Taiwanese student. Acknowledging how technology links to pedagogy and material is necessary for effective teaching.

3. Methodology

This research is using quantitative questionnaires and qualitative Interviews to collect teacher and principals' feedback from Hsinchu Taiwan.

3.1 Participants

All dof the participants in this study gave their consent to participate, and teachers also gave their consent to have their names and personal information collected. This research study collects the feedback from kindergarten teacher and primary school teacher from the Hsinchu, Taiwan. The participants are containing from five different sites which two kindergarten and three primary schools are all private school. The total number of participants are 80 teachers and educators. In addition, this research has also conducted 50 minutes live Zoom interview with the two kindergarten principles and the primary private school's leader. Giving a background based on the data collecting from teachers' perspective, most of the teacher are female (85.7%), the second of the population are male (10.0%), and all the rest are non-binary (4.3%).

3.2 Instrument

Before starting the series of TPACK questions, it is important to comprehend the teacher's background or current situation in Taiwan for researcher's view points. A few generic questions were included to the survey, and the most of the significant questions will be presented in the results section. Technology integration through curriculum planning may be accomplished using the Technological Pedagogical Content Knowledge (TPCK) framework, which Mishra and Koehler (2006) offered [9].

Translating the TPACK questions into Mandarin Chinese and using Google Forms to categorize and gather educator response. For assessing preservice teachers' self-evaluations of the seven TPACK domains, 35 items were created, including 6 TK questions, 5 CK items, 5 PK items, 6 PCK items, 4 TCK items, 4 TPK items, and 5 TPACK items. The teacher responses to the TPACK questions are evaluated on a five-point scale: strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), and highly agree (5). Based on schmidt's concept on TPACK survey, a broad concept like "technology" can refer to many distinct things. The term "technology" as used in this questionnaire refers to digital technology or technologies. This refers to the electronic devices we use on a daily basis, such as computers, laptops, iPods, handhelds, interactive whiteboards, software, etc. Please respond to all of the questions, and you can always choose "Neither Agree nor Disagree" if you are unsure or indifferent about your choice. We have selected some of the most critical questions, made some minor adjustments to the TPACK survey, and distributed it to all participants depending on the specification of the research object and the Taiwanese school's present situation. In addition, this research has also conducted a live Zoom interview with the two kindergarten principles which is Mrs. Xiao and Mr. Ho. It should be emphasized that both of the principals have engaged as kindergarten principal with official qualitifcation for more than five years and have over ten years of teaching experience as kindergarten teacher. The principal of private schools is also being interviewed for this study.

4. Result

The research has developed a few broad questions to better understand educators' backgrounds and experiences with technology during their teaching careers before moving on to the series of TPACK questions. View Figure 1, it shows the statistic of teacher's age and given teaching experieence.

	Item	Number	Percentage
Age	20-30	17	20.7%
	31-40	22	26.8%
	41-50	21	25.6%
	51 Above	22	26.8%
Teaching Experience	1-5 years	15	18.8%
	5-10 years	23	28.8%
	11-15 years	19	24.1%
	16 Above	23	28.8%

Fig.1 Age and Years of Teaching Experiences in a Descriptive Structure

Given a background of teachers' experience teaching online and integrating technology into their lessons, 59 people (73.8%) say they have done so for more than two years, 9 people (11.3%) say they have done so for one to two years, 8 people (10.0%) say they have done so for less than a year, and 4 people (5.0%) say they have never had experience. According to the data, more than half of the population has experience teaching online and integrating that experience into teachings and lessons for students. However, 75% of the teachers indicate not having taken any training on themes related to online teaching (View Fig.2).

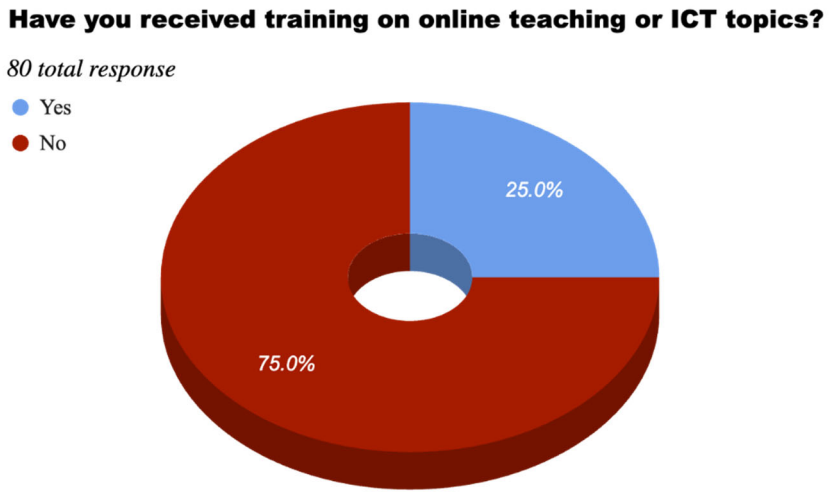


Fig.2 Feedback on Teachers experiences on Professional Technology Training Class

This study also examined the impact of ICT on children's development and learning environments. There are a few possibilities that the teacher has given us. The positive aspects of ICT-based teaching and learning approaches should be emphasized. Some individuals believe that teaching children ICT may cause them to become addicted to the internet or have short attention spans. Nevertheless, the practice appears to have had a bunch of great effects on youngsters, at least based on instructor observation and comment from student that teacher have received. The widespread notion that ICT education has a detrimental influence and conventional ideas have both been disproved.

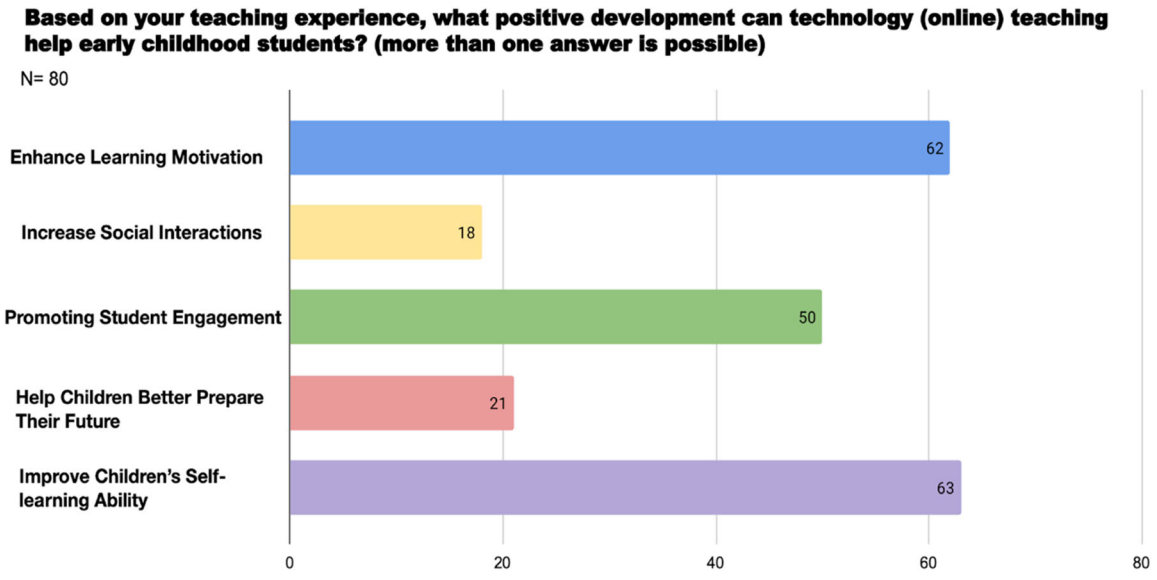


Fig3. The Positive outcome and influence on technology learning to students from teachers' perspective

4.1 TPACK Result

Strongly Disagree (SD), Disagree (D), Neither Agree or Disagree (NAD), Agree (A), Strongly Agree (SA).

N=80	(SD)	(D)	(NAD)	(A)	(SA)
TK (Technology Knowledge)					
1.I know how to solve my own technical problems.	3	16	30	21	10
2. I can learn technology easily.	7	14	31	20	8
3. I frequently play around the technology.	18	12	31	11	8
4. I know about a lot of different technologies	19	14	22	15	10
CK (Content Knowledge)					
1. I have sufficient knowledge about literacy	2	11	20	28	19
2. I have various ways and strategies of developing my understanding of literacy.	6	10	19	23	22
3. I have sufficient knowledge about social studies	2	12	26	25	15
4. I have various ways and strategies of developing my understanding of social studies	12	10	28	19	11
PK (Pedagogical Knowledge)					
1. I can adapt my teaching based -upon what students currently understand or do not understand.	4	10	20	24	22
2. I can assess student learning in multiple ways.	6	13	17	25	19
3. I can use a wide range of teaching approaches in a classroom setting	13	3	25	18	21
4. I am familiar with common student understandings and misconceptions.	3	14	24	27	12

N=80	(SD)	(D)	(NAD)	(A)	(SA)
PCK (Pedagogical Content Knowledge)					
1.I can select effective teaching approaches to guide student thinking and learning in literacy.	12	3	35	5	15
2. I can select effective teaching approaches to guide student thinking and learning in social studies.	10	10	30	15	15
TCK (Technological Content Knowledge)					
1. I know about technologies that I can use for understanding and doing literacy.	24	23	13	10	10
2. . I know about technologies that I can use for understanding and doing social studies.	30	10	13	17	10
TPK (Technological Pedagogical Knowledge)					
1. I can choose technologies that enhance the teaching approaches for a lesson.	26	21	15	9	9
2. I am thinking critically about how to use technology in my classroom	19	14	13	18	16
3. I can select technologies to use in my classroom that enhance what I teach, how I teach and what students learn	23	22	14	10	9
4. I can choose technologies that enhance the content for a lesson.	21	19	16	7	7
TPACK (Technology Pedagogy and Content Knowledge)					
1. I can teach lessons that appropriately combine literacy, technologies and teaching approaches.	19	17	22	10	11
2. I can teach lessons that appropriately combine social studies, technologies and teaching approaches.	21	14	22	13	10

4.2 Zoom interview

The entire interview has been translated into English from Mandarin Chinese. Interview with Principals and leaders of private schools' kindergarten and primary schools were interviewed.

According to the Taiwanese principals' responses to some of the research's questions. However, two of the kindergarten principals respond that the school does not have the opportunity to have received any technological training for the teachers. Since the two kindergarten private schools have started to implement the online class and offer the lesson integrate their teaching to deliver the information to the student. Prior to beginning to record the discussion, the principals and private kindergarten leaders agreed that ICT should be heavily incorporated into education, particularly

Kindergarten, as they found it to have a number of positive effects on children's development and transform their learning motivation from passive to active.

4.2.1 Dialogue

- Question:

What type of technology material or recourse school has promoting to use to connect to the lesson and require and promoting teacher to do in their classroom?

- The responses:

Mrs. Xiao (Principals): We have promoted that learning Mandarin Chinese through the video, such as Youtube. Teacher will play some of the amines or game give a lesson. Additionally, a teacher who was teaching a dance class (View Fig.5) decided to film it on video and add additional gesture instructions with beautiful background music. They thought this would offer the students a chance to learn Chinese while they danced, therefore lowering their stress levels and fostering more social interaction. I believed learning through audio-visual means gives students a head start on the information, supplements their existing knowledge, and makes it simpler for them to retain new concepts.



Fig.5 Dancing class and Mardarin Chinese lesson integrate with ICT education (Photo Credit: Original)

Mrs. Ho (Principals 2): In our institution, digital storytelling is encouraged, and we even want to expand the culture and increase of technology learning environment. We frequently create videos that reading a Mandarin Chinese's story to give a lesson to the student (View Fig.6) during the COVID-19 pandemic and upload them on YouTube and other communication apps (Line, Taiwanese mostly use this app). Thus, parents may give their children access to them even while they are at home. Approximately 80% of parents believe that digital storytelling promotes and strengthens student motivation and learning engagement, according to poll feedback from March 2021. When the story is displayed on iPads, computer, or projector and this disseminated with audio and background music, it fascinates young children and quickly captures students' concentration.



Fig.6 From Hsinchu Kindergarten private school's Youtube Channel (Photo Credit: Original)

- Question:

Is it difficult for a teacher to develop a course on digital storytelling or another tech-related subject? Has the school faced any noticeable problems or difficulties?

- The response

Kindergarten Private School Leaders: In fact, we lack the funds, resources, pipes and infrastructure necessary to give teachers access to official or formal technology training. This limits our ability to develop our plan to create an environment conducive to technology and ICT instruction in our school.

Mrs. Xiao (Principal 1): Yes! According to what I've observed and discovered, the majority of teachers are studying certain technological functions on YouTube or Google search. For instance, they attempted to include a game into a lesson plan to introduce the vocabulary of the animal in Chinese class. In an effort to provide students a pleasurable and engaging technological learning experience, they are trying to develop a Kahoot game and thinking of creating some animal photos. They are finding it challenging to understand the steps and processes involved in creating the game. This caused a significant issue with how teachers presented technology and taught Chinese to students.

5. Discussion

This section's major emphasis will be on organize the results and should be interpreted and viewed. In this research, the findings that over half of teacher have a experiecnce intergrating the technolgy with their teaching lesson and methods. The teachers thought that early childhood education should incorporate ICT instruction because they enjoyed integrating technology into their lessons. Education in ICT has a wide range of advantages and can help youngsters flourish in the future. Additionally, technological advancements not only assist students in a variety of ways for their future growth, but they also allow teachers new opportunities and push established teaching paradigms, which is a new advancement in distant learning. According to the data, more than half of teachers have experience specially developed into their lessons and pedagogical approaches. Nonetheless, a number of teachers than 70%—did not receive any official or even teaching resources for classes on educating with technology. It is a great concern that could have negative effects on children's development and learning outcomes since the majority of teachers are not fully confident in their knowledge of technology. The following of the section will describe the facts, evaluate the concerns, come up with a coherent solution, and address the immediate challenges.

5.1 ICT in Early Childhood Education

As an educator, we can provide children a brand-new learning experience if we can effectively use technology to teach them how to use the Internet for digital audio-visual learning. Combine real-world experiences with current events to encourage youngsters to reflect on their own lives. The use

of technology in the classroom not only expands and enriches the interactive physical teaching environment for both teachers and students, but also encourages the practice of flipping the classroom. According to the data and interview that colllecting in this rearch, the findings is that teacher shows most of children getting more enaging in their school and lesson. Connecting to the previous findings in Taiwan in the use of educational ICT media and learning tools enables educators to increase preschoolers' interest and motivation to learn [11]. The majority of teachers (n=62) who responded said that using technology in the classroom may greatly increase students' enthusiasm to learn. Applying the observation to the hypothesis, the instructor has seen that students frequently inquire about whether or not they would be using iPads and watching videos in their Chinese lesson the following week. The teacher claims that these findings demonstrate how incorporating contemporary technology into a curriculum has improved student learning outcomes, aroused their enthusiasm, and raised their desire to learn. Since the school started operating and students were aware of the significance of the teaching-learning relationship through COVID-19, the teacher also reports that students became more engaged in their Mandarin classes. Therfore, expanding the technological community and the learning environment for children may have a variety of positive effects on their knowledge and even their mindset. Learning and having fun are the two key objectives for ICT activities, according to teachers. Regarding education, instructors acknowledge ICT as a tool that offers traditional academic skills to kindergarten students. Learning using technology is becoming the norm today as the lesson and class go beyond conventional teaching techniques. In Hsinchu's kindergarten, parents have reported that their children are being optimistic about learning lessons in a fun and playful way and are more successful in studying Chinese.

5.2 Insufficient technological expertise among teachers

The TPACK results have demonstrated that many responses lean strongly disagree and disagree, particularly TCK and TPK. This section has clearly demonstrated that teachers greatly lack technological understanding and struggle to relate the curriculum to technology. In regard to the prior question, more than 75% of teachers' replies revealed that they had not participated in any official ICT training or programs, consequently, they do not obtain any of the materials or resoures that might aid in their knowledge expansion.

The workplace culture and environment must endorse educators' knowledge by providing sufficient resources, supportive social leadership, and a community that fosters collaboration and the acquisition of new knowledge if educators are to be anticipated to implement the new practices into their work and to expand their knowledge of their content, message, schoolchildren, and teaching. Depending on the knowledge, abilities, and attitudes of the teachers, computers may or may not improve the learning environment for young children [12]. This statement shows that inadequate teacher expertise and content levels prevent students from advancing positively in their technological knowledge and prevent teachers from creating a safe and healthy learning environment for their students. In contrast, a teacher with a high level of technological understanding could deliver instruction that is of the highest caliber while also providing students with engaging learning experiences that are beneficial to their future development. The Taiwanese government maintained a somewhat infrastructure-driven focus on hardware acquisition for teachers to employ ICT tools in classroom instruction throughout the first stage from 1997 to 2002, with the first national e-Learning strategy issued in 2001 (Ministry of Education, Taiwan 1997, 2001). The national e-Learning strategy was updated in 2008 with a white paper (Ministry of Education, Taiwan 2008) that placed more emphasis on how e-Learning might be used to improve teaching and learning in schools. The second stage of teacher development continued the prior stage's practices, in which training activities were integrated into e-Learning initiatives implemented in schools by the MOE or regional education bureaus in Taiwan.To see the use of Korean concepts concerning ICT education and improve teacher quality, the mandatory curriculum in South Korea's teacher education programs includes information technology. To advance teacher education in South Korea, the Teacher Training Information Service (TTIS) was founded in 2009. Along with the government's ICT policies, this program's goal has

evolved. Teacher training courses were altered as a result of the government launching the Smart Education initiative in 2011 and the Development and Vitalization Plan of Digital Textbooks in 2013. The establishment of the Smart Education Teacher Training Accreditation System took place in 2012. A teacher with inadequate technological skills is a disaster for the school and education.

5.3 Recommendations

This section will mainly foucsing on to address Teacher Technology Knowledge deficit and how can we rich the knowledge toward teacher as a school leaders, country policy, and educator's lens to view. Based on the data that this research has found, most oft he teacher are lack of the knowledge on technology. In the previous research from Sun and Chen, they have recommand that teachers must create these opportunities by building critical learning environments where students are encouraged to develop their analytical, imaginative, critical synthesis, creative, self-aware, and purposeful action skills [13]. To inform a qualit of lesson and increase the technolgoy learning enivornment setting as a school, teacher and educator are require to attend the offical technolgy traninng promgram or hold any degree or certification of the related-tech. Teachers and educators are required to complete the official technology training program or possess a degree or certification in the associated technology in order to improve the quality of the lessons and the technological learning environment in the classroom. In order to promote positive and healthy technology-based development to the students, teachers must help students develop their understanding of both the subject matter and the underlying technology. This will ensure that students receive knowledge that is both accurate and objective while also avoiding misunderstandings. Below have listed three of the demision that help to improve the knowledge of ICT and TPACK toward teacher.

5.3.1 School leaders play a key role

Principals must offer sufficient technical assistance, according to an argument about infrastructure and technology. Principals' technology leadership must focus on acquiring technology as well as supporting and maintaining school infrastructure [14]. Planning appropriate training programs for educational leaders like principals would help them build their capacity to guide the growth of IT education in schools and position them to become leaders in this field. It is important to create the administrators' and teachers' indications of information technology application abilities. Plan the structure, flow, and content of training programs based on the roles that instructors play in a variety of sectors. Develop training objectives and standards to ensure that training is appropriate for teachers' skills and satisfies educational needs. assure its quality and meet the industry's need.

5.3.2 Encouragement and reform of Taiwan's Education Ministry " White Paper"

According to Taiwan's Ministry of Education, there is a general agreement that educators should be able to use technology [15]. However, they were unaware that certain schools and teachers lacked the resources necessary to fully utilize their technological know-how; this might be a sign of unequal distribution of educational resources. The education in Taiwan would be of higher quality if the department of education promoted more of accessible or low cost pipes to provide the teachers a chance to broaden their technological knowledge. They may promote cooperation and exchanges in domestic and international IT education and enhance network, hardware, and software services in classrooms and campuses for both public and private schools. It is an opportunity that will help teachers improve their skills as well as provide youngsters with a positive experience with online learning.

5.3.3 School should promoting the self-assesment to the teacher

It is inevitable that, as the role of the teacher changes, educators will face more pressure to reflect on their fundamental educational ideals and beliefs. Even though the world and education are constantly evolving, some teachers nevertheless adhere to outdated beliefs and traditional teaching techniques. However, the world will only go more into the technological era and won't return to traditional teaching methods like using a whiteboard and pencils.This research has found the lack of

knowledge on technolgy on kindergarten and primary school tecaher according to TPACK's survey. Since weh ave recommad school to give a training program to teacher, it is require for teacher to do self-evaluation reguarly. For example, teacher can regualty do TPACK as a self-reflection to see what they need to improve in order to better the education enviorment. By providing teachers a feeling of ownership over the evaluation process and making them aware of their areas for improvement, self-assessment engages teachers in teacher evaluation[16].

6. Conclusion

The primary problems in the kindergarten communities in Hsinchu, Taiwan, have been highlighted through this study. At the outset of the study, it was discovered that teachers provided positive feedback on how students responded to lesson plans has integrated technology and designed, such as using digital storytelling to teach Mandarin Chinese. The expertise and substance of technology are weak, despite the fact that teachers enjoy and complete several technology lessons or employ technological teaching methods. The school principals have acknowledged that they lack sufficient resources and opportunities to offer teachers official training or courses on related subjects. The statistics demonstrate that teachers lack sufficient technological expertise and are unable to apply the various instructional activities to the application of the technology they are learning about. The instructor is capable of integrating the lesson into the lesson, but they lack confidence in the caliber of the lesson and instructing. The student's learning outcomes and future knowledge growth are largely of concern to the school and the instructor. Therefore, in order to ensure that students develop in the proper direction and get educational information in the appropriate direction, the governor and school should be aware of this problem. Overall, this research has first identified the importance of ICT in early childhood education and has used the TPACK framework to investigate and conduct interviews to learn more about the problems before making recommendations to improve ICT education and bring the prospect and vision to the youngest children's healthy development.

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