

Research Article

Knowledge Management and Technology Management: The Use of YouTube among Preschool Teachers

Zuraina Ali ¹, Norsuhaily Abu Bakar ², Shouket Ahmad Tilwani ³, and Bemnet Ajanil ⁴

¹Department of English Languages, Centre for Modern Languages, Universiti Malaysia Pahang, Pekan 26600, Pahang, Malaysia

²Faculty of Applied Social Sciences, Universiti Sultan Zainal Abidin, Kampung Gong Badak 21300, Terengganu, Malaysia

³Department of English, College of Science and Humanities, Prince Sattam Bin Abdulaziz University, Al-Kharj 11942, Saudi Arabia

⁴Bahir Dar University, Bahir Dar, Ethiopia

Correspondence should be addressed to Bemnet Ajanil; bemnet.ajanil@gmail.com

Received 27 April 2022; Accepted 8 June 2022; Published 24 June 2022

Academic Editor: Mehdi Nasri

Copyright © 2022 Zuraina Ali et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Knowledge management is the term used to describe approaches that knowledge workers employ in fulfilling their assigned tasks. The use of technology eases the process of completing their work because it provides systematic methods of managing the process of applying knowledge. Therefore, the current study seeks to find answers on the use of YouTube regarding the type of content selected by the teachers when using the platform and the kind of activities that require them to use the channel for teaching and learning purposes. The study uses qualitative data inquiries to collect responses from 23 preschool teachers. Four themes are formulated as findings in the current study. They are “YouTube consolidates teaching and learning,” “use of YouTube for educational songs,” “use of YouTube to improvise teacher-made songs,” and “nonusage of YouTube.” It concludes that knowledge is transferred explicitly when preschool teachers use the platform as a resource for teaching and learning. The technology, that is, YouTube, has somewhat assisted them in teaching the preschoolers in their early literacy development by watching entertaining yet educational materials. The study implied that YouTube could be an educational resource that teachers can use in teaching young learners. Also, it suggested that it could be a source of information that teachers may use to find relevant materials for their classes.

1. Introduction

Knowledge workers are the most crucial asset in an organisation. Their experiences, expressions of ideas, and decision on a particular matter in their organisations make one institution moves forward. The knowledge that is divided into two—explicit and implicit—is not easy to manage because some people are not willing to share it. Though the former is easier to manage than the latter, managing knowledge is somehow a difficult task to tap since there is a lot of knowledge offered by the knowledge workers [1]. Also, their invention of new products and new strategies helps an organisation prevail over other organisations. Nevertheless, technology makes knowledge workers’ undertakings handy. It reflects that both knowledge and technology management are considered as

learner-centered and information technology-centered systems which are useful for the success of an organization [2].

In another aspect, knowledge workers affect the performance of an organisation. A study conducted by Sahibzada et al. [3] found that improved knowledge management processes could enhance knowledge workers’ productivity. In return, these contributing factors would strengthen one’s organisational performance. In particular, the study investigated how the knowledge management process characterised by creation, acquisition, storage, sharing, and utilisation helped the knowledge worker be productive and later contributed to their organisational performances. In addition, knowledge workers can affect the organisation’s performance when they demonstrate the following characteristics [4]:

- (1) Committed and engaged in their organisation.
- (2) Display good communication and relationship with other employees.
- (3) Establish good personal characteristics and development.
- (4) Own personal knowledge management.
- (5) Responsible and care about their organisation's well-being.
- (6) Show high job satisfaction.
- (7) Approach tasks in a variety of ways.

In addition, knowledge workers who show self-directed learning may advance in their careers [5]. Being knowledge workers demand them to be competitive and to continue learning. Therefore, it seems not enough to only obtain key information to measure ones learning success. Keeping the importance of technology among knowledge workers, employees need to use technology in this advanced society that we are living in today. The need for self-directed learning is practical as the amount of information we have today is growing, and our work expectations have no boundaries [5]. At par with the significance of the previous point, retaining the knowledge workers contributing to organisational talent management is equally important. Sarfarazi et al.'s [6] study found that environmental, organisational, personal, and occupational factors help manage the talent of workers, in particular in knowledge-based companies. In particular, their findings showed that organisational factors contributed to the highest impact on talent management to "keep" the knowledge workers.

However, combining information technology (IT) and human knowledge is controversial. On the one hand, technology is used every day. On the other hand, knowledge and human experiences can never be integrated due to IT. Thus, it seems to be immature to rectify how the combination of these two can contribute to the growth of an organisation [7]. Hence, there is a need to codify knowledge in applications that can offer some behavioural contexts and human cognitive dimensions. The codified knowledge is materialised when knowledge is converged into a common concept and usage, making it easily transferred to others [8].

2. Research Questions in the Study

Since IT, as in the use of the Internet, is reported to be the broadest technology, that is, 98% in a survey conducted among Polish [9], the current study, therefore, attempts to investigate the use of YouTube among preschool teachers when the platform is integrated into the teaching and learning among preschoolers. More specifically, it tries to find answers concerning the materials selected by the teachers on YouTube and the kind of activities that require them to use the channel for teaching and learning purposes. With the knowledge that the teachers demonstrate and the use of YouTube, the current study gauges the latter use among the former to accomplish their works.

In other words, the researchers are interested in answering how preschool teachers combine their knowledge management and technology management skills as they use YouTube in their teaching and learning processes. The research questions that are formulated in the current study are as follows:

- (a) How do preschool teachers use YouTube to consolidate teaching and learning?
- (b) How do preschool teachers use educational songs on YouTube in teaching their young learners?
- (c) How do preschool teachers improvise teacher-made songs when using YouTube?
- (d) What are the reasons for not using YouTube among preschool teachers?

More specifically, there are a few objectives formulated in conducting the study. The first is to understand how YouTube consolidates teaching and learning when teachers use the resource to teach young learners. Second, it gauges the educational songs used among the teachers since songs enable the latter to learn effectively. The third objective is to identify how teachers improvise songs on YouTube and later use them as teaching and learning resources. Finally, its objective is to grasp why some teachers do not or refuse to use the resource in their teaching and learning. The study is significant since it helps understand how teachers use YouTube as an instructional material in teaching young learners at preschools.

3. Literature Review

This section discusses essential points related to the topic of the study. First, it started with defining the meaning of knowledge management. Then, technology management is elaborated on, and finally, it discusses the past studies on the use of YouTube in teaching and learning.

3.1. Defining Knowledge Management. KM is an instrument employed in an organisation to assist its employers in transferring their knowledge in explicit and implicit manners [10]. Since knowledge needs to be transferred to all employees in an organisation, knowledge requires facilitation to ensure that it can be created to give new meanings and innovation. When discussing knowledge transfer, one should consider knowledge development, knowledge implementation, and knowledge maintenance. These elements are vital to ensure knowledge sharing among all employees [10].

KM is also system management used to create values and achieve an organisation's planned and strategic requirements [11]. In managing knowledge systematically, the website [11] states that the KM of an organisation comprises initiatives, processes, strategies, and systems that can maintain and enhance the storage, assessment, sharing, refinement, and creation of knowledge. Figure 1 shows a graphical explanation of KM. The figure shows that KM comprises strategies, initiatives, processes, and systems. These components

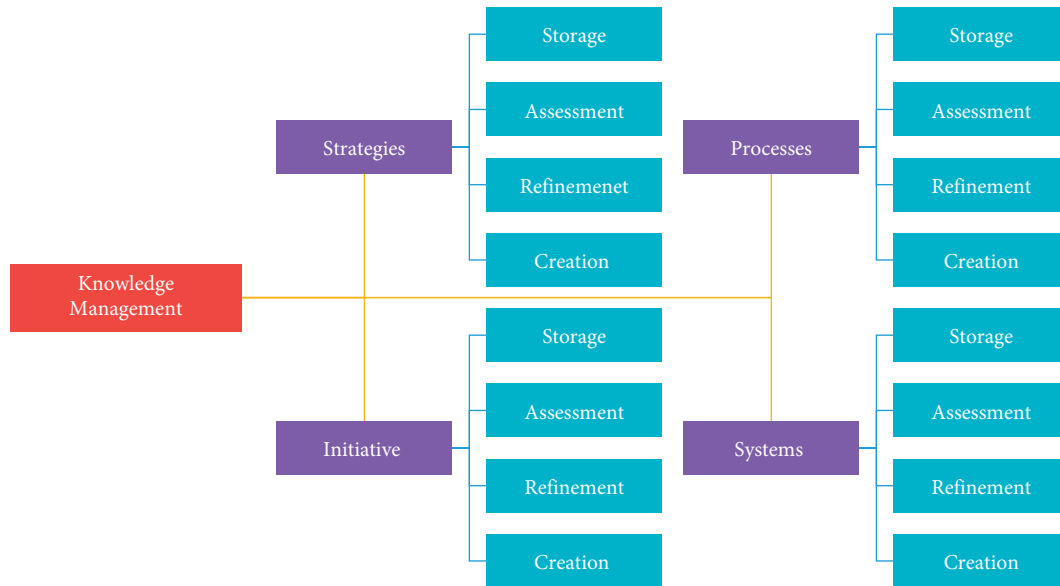


FIGURE 1: Definition of knowledge management adapted from [11].

contribute to the organisation's decision to store the knowledge to store it, assess the useful knowledge for its employees, refine the knowledge that needs further improvement, or create new knowledge that can be shared among other employees in an organisation.

3.2. Defining Technology Management (TM). Technology has always become an integral and significant part when dealing with KM. TM is defined as identifying what and how people can use technology to ensure that they can complete a task [12]. In describing TM, Rayna and Striukova [13] state that it encompasses five broad areas, organisation of technology knowledge, technology forecasting, technology development, technology commercialisation, and technology usage. Therefore, when people use technology, they practice systematic methods of managing the process of applying knowledge. The procedures will be followed until they can fulfil their tasks and perhaps produce a product. Also, Information Communication Technology (ICT) is the technology that eases the sharing of information and knowledge [14]. Because of this, ICT KM is important when business nowadays tends to be smoothed due to the use of technology.

Based on Figure 1, TM also refers to integrating science, engineering, and management in terms of the knowledge and practice of the employees in a particular organisation [15]. It is a central means for the wealth and value of the organisation as a whole. Among others, TM is an integrative and multidisciplinary field that is focused on effective problem solving involving the following elements [16]:

- (a) Product and process integration: this can be achieved through system thinking, quality management system development, and benchmarking.
- (b) Evaluation: such evaluation can be done at the organisational, technical, and individual levels.

- (c) Planning: it can be achieved when an employee utilises strategic and work planning.
- (d) Implementation: it is the execution of quality and documentation systems and organisational processes.
- (e) Change management: it demands management and leadership to shift the required skills/knowledge.
- (f) Training and engagement: it is necessary for the development of individual and organisational effectiveness. The two components elevate the performance of the organisational workforce.

3.3. Use of YouTube as a Resource for Teaching: A Recap of Past Studies. YouTube is convenient for teachers as videos related to their teaching and learning can easily be downloaded via the channel. Young children as early as six months old were reported to watch YouTube because they were attracted to the music [17]. Their study found that these toddlers liked to watch dance performances, advertisements for products relevant to their age groups, and videos that showed toys and balloons. The researchers concluded that parents might be happy to see that their children enjoyed watching videos of these kinds. In reality, the researchers found that the parents did not realise that their children were not learning anything from the videos. The ten minutes their children spent watching the videos could only keep them busy and entertained but failed to make them learn. YouTube has also been used for early mathematics and science learning, particularly for young learners' scaffolding of Science, Technology, Engineering, and Math (STEM) [18]. However, some parents were more concerned with the videos that their children watched while surfing the Internet to find the related STEM videos. They were those who were sceptical of the videos that were automatically played after watching initial videos or related videos that YouTube recommended.

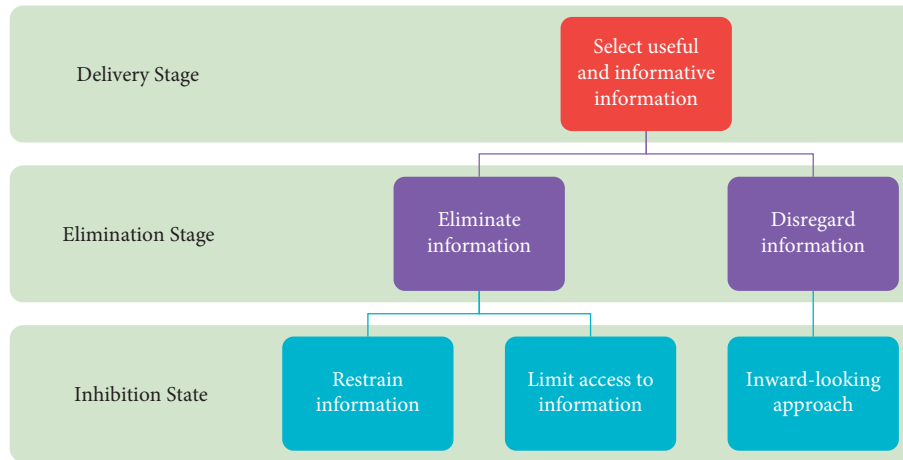


FIGURE 2: Internet information gatekeepers theory [20].

Nevertheless, the researchers concluded that parents perceived the media as an essential tool in reinforcing their children's science and math concepts. The study also found that YouTube videos are essential, especially in learning science rather than math.

Meaning-making when preschoolers use technology, in particular YouTube, is rarely discussed research. Instead, many pieces of research on the uses of technology focus on skills that students gain from it. It was reported that a shared understanding of the use of YouTube could be produced between parents and children [19]. The study analysed talk and conversation when both parents and children (i.e., preschoolers) watched YouTube together and finally took a look at the shared understandings they produced in this kind of learning environment. The collection of data derived from verbal and embodied actions during their interactions was analysed to produce a shared understanding of the use of YouTube videos in learning.

3.4. Theory of Internet Information Gatekeepers. The study uses Internet Information Gatekeepers developed by Laidlaw [20] as the theory underpinning the collection of data in the current study. Basically, three stages are involved in ensuring that information accessible via the Internet is useful. First is the Delivery Stage in that Internet Gatekeepers (IG) select information and content they consider useful and informative for their users. The second is Elimination Stage. At this stage, the IGs are responsible for eliminating or disregarding access to information if they find it not useful for users. Finally, in Inhibition Stage, the IGs restrain or limit users' access to the scope of information. It means that the IGs perform the roles of inward-looking by inhibiting behaviour access.

In the use of YouTube, Laidlaw [20] states that their viewers are influenced by the way the platform carries out its gatekeeping activities. YouTube gatekeepers rank, promote, add, and delete videos when doing the process. On the part of the viewers, they will be influenced when the YouTube gatekeepers highly rank a video and not others. Also, when the YouTube gatekeepers provide high visibility of a video, it

will result in more viewers accessing the particular resource. Figure 2 shows the adapted Internet Gatekeepers (IG) employed in the study.

On a different note, the novelty of the research concerns the understanding of the use of YouTube among preschool teachers in their effort to select informative resources for their learners. The study helps identify their experiences using the resources in the early years of learning among young learners. Since various information/resources can be accessed via YouTube, they manage their roles as knowledge workers. This is done by identifying important information from YouTube, becoming familiar with the resource, and using it in their teaching [21]

4. Methodology

4.1. Research Design. The study employed qualitative data inquiry as its research design to gather the teachers' use of technology to accomplish their teaching tasks. The method used was to obtain a comprehensive understanding and then analyse the data concerning their experiences of using YouTube for teaching and learning. Such can be achieved when a recording device is employed to record videos or audio of the semistructured interviews that they have conducted [22]. The researcher then needs to understand and analyse their interaction with the preschool teachers.

4.2. Research Instrument. An interview protocol was employed to collect data among preschool teachers to identify the uses of YouTube in their teaching and learning. The items in the interview protocols are as follows: From which source did you obtain videos for teaching and learning? To what extent is the video being used in teaching and learning in the preschool? Are there additional materials used besides the module that you have? What kind of materials that you upload via YouTube?

4.3. Validity and Reliability in Qualitative Research. Since this is qualitative research, validating the research data may or may not involve a number. In terms of validity, the

researchers conducted several phases to ensure the validity of the information derived from the interviews (raw data). The two following steps are used to check the validity of data in the current study [23, 24]:

- (i) Choose a well-trained/skilled moderator.

One of the main author's faculty members was appointed to check as much candid the data obtained from the interview.

- (ii) Ensure neutrality of the information.

The faculty member ensures that she is not influenced by "what she wants to hear." Therefore, the researchers do not disclose any insights to her. Such is to ensure that she can respond to the information genuinely.

On the other hand, trustworthiness is used to discuss reliability in qualitative research [25]. In the current study, a decision trail was employed. The researchers carefully observed the method of collecting data before deciding the final information they needed to report as study findings. They ensured that their decisions were clear and transparent before concluding the study results. Only when the researchers agreed that they went through a thorough process of analysing the data (by coding and formulating themes) that made them report the current study's data.

4.4. Research Samples. The study involved 23 preschool teachers as its samples teaching on the East Coast of Malaysia. In particular, three districts of Pahang, namely, Cameron Highlands, Pekan, and Kuantan, were selected as the locations to collect data for the current study. They are bachelor's degree and diploma holders, and some obtained high school certificates in terms of background. They have been working as teachers for at least two years, while the majority have 23 years in the industry of Early Childhood Education. Their age groups are from 21 to 50 years.

4.5. Data Collection and Analysis Procedures. The data collection and analysis were conducted concurrently. The reason is that it was much easier for the researchers to decide whether the data obtained was sufficient or otherwise. The nature of qualitative inquiry is constantly emerging, making it peculiar to collect and later analyse it [24]. Therefore, in the current study, the researchers analyse the data after it was collected. Then, they decide to collect more data if required by identifying the following preschool that needed to be visited. The interview protocol might also change alongside the answers that the researchers obtained from the interviewees. In this manner, the instrument serves as a guiding tool in that it assists them in getting the preschool teachers' responses only. When analysing the data, hunches control the researchers to refine and confirm their current data. The processes of planning, acting, observing, and reflecting on the data were continually being conducted while the researchers identified relevant coding and themes in analysing the data.

5. Results and Discussion

5.1. YouTube Consolidates Teaching and Learning. The use of YouTube complements the resources for teaching and learning among preschoolers. Teacher 15 found that, in using YouTube, the utmost important issue that needed to be taken care of was ensuring that Wi-Fi was available throughout teaching and learning. She did not disregard the use of the conventional method in her teaching, but the use of gadgets and technology in her class made learning fun. She said:

"We use YouTube. One thing for sure we have to have in kindergarten is wi-fi. I use the old methods of teaching, but I modernised it using technology and gadgets. So this makes learning fun for preschoolers. They like this kind of learning. So, their parents would be the "victim" of what they learned in school in the house. Their parents would be the students. That is good . . . their parents are encouraging this kind of learning. (Teacher 15)."

YouTube is a video resource that was employed by Teacher 1. She and her colleagues uploaded the selected videos and transferred the materials unto their pen drives. The students would usually watch videos after their assembly and prayers in the preschools at least for 30 minutes according to their daily timetable. Teacher 1 asserted:

Researcher: Where did you source out the video for a viewing?

Teacher 1: Mostly from YouTube and will be saved in a pen drive. Students will watch YouTube after the assembly time and prayers for 30 minutes according to the daily schedule provided (Teacher 1).

YouTube was also used as additional material in teaching preschoolers. Teacher 8 said that she required the teachers to use YouTube to get some ideas for their teaching content. She claimed that one of the teachers watched YouTube and found that some Indonesian children's songs via YouTube could be used to teach her students. In particular, she used the songs to teach reading. She shared her experience:

"I teach the teachers to watch YouTube for additional materials. These teachers can now use YouTube in their teaching. They watch videos of Indonesian children's songs to teach reading. Like Bahasa Indonesia, they do not spell the word—reading is without asking students to spell it one by one. (Teacher 8)."

The current study revealed that YouTube videos could consolidate learners in the learning process by uploading related videos and later used in their classes. The resources could also be used as additional materials to teach the preschoolers. However, ensuring that Wi-Fi services were available seemed vital as they needed to upload the videos. Store [26] argued that the use of YouTube can be integrated into learning among children because there are videos targeted at children as audiences. These videos are short,

entertaining, and educational. The videos on the platform prepared for the children are high-quality and can help their learning while playing simultaneously. Teachers may also check each video's reviews to ensure that they deliver only the best for their students' learning.

This finding that YouTube consolidated learning among preschoolers was also reported by Yaqoob et al. [27]. Their study on sentiment analysis showed that videos on YouTube were valuable and effective as learning resources as far as early childhood learning was concerned. The study employed NVivo as the tool to analyse data and revealed that viewers who were the respondents in the study expressed these words to show that the videos were applicable to be used among children for learning. These words are "nice," "good," and "great." Also, the researchers reported that the content of the culture-free videos made the resources able to be used by children from diverse cultural backgrounds.

A comparison of the findings with Pattier's [28] study confirmed that YouTube consolidates preschoolers' teaching and learning. Nine out of ten preschool teachers concluded that videos obtained from the platform consolidated their teaching and were effective as classroom resources. Their study also found that teachers could be the gatekeepers in proposing which YouTube videos could be employed in their lessons. Later, they could recommend the videos to parents, schools, or students themselves after they were "filtered" by the teachers.

The study's findings confirmed Başar and Elyidrim's study [29]. They found that YouTube associated with multimedia could assist children in learning many basic concepts through accessing the multimedia content. The multimedia resource consolidates the teaching and learning as parents informed it that their children learn via YouTube. In particular, parents in their study reported that their children learned a lot of concepts watching cartoons via the platform, for instance, learning some critical ideas about the earthquake. Also, this finding broadly supports the work by Steinke et al. [30], as it was reported in their study concerning the use of YouTube videos to help children understand important messages about the fight against transmission of Covid-19. Their study showed that YouTube serves as the source to disseminate information to children about science, health, and medical information during a global pandemic.

Nevertheless, YouTube viewers, that is, preschool teachers, need to take care of the design principle whenever choosing the resources for their students' learning. Neumann and Herodotou [31] recommended that the preschool teachers be required to follow a video rubric to evaluate the quality of YouTube when they were used among children from zero to eight years old. Thus, as resources for learning, the videos needed to be evaluated based on their age, appropriateness, content quality, design features, and learning objectives. These criteria were essential to assess the quality of the videos before they were used in learning.

5.2. Use of YouTube for Educational Songs. Teacher 5 stated that she used YouTube for educational songs to teach *hafazan* (memorising verses of the Holy al-Quran) to the

preschoolers. The latter learned *du'a* for parents, pillars of faith, and pillars of Islam. She viewed that learning these subject matters via YouTube was the best option since it enabled the preschoolers to understand the contents. Using songs is to ease learning. Yet, she did not have a proper compilation of songs that were selected for her young learners. Teacher 5 posited:

"So memorise du'a for parents, the pillars of faith, and Islam . . . those we teach using songs. Some (teachers) take from YouTube, and there are also songs that the teacher composed himself. The simple ones for the children to understand. But we do not have a definitive compilation of the songs, though. (Teacher 5)."

Teacher 5 added that YouTube was also employed to teach the learning of the alphabet. Such learning was suitable for children at the age of four. She used songs to teach letters to the preschoolers. She affirmed:

"As for the technique used to introduce letters, we researched the use of YouTube. I mean the kind of singing techniques (are best for the preschoolers). For example, in teaching the letter 'A' (A-B-C, etc.), for a 4-year-old, they trace the letter (in a workbook first). Then, we use songs on YouTube as a method to teach the alphabet. We do use songs (on YouTube) in teaching preschoolers! (Teacher 5)."

Nevertheless, Teacher 5, together with her colleagues, utilised paid and free songs available on the Internet in their classes. They would decide on the appropriate songs for teaching and learning and later use them when teaching their preschoolers. She said:

"So, some (songs are) paid, some (we) search on YouTube. So, whatever that can be used (for teaching and learning using songs), we use it. (Teacher 5)."

Overall, findings in the current study showed that educational songs could be uploaded via YouTube. In particular, the preschool teachers were interested in uploading alphabet songs. Also, the findings showed some preschool teachers only used free songs that were available on the platform. These results reflected the study that found that YouTube Kids Channels, especially rhyming channels, were preferred by children. The study listed Cocomelon Nursery Rhymes, Chu Chu TV Nursery Rhymes, Little Baby Bum, Upin Ipin, Vlad, and Nikita, to name a few, as the channels they frequently watched for learning purposes [32]. Indeed, these channels that contain songs and music are the most dominant ones since they display attractive animation techniques. Also, specifically in the learning of English, it is found that learning is easier for the children due to the musical rhymes that are entertaining and engaging. These characteristics are important in the academic content of children's learning.

The use of songs as resources for learning is also accorded with Pattier [28]. Her study showed that 49.5% of the teachers in her study employed songs as one of the

popular tools to teach their students. Comparing the uses of songs in different educational institutions, kindergartens, elementary schools, secondary schools, training centres, and universities, songs constituted more than 70% in kindergarten, implying that the resources were significant in the institution rather than others. Also, more than 50% of the teachers who were surveyed felt satisfied using songs in their teaching and learning processes.

The results reflected that of Magnussen and Sukying [33], who found that songs uploaded via YouTube enabled the learning of English among Thai preschoolers in their vocabulary acquisition. The study employed Total Physical Response (TPR) and, therefore, the selection of the educational songs via YouTube depended on a critical criterion. The video used hand motions and pictures to support the acquisition of the vocabulary. The combination of TPR and songs (TPR + songs) had a more positive impact on vocabulary learning among preschoolers. Using songs alone did not contribute to the acquisition of English vocabulary. Likewise, relying on a single method of TPR did not contribute to the success in vocabulary acquisition among preschoolers.

These results corroborate the findings of Ringsdorf [34] findings on using YouTube to assist preschool learners in enhancing their literacy and numeracy skills. Specifically, the study reported that the available educational songs that could be uploaded via the platform could save time, money, and space and thereby be used in classes. The researchers argued that teachers were not required to buy or store physical books and music in this information age. This is because technology, in particular YouTube, could be used to highlight stories and songs to these target groups of learners in a new way. The study concluded that YouTube could be used to assist preschool teachers in teaching and engaging their learners. As a result, the effort could increase the latter in their overall learning.

In this study, preschoolers' preferences for listening to educational songs via YouTube corroborated Shoukry et al.'s [35] study. The use of the resources was ordered number 2 as they attracted the preschoolers to learn the alphabet. YouTube songs were also appealing to them besides watching cartoon characters. Interestingly, it was reported that preschoolers could sing the English alphabet songs better than singing the alphabet songs in Arabic. This showed how technology contributed to early literacy among preschoolers.

Azer et al. [36] analysed 180 videos as resources for learning among autistic children. It was reported that more than 50% of the videos on YouTube were helpful for educational purposes. Unexpectedly, nearly half the percentage of the videos were also not appropriate for education and could be used for autistic children. Although the researchers did not explain the specific criteria of the videos, their study revealed the emerging roles of YouTube as a resource for learning among the targeted group of learners.

5.3. Use of YouTube to Improvise Teacher-Made Songs. Songs on YouTube are used to improvise the ones composed by the teachers. Teacher 8, for instance, said that the composed songs were those that teach the preschoolers to learn prophets' names. In this regard, the preschoolers played an important part in helping the teachers to compose the songs. Usually, composing the teacher-made songs was the combination of the songs the teachers listened in YouTube with the ones sang by the preschoolers would finally enable the former to write a suitable piece for the latter. After all, Teacher 8 believed that composing and listening to songs on YouTube were required as they needed to sing when teaching the young learners. Also, songs help preschoolers to memorise better. Teacher 8 shared her experience:

Researcher: Do you use video materials or songs to teach English?

Teacher 8: Some we do take songs from YouTube. Some we compose on our own. We do this, especially in teaching the names of the prophets. When the preschoolers sit we us, they sing songs they listen from YouTube-from the songs we compose ours. If you want to be a kindergarten teacher, you have to sing a lot! Singing helps preschoolers in memorising as well!

Findings concerning the teacher-made songs as they listened to YouTube songs were characteristics of knowledge workers. In particular, they could approach tasks in various ways as they could master technology management when completing their tasks [4]. Improvising teacher-made song is necessary to ensure that the content of a particular song meets learning objectives. As teachers listen to the songs on YouTube, they can improvise or edit the lyrics to suit their audience. Learning in this nature brings the context of learning to the real world. YouTube provides this opportunity, bringing the 'real world' in documentary films (such as BBC and Channel 4) so that teachers can use the contents of these films as part of their lesson planning [26].

Moreover, a strong relationship between music and childhood education was reported in Young's [37] study. Therefore, it seemed not peculiar when teachers improvised songs to promote learning among preschoolers. Teachers who devised songs to cater to the preschoolers facilitated multimodel experiences among their young learners [37]. In fact, the researcher recommended that teachers could also encourage preschoolers to compose their own songs, starting with simple songs such as minimal pitch and rhythms and later progressing with more complex ones. Also, teachers who made an effort to improvise songs understood that music is an art. Children use music to express themselves as they are not able to express themselves effortlessly through speech or writing [38].

The use of teacher-made songs as one of the resources for teaching and learning seemed not to accommodate parents' opinions on the subject. Marić et al. [39] reported that parents claimed that watching or listening to songs via YouTube was the least activity children engaged in when using YouTube. More specifically, parents revealed that less than half percentages (only 23%) of their children's time were spent listening to songs on YouTube. Surprisingly, none of the children in their study expressed that songs were one of the contents they enjoyed when watching YouTube. Instead, the parents perceived that most children mainly watch cartoons (37%) and their favourite YouTubers (37%). The research concluded that, in using YouTube, parents need to be equipped with digital competencies. Nowadays, it is an important educational factor for parents raising children in this digital age.

The teachers' responses to the use of YouTube are summarised in Figure 3. The table illustrates that the teachers mainly use the resource to enhance their teaching and learning, while they also use YouTube to improvise songs as teaching materials. Overall, the study showed that it was necessary to use the YouTube songs and videos and integrate them into teaching and learning [40]. Moreover, teachers can incorporate the use of YouTube as it is believed that the platform is an effective instructional tool for education [41].

Considering the ideas against the use of YouTube for teaching and learning processes among preschools, this study revealed that some preschool teachers refused to use the resource since materials, for instance, songs, were already available in the modules they used in classes. The study also revealed that some preschool teachers refused to use the resource since materials, for instance, songs, were already available in the modules they used in classes. The detailed responses of preschool teachers in this matter are described in the proceeding section.

5.4. Nonusage of YouTube. Relying on the materials provided by the preschoolers' respective curricula is the reason for not using YouTube songs or videos as materials for teaching and learning. Teacher 3 asserted that she and her colleagues employed songs in their preschool modules as the songs followed the predetermined themes that were required to be completed each week. She confirmed not using YouTube in these remarks:

Researcher: Are the materials (songs) available, or do you download them from YouTube?

Teacher 3: There really is none (that we take from YouTube).

Researcher: So, if you want to use songs in teaching and learning, how do you do that?

Teacher 3: We use our own songs in the modules. For example, if we want to teach the children of a particular

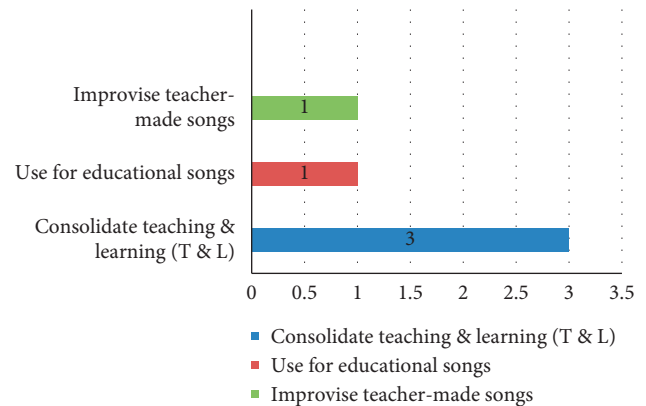


FIGURE 3: Number of teachers who use YouTube for various purposes.

theme (e.g., at the canteen), there is already a song for it (in the module).

Some preschool teachers did not use YouTube in their classes because learning materials were already available at hand. It was argued that preschool teachers resort to using YouTube due to time and cost limitations in Nanang Sahriana's [44] study. Yet, practitioners in the current study did not use the platform since it would incur a cost, especially when required to download the videos. Thus, it was also not the time factor that made the current study teachers not use YouTube in teaching and learning. The aspect of the readily available songs in the module did not require them to use YouTube. In this context, Norasyikin and Faridah [43] asserted that the module saved time and supported the teachers in attaining the teaching and learning objectives.

The inconsistency of not using YouTube among teachers was also not due to the reluctance to use the resources found in Pattier's [28] study. His study reported that teachers were unwilling to use videos, screens, and new technologies because they considered the resources inappropriate to be used at such early ages. They were sceptical that their uses would result in technological addictions among the young learners. Likewise, Pratiwi et al. [44] argued that exposing children to technology early affected their psychosocial development. Supposedly, children at the early stages of learning need to be exposed to "explorative learning" or "explorative independence." Instead of learning from YouTube, the researchers described that children in their four to six years old need to develop their sense of self and feelings and their sense to be independent. As such, the researchers warned that parents should be aware of the problems when they decide to let their children use technology in the name of learning.

The result of not using YouTube as a resource for learning is in agreement with Gauthier's writing [45]. The author believed that the children's programming on YouTube was only taking advantage of parents who were not experienced in

taking care of their children. Letting children engage in using YouTube seemed to promote objectionable behaviour among the children. Too much time spent on YouTube made children feel that they were less fit to learn in a natural setting. Gauthier [45] further stated that children at an early age were supposed to jump up and down and explore things on their own rather than watching or learning via YouTube.

6. Conclusion

This paper has discussed how preschool teachers manage the use of technology, in this context YouTube as one of the sources to organise knowledge among them for teaching and learning. This study has shown that the platform was used to consolidate teaching and learning, teach educational songs, and improvise teacher-made songs. It was also found that some teachers resort to the use of modules instead of YouTube, providing that teaching and learning objectives were achieved. Overall, this study strengthens that knowledge was transferred explicitly when YouTube was used to teach preschools. In the current study, technology has assisted learning among preschoolers, especially in their literacy development [46], in this case, the use of songs on YouTube.

The study suggested that the preschool teachers' knowledge of technology in the current study proved that they knew "what" and "how" to use technology to complete their tasks. They could surf the Internet and find relevant sources, especially when using YouTube as materials in their classes. The technology management that the teachers demonstrated required them to conduct a systematic method of managing the process of information. This was by looking for relevant materials and evaluating their uses as the teachers conducted their classes with the preschoolers. Nevertheless, the study has its limitation. First, only qualitative data collection was conducted among the teachers. Second, preschoolers were not employed in the present study, which employing them as samples would enable the researchers to obtain first-hand experience in learning using YouTube. Third, the study focused on only a resource, that is, YouTube, and disregarded other teaching materials used by the preschoolers. Due to the final limitation, further studies regarding the role of YouTube would be worthwhile. Samples among teachers and young learners/preschoolers can be conducted on the use of YouTube.

Also, it is suggested that future researchers replicate the study by employing quantitative research inquiry. They may include a large number of preschool teachers, but they can also engage parents. In other words, the study should be repeated using a larger size of sample to provide more reliable results. Having these samples in a more significant number may make it better to understand how knowledge management and technology management can contribute to learning among young learners. Potential researchers may also carry out an analysis of the types of songs that the preschool teachers selected. Last but not least, interested researchers may compare the teachers' teaching styles with preschoolers' learning styles. Chetty et al. [47] assert that

learners learn better when they can pair their learning styles with the teachers' teaching styles.

The findings reported in the study have significant implications for understanding how teachers use YouTube as an educational resource in teaching young learners at preschools. An implication of this study is the possibility of using YouTube as relevant teaching and learning material. Also, the current data highlight the importance of using YouTube, especially in using songs for teaching and learning. In the study, it was demonstrated that songs assisted teachers in introducing the basics of reading. Therefore, songs on YouTube could be employed as early learning materials for young learners. The theoretical implications of Internet Information Gatekeepers in the current study confirmed that teachers were the gatekeepers in all the stages of using YouTube materials. They selected useful and informative resources and eliminated the ones they felt were not suitable for their learners. They also restrained information just to ensure that they provided good quality sources for their learners.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Acknowledgments

This work was supported by Universiti Malaysia Pahang (Grants nos. RDU202402 and UIC200803).

References

- [1] MindTools (n.d.), "Managing knowledge workers getting the most from them," https://www.mindtools.com/pages/article/newTMM_45.htm.
- [2] S. Balakrishnan, "Information, technology and knowledge management," *Journal of Advancements in Library Sciences*, vol. 1, no. 1, pp. 1–10, 2018.
- [3] U. F. Sahibzada, C. Jianfeng, K. F. Latif, Z. Shafait, and H. F. Sahibzada, "Interpreting the impact of knowledge management processes on organizational performance in Chinese higher education: mediating role of knowledge worker productivity," *Studies in Higher Education*, vol. 47, no. 4, pp. 713–730, 2022.
- [4] H. G. Óskarsdóttir, G. V. Oddsson, J. P. Sturluson, and R. J. Sæmundsson, "Towards a holistic framework of knowledge worker productivity," *Administrative Sciences*, vol. 12, no. 2, p. 50, 2022.
- [5] J. R. Yarbrough and P. C. Hughes, "Self-directed learning for the knowledge worker, self-directed learning and the academic evolution from pedagogy to andragogy," in *Self-Directed Learning and the Academic Evolution from Pedagogy to Andragogy*, pp. 1–14, IGI Global, Hershey, PA, USA, 2022.
- [6] B. E. Sarfarazi, N. Yaghoubi, M. Mohammadi, and J. Jarrahi, "Identifying the effective factors contributing to talent management in knowledge-based companies with a focus on

- knowledge worker retention,” *Journal of Productivity Management*, vol. 16, no. 60, pp. 77–107, 2022.
- [7] M. Mirghani, S. Michael, and M. Arthur, “Knowledge management and information technology: can they work in perfect harmony?” *Journal of Knowledge Management*, vol. 10, no. 3, pp. 103–116, 2006.
- [8] R. Bosua and K. Venkitachalam, “Managing codified content for reuse in knowledge work,” *Knowledge and Process Management*, vol. 29, no. 1, pp. 3–11, 2022.
- [9] A. Albená, E. Gourova, and R. Nikolov, “Technology solutions for knowledge management-an overview,” 2006, <https://hal.archives-ouvertes.fr/hal-00592513/document>.
- [10] S. Zyngier, *The Role of Technology in Knowledge Management: Trends in the Australian Corporate Environment*, Monash University, Melbourne, Australia, 2001.
- [11] Helpjuice, “Knowledge management tools,” 2018, <https://www.knowledge-management-tools.net/knowledge-management-definition.html>.
- [12] “What is technology management?” *Journal of Technology Management in China*, vol. 2, no. 1, 2007.
- [13] T. Rayna and L. Striukova, “360° business model innovation: toward an integrated view of business model innovation,” *Research-Technology Management*, vol. 59, no. 3, pp. 21–28, 2016.
- [14] R. S. R. Vivek, A. E. Krishna P, “The role of ICTs in knowledge management (KM) for organizational effectiveness,” in *Global Trends in Information Systems and Software Applications*, M. R. Babu, Ed., pp. 542–549, Springer, Berlin, Germany, 2012.
- [15] R. Nicole, “What is technology management?,” 2008, <https://qualityandinnovation.com/2008/10/29/what-is-technology-management/>.
- [16] M. B. Kearns, J. B. Taylor, and C. E. Hull, “The six facets model: technology management in the effective implementation of change,” *International Journal of Innovation and Technology Management*, vol. 2, no. 1, pp. 77–100, 2005.
- [17] S. Yadav, P. Chakraborty, P. Mittal, and U. Arora, “Children aged 6–24 months like to watch youtube videos but could not learn anything from them,” *Acta Paediatrica*, vol. 107, no. 8, pp. 1461–1466, 2018.
- [18] B. Hightower, A. Lauricella, and E. Wartella, “Exploring parent use of early STEM media to inform design for children,” in *Proceedings of the 18th ACM International Conference on Interaction Design and Children IDC 2019*, pp. 102–108, Boise, ID, USA, June 2019.
- [19] C. Davidson, L. M. Given, S. Danby, and K. Thorpe, “Talk about a youtube video in preschool: the mutual production of shared understanding for learning with digital technology,” *Australasian Journal of Early Childhood*, vol. 39, no. 3, pp. 76–83, 2014.
- [20] E. B. Laidlaw, “A framework for identifying Internet information gatekeepers,” *International Review of Law, Computers & Technology*, vol. 24, no. 3, pp. 263–276, 2010.
- [21] S. Mattila, “Mandated report training for preschool teachers,” 2022, <https://scholarworks.calstate.edu/downloads/k3569990q>.
- [22] J. A. Hatch, *Doing Qualitative Research in Education Settings*, Suny Press, New York, NY, USA, 2002.
- [23] L. Busetto, W. Wick, and C. Gumbinger, “How to use and assess qualitative research methods,” *Neurological Research and Practice*, vol. 2, no. 1, p. 14, 2020.
- [24] S. B. Merriam and E. J. Tisdell, *Qualitative Research: A Guide to Design and Implementation*, John Wiley & Sons, Hoboken, NJ, USA, 4th edition, 2016.
- [25] H. Noble and J. Smith, “Issues of validity and reliability in qualitative research,” *Journal of the Medical Library Association*, vol. 21, no. 2, pp. 102–108, 2018.
- [26] E. A. Store, “Top 20 ways to use youtube in the classroom,” 2020, <https://www.educationalappstore.com/blog/top-20-ways-to-use-youtube-in-classroom/>.
- [27] N. Yaqoob, T. Bibi, and M. O. Mansoor, “Early childhood learning videos on youtube: a thematic analysis of viewer’s perceptions,” *Journal of Early Childhood Care and Education*, vol. 2, pp. 35–50, 2018.
- [28] D. Pattier, “Teachers and youtube: the use of video as an educational resource,” *Journal of Theories and Research in Education*, vol. 16, no. 1, pp. 59–77, 2021.
- [29] S. Basar and B. Elyidrim, “Professional development of Turkish preschool teachers during summer holidays,” *International Online Journal of Education and Teaching (IOJET)*, vol. 9, no. 1, pp. 361–396, 2008.
- [30] J. Steinke, C. A. Lin, T. Duncan, and V. Zambrano, “Cover your mouth and nose: communication about health protection behaviors by role models in youtube COVID-19 videos for children,” *Journal of Science Communication*, vol. 21, no. 3, pp. 1–38, 2022.
- [31] M. M. Neumann and C. Herodotou, “Evaluating youtube videos for young children,” *Education and Information Technologies*, vol. 25, no. 5, pp. 4459–4475, 2020.
- [32] I. I. N. Fitria and K. D. A. Zakky, “Youtube kids channels in developing young children’s communication skills in english: parents’ beliefs, attitudes, and behaviors,” *International Journal of Language Education and Cultural Review (IJLECR)*, vol. 6, no. 1, pp. 20–30, 2020.
- [33] E. Magnussen and A. Sukying, “The impact of songs and TPR on Thai preschoolers’ vocabulary acquisition,” *THAITESOL Journal*, vol. 34, no. 1, pp. 71–95, 2021.
- [34] S. Ringsdorf, “Technology enhances literacy & numeracy skills in a play-based preschool classroom,” 2022, https://nwcommons.nwciowa.edu/cgi/viewcontent.cgi?article=1402&context=education_masters.
- [35] L. Shoukry, C. Sturm, and G. H. Galal-Edeen, “Arab preschoolers, interactive media and early literacy development,” in *Proceedings of the 2012 International Conference on E-Learning and E-Technologies in Education (ICEEE)*, pp. 43–48, Lodz, Poland, September 2012.
- [36] S. A. Azer, R. A. Bokhari, G. S. AlSaleh et al., “Experience of parents of children with autism on youtube: are there educationally useful videos?” *Informatics for Health and Social Care*, vol. 43, no. 3, pp. 219–233, 2018.
- [37] S. Young, “Seen but not heard: young children, improvised singing and educational practice,” 2006, <https://journals.sagepub.com/doi/pdf/10.2304/ciec.2006.7.3.270>.
- [38] N. Sarazzin, “Music in early childhood development,” 2016, <https://milnepublishing.geneseo.edu/music-and-the-child/chapter/chapter-8/>.
- [39] I. Marić, T. Borovac, and K. D. Barišić, “Mobile devices and preschool children: do their parents know how much they know?,” 2022, https://scholar.googleusercontent.com/scholar?q=cache:lhyunLcsKQsJ:scholar.google.com/+youtube+and+%22preschool%22+and+%22songs%22&hl=en&as_sdt=0.5&as_ylo=2022&as_yhi=2022.
- [40] S. Bardakci, “Exploring high school students’ educational use of YouTube,” *International Review of Research in Open and Distance Learning*, vol. 20, no. 2, 2019.
- [41] H. O. Alwehaibi, “The impact of using youtube in EFL classroom on enhancing EFL students’ content learning,”

- 2015, <https://www.clutejournals.com/index.php/TLC/article/view/9182/9203>.
- [42] Y. K. S. P. Nanang Sahriana, "Perception of preschoolers (3–7 Years) on usage of youtube in semarang," *Advances in Social Science, Education and Humanities Research*, vol. 249, pp. 27–33, 2018.
- [43] H. Norasyikin and Z. Faridah, "Effect of Ficus Deltoidea leaves on glycolytic enzymes in liver of normal and streptozotocin-induced diabetic rats," *Journal of Natural Products*, vol. 5, no. 4, pp. 162–166, 2022.
- [44] R. D. Pratiwi, L. Handoyo, S. N. Romlah, and T. Rohaeti, *Psychosocial Development of Children Addicted Versus Not Addicted to Smartphones*, pp. 354–361, KnE Life Sciences, 2022.
- [45] G. Gauthier, "My child doesn't watch youtube- and yours shouldn't, either," 2022, <https://medium.com/frazzled/my-child-doesnt-watch-youtube-63b6aa3ab8db>.
- [46] N. Zomer and R. Kay, "Technology use in early childhood education: a review of literature," *Journal of Educational Informatics*, vol. 1, pp. 1–25, 2016.
- [47] N. D. S. Chetty, L. Handayani, N. A. Binti Sahabudin et al., "Learning styles and teaching styles determine students' academic performances," *International Journal of Evaluation and Research in Education*, vol. 8, no. 4, pp. 610–615, 2019.