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The Use of ICT in Thirukkural Teaching and Facilitation

Kartheges Ponniah^{1,*}, Ilangkumaran Sivanadhan¹, Muniswaran Kumar¹, Pooveneswaran Nadarajan², Aigul Akhmetova³

¹ Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris, Tanjong Malim, Malaysia

² Language Centre, Universiti Pendidikan Sultan Idris, Tanjong Malim, Malaysia

³ Abai Kazakh National Pedagogical University, Almaty, Kazakhstan

Abstract: This study aims to analyze the use of ICT in the teaching and facilitating of Thirukkural. In this era of globalization, 21st-century learning and teaching are very important for students. The current trend has led the Education Ministry of Malaysia to produce various ICT platforms for utilisation by the teachers, students, parents, school administration, District Education Office, State Education Department, and Ministry Of Education. The use of ICT in the teaching and learning of Thirukkural can enhance the understanding and applicable in a student's daily life. ICT platforms produce students with high-level thinking skills. The TPACK theory was used as the basis of this research. This study was conducted qualitatively. The researcher used questionnaires and conducted interviews with the Tamil language teachers from selected schools to obtain good research findings. Findings of this study showed that from 12 teachers, 30% of them actively used ICT in teaching and facilitation of Thirukkural. Another 30% used the ICT facilities in teaching and learning of Thirukkural on a moderate level. The study also revealed that 50% of the respondents were not very competent and did not effectively use ICT in the teaching and facilitating of Thirukkural. Descriptive analysis showed that the need for sufficient and well-equipped ICT infrastructure and facilities must also be addressed by the relevant parties, mainly on technical support, administrative roles, and encouragement from the MOE. According to TPACK theory, the aspects of pedagogical skills and ICT skills coherently influence students' progress; however, despite being in the 21st century, the usage of these skills has been shallow among Tamil language teachers. The basic use of ICT, such as PowerPoint, should be applied as an in-house course to teachers to be included in the teaching of Thirukkural. These aspects are very important to objectify this information transformation process.

Keywords: Thirukkural, Information and Communication Technology, Frog Virtual Learning Environment, Teaching and Learning, Facilitation, Google Classroom.

信息技术在蒂鲁库拉尔教学和促进中的使用

摘要: 本研究旨在分析信息和通信技术在蒂鲁库拉尔的教学和促进中的使用。在这个全球化的时代, 21世纪的学与教对学生来说非常重要。目前的趋势已促使马来西亚教育部制作各种信息和通信技术平台, 供教师、学生、家长、学校行政部门、地区教育办公室、国家教育部和教育部使用。在蒂鲁库拉尔的教学和学习中使用信息和通信技术可以增强学生在日常生活中的理解 and 应用。信息和通信技术平台培养具有高水平思维技能的学生。数据包理论被用作本研究的基础。这项研究是定性进行的。研究人员使用问卷调查并与选定学校的泰米尔语教师进行了访谈, 以获得良好的研究结果。这项研究的结果表明, 在 12 名教师中, 30% 的教师积极使用信息和通信技术进行蒂鲁库拉尔的教学和促进。另外 30% 的人中等程度地在蒂鲁库拉尔的教学和学习中使用了信息和通信技术设施。该研究还显示, 50% 的受访者不是很能干, 也没有在蒂鲁库拉尔的教学和促进中有效地使用信息和通信技术。描述性分析表明

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About the authors: Kartheges Ponniah, Ilangkumaran Sivanadhan, Muniswaran Kumar, Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris, Tanjong Malim, Malaysia; Pooveneswaran Nadarajan, Language Centre, Universiti Pendidikan Sultan Idris, Tanjong Malim, Malaysia; Aigul Akhmetova, Abai Kazakh National Pedagogical University, Almaty, Kazakhstan

Corresponding author Kartheges Ponniah, kartheges@fbk.upsi.edu.my

，相关各方还必须解决对充足和装备精良的信息和通信技术基础设施和设施的需求，主要是技术支持、行政角色和教育部的鼓励。根据数据包理论，教学技能和信息和通信技术技能的方面连贯地影响学生的进步；然而，尽管已进入21世纪，但泰米尔语教师对这些技能的使用却很肤浅。信息和通信技术的基本使用，例如微软幻灯片软件，应作为内部课程应用于教师，以纳入蒂鲁库拉尔的教学。这些方面对于将这个信息转换过程客观化非常重要。

关键词：蒂鲁库拉尔，信息和通信技术，青蛙虚拟学习环境，教学和学习，促进，谷歌课堂。

1. Introduction

The development of Information and Communication Technology (ICT) has greatly influenced today's culture. This technology influences the way young people play, socialise and communicate [1]. It has also made a huge impact on the education system [2]. Recognising this, the Ministry of Education Malaysia (MOE) has taken proactive steps in shaping new changes in the education system in line with current technological developments [3]. A new initiative to ensure the school's concept of preservation, MOE has introduced an Integrated Learning platform known as the Frog Virtual Learning Environment (Frog VLE). In this regard, almost all schools in Malaysia (nearly 10,000 schools) have been provided with ICT facilities (Project 1BestariNet) to actualise this initiative. On 30th June 2019, 1BestariNet service was terminated. Therefore, MOE has decided to use a new learning platform, Google Classroom, as an ICT replacement after the 1BestariNet Phase 2 service contract [4].

Google Classroom is a free internet service developed by Google to facilitate online learning and paperless assignments. According to the TPACK theory, the use of ICT and the implementation of quality pedagogy can attract students' interest in understanding their lessons in a wholesome manner. The combination of ICT and pedagogical skills has been instilled in teachers through courses in teaching institutes. However, problems in using ICT in schools have led to the failure of teachers in completely using ICT in their teaching methods. This study will explain the views and implementation of ICT in classroom teaching and learning, especially in the Tamil language teaching focused on Thirukkural components. Thirukkural conveys the moral and human values of harmonious human life. The values, morals, and philosophies of Thirukkural teaching are acknowledged across all the religions and cultures of the world community [5]. Given the importance of learning Thirukkural leaflets in our lives, the Ministry of Education has required National Type Tamil School (SJKT) students to study them through the Tamil language syllabus. National Type Tamil School

students study 30 Thirukkural leaflets at their primary school level. Teaching and facilitating techniques play a very important role in understanding and applying Thirukkural teaching [6].

To date, Thirukkural teaching has traditionally been a way of memorizing and understanding its meaning and does not have a profound effect on its practice in everyday life [7]. Tamil teachers need to explore and apply the latest teaching techniques in the teaching process to overcome this. If Thirukkural is taught using ICT in the classroom, the effectiveness of Thirukkural learning can be seen from the students who study it. They can think and act well by refining the meaning of Thirukkural leaflets. The use of ICT in teaching and facilitating can have a positive impact on both students and teachers. The attitude, confidence, and efficacy of Tamil teachers can help facilitate the process of increasing the use of ICT in classroom teaching and learning. The application of ICT in Thirukkural facilitation and learning and the development of world-class education will improve student understanding and make learning more interesting.

Besides, this study intends to identify the level of usage for ICT programs and students' interest in Thirukkural learning and facilitation in the National Type Tamil Schools. ICT has been introduced at all levels by the Malaysian Ministry of Education. However, its level of use, especially in Tamil subjects, is found to be very low. Problems such as lack of ICT facilities, time constraints, incompetencies, and so on causes the use of ICT is not emphasized during teaching and facilitation of Tamil language learning. According to teachers, ICT is not compulsory to be used as a teaching aid, but it is recommended [8]. Its use is highly limited in schools [9]. Therefore, Tamil language teachers need to use ICT at a maximum level to attract students to read better and understand Thirukkural easily.

2. Background of the Study

The use of ICT in the classroom in western countries has been very effective over the past 30 years [10]. According to Gurusamy and Thambu [11], students today are very active in the textual landscape.

They also interact and play in various ways, such as computer games, mobile phones, and virtual worlds. Therefore, the use of ICT in teaching and facilitation enables students to understand, memorize and interpret each other creatively and innovatively without relying only on teachers' teaching methods in schools. ICT is not just available in the classroom, which enables students to continue outside the classroom at any time. Therefore, all students will engage in the learning environment that they enjoy [12], [13], [14].

The Malaysian Education Development Plan 2013-2025, introduced by the Ministry of Education Malaysia (MOE), has set the goal of utilizing ICT in teaching and learning. In line with this, the Ministry is striving to leverage ICT to improve the way education is delivered. Ever since the internet was introduced to the education system in Malaysia, a lot has changed. It has transformed the lives of communities and the public around the world in their use in education. Internet usage continues to grow over time [15]. Virtual learning, an Internet-based teaching and learning process, is also a growing part of the ICT era [16]. However, this situation cannot be fully implemented in rural schools in Malaysia.

In terms of Thirukkural learning, the teaching and facilitation method has not been studied. In the context of learning and facilitation, Thirukkural should generate a high level of thinking [17]. Lack of high-level thinking in this context has been a problem in understanding the meaning and value of Thirukkural among students [18]. If the reader can understand the implied meaning conveyed in the Thirukkural work, it can help produce a person with high moral values and a high degree of maturity [19].

3. Problem Statement

This study was conducted based on identifying the level of ICT usage among Tamil teachers in teaching and facilitating Thirukkural in selected National Type Tamil Schools. Most of the Tamil language teachers are not very effective in using ICT to teach a certain aspect of a subject, for example, the Thirukkural aspect for the Tamil language. The use of ICT has deteriorated among Tamil teachers as some of the obstacles in creating a medium for their students [20]. One of the problems faced by Tamil teachers in the production of Tamil writings (font problems) in educational ICT applications. The applications provided by MOE are not fully multilingual at times. In addition to that, Tamil language resources and materials for most of the components are highly limited on the internet.

Furthermore, the broadband network is very weak in rural areas. Therefore many students are unable to access the internet for learning purposes. Teachers are forced to use their mobile data for teaching purposes. Moreover, the use of gadgets is also a challenge to learn as students have to rely on their parents' gadgets. Sometimes, parents do not use gadgets that can be used

for learning as the software used by teachers during the covid-19 pandemic is not supported. That is a serious issue for most educators and academicians and an issue for the MOE, which also faces a similar problem.

Moreover, looking at the current situation, Thirukkural learning and facilitation effectiveness is doubtful as students do not show maturity in their thinking [8]. It can be seen more clearly when students do not respond constructively when Thirukkural discussions are conducted in the classroom (source: Pilot study of five National Type Tamil schools). Thirukkural teaching has traditionally been to memorize and understand its meaning without embedding its practice in daily lives [21]. To overcome this, educators must explore and apply the latest teaching techniques in the teaching process. The holistic teaching of Thirukkural is still under-appreciated by National Type Tamil School teachers [19]. That is because traditional teaching methods still influence the Thirukkural teaching pattern. Many Tamil teachers still widely use the storytelling approach in Thirukkural teaching. There is also a group of teachers who teach by direct teaching method. Those teachers teach the Thirukkural leaflets and their meanings based on the Graduate Curriculum Division's grammar and literature handbook. They do not have in-depth discussions on the Thirukkural leaflets [17]. That indicates that the understanding and emphasis of critical thinking in Thirukkural teaching and learning is poorly practiced in the National Type Tamil Schools.

If ICT can be used regularly and systematically in teaching and facilitating Thirukkural, it will be more effective and help achieve learning objectives. To get a clearer picture of the application of ICT in teaching and facilitating Thirukkural, a systematic study on the level of ICT usage among teachers and students corresponding to teaching and facilitating through ICT is important [22]. Therefore, this study can help provide an effective exposure to ICT in the Thirukkural teaching and learning process.

4. Research Objectives

The article aims to identify teachers' level of ICT usage in teaching and facilitating Thirukkural in National Type Tamil School.

5. Significance of the Study

The results of this study are important to provide a clear picture of the use of ICT such as Frog VLE, Google Classroom, WhatsApp, and Telegram in teaching and facilitating Thirukkural in National Type Tamil School. That can assist numerous parties, such as educationists that refer and take action based on the study's findings to fulfill the country's aspiration to produce well-educated and high-achieving students. That enables Thirukkural that prioritize perfect living arrangements to help students practice its teachings. This condition can only be achieved with effective

Thirukkural teaching through effective teaching and facilitation during the process. Teachers are also aware that ICT is very effective in teaching and facilitating Thirukkural in schools. They can also identify weaknesses in the use of ICT in learning and facilitating. Students and teachers will benefit greatly from the successful implementation of teaching and facilitating. This study is also an important document to find out the current situation on ICT usage in teaching and facilitating Thirukkural in National Type Tamil School for future references by researchers and educators.

6. Research Design

This study follows a qualitative research design. The TPACK theory was used as the basis of this study.

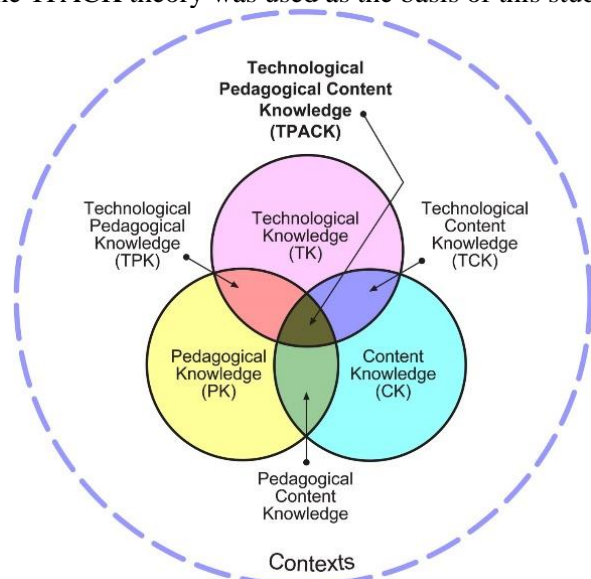


Fig. 1 Technological Pedagogical Content Knowledge (TPACK)

Questionnaires were distributed, and an interview was carried out with selected Tamil school teachers. Teachers were asked to provide feedback on the knowledge level of ICT software, especially in the application of Thirukkural teaching and facilitating. Information on ICT usage efficiency, ICT courses, In-house courses, Tamil pedagogical courses (Ceiyulum Moliyanium), frequency of ICT usage in teaching and facilitating the Tamil Language, and so on were gathered from teachers the level of understanding regarding the use of ICT.

7. Research Participants

Two National Type Tamil Schools from the state of Kedah were used as research sites. Of the 54 National Type Tamil Schools in Kedah, researchers selected only 2 random schools, one in the city and one in the rural area. 12 Tamil teachers teaching Year 1 to Year 6 (from both schools) were selected as interviewees in this study. Interview protocols are used as instruments for collecting qualitative data. The content validity of the instrument was determined by comments and criticism from experts in the field.

8. Research Findings

Here are the questions posed to the teachers and the findings of the survey based on the responses of the teachers:

Question 1: Does the lesson plan designed by the teacher states the elements of ICT that will be implemented?

Surveys from the questionnaire form show that three teachers representing 25% of teachers actively use ICT elements in the planned lesson planning. Besides that, 25% percent of teachers use elements of ICT in the planning of teaching at the medium level. Half of the teachers have considered passive respondents who used ICT elements in their teaching planning.

Question 2: In your opinion, is the lesson designed suitable to implement ICT-based teaching and facilitation?

Based on the 12 teachers in this study, all acknowledged that strategic teaching and planning would positively impact. Teachers say that every teacher who uses ICT in teaching and facilitation should be aware of the existing infrastructure and alternate plans in case of any problems.

Here is Respondent A1's view in answering this question:

"What is planned is used by teachers, but the infrastructure does not benefit all teachers at times".

Question 3: Can the teacher explain the learning methods (example: project-based learning) teachers use in applying ICT?

It is found that teachers in their 30s like to apply various ICT methods in the teaching and facilitation process such as Kahoot, Quizizz, Newsmaker, Videomaker, and so on. Teachers over the age of 50 are having difficulty in using these methods in teaching and facilitation. They prefer to use traditional methods such as quizzes, slide presentations, and videos according to the school's administration and teacher performance requirements.

Here are the respondents' views in answering this question:

(Respondent A2) "I have always loved using ICT in the teaching and facilitation process; it does not only make it easier for teachers but students also love using ICT and take part actively in the learning process compared to traditional teaching techniques."

(Respondent A9) "I prefer to use easier methods such as slide presentation, YouTube.... I'm not familiar with things like complicated extended usage or project-based learning. But I once asked students to type and upload slide presentations in Google Classroom. That is because I expect the help of my fellow teachers in handling ICT-assisted T&L."

Question 4: What types of teaching kits/teaching aids do you use in teaching and facilitating Thirukkural?

Nine teachers, who make up 75% of the participants, use only videos and slides to facilitate the process. Besides, they practice traditional methods such as memorization, role-playing, situation writing, and so on. These teachers also use flashcards as teaching aids. Most of the respondents only used the Curriculum Development Division handbook as a guide. That can be seen from the response given by respondent A8.

Here are the respondents' views in answering this question:

(Respondent A8) "While we were at the teacher training educational institution, education was more focused on traditional teaching is managed. There is no sophisticated technology and application that is increasingly in use today. We do not use ICT very often and often forget even when someone is teaching us. That is probably because we rarely use what we learn in terms of ICT usage".

Question 5: Can the teacher explain what form of assessment the teacher uses ICT for teaching and facilitating Thirukkural?

50% of the active and moderately active participants in using ICT in teaching and facilitating Thirukkural usually give assessments in the form of a quiz, fill in the blanks, build situations using Thirukkural, match Thirukkural with appropriate meaning, multiple-choice questions, and comprehension questions. The teachers created the questions in the "Google Classroom" platform, VLE FROG, Kahoot, Quizizz, and other applications. Students, parents, and the school administration can also learn about student performance and the position of each assessment at various levels and standards.

(Respondent A9) "I don't prefer using complex ICT methods while teaching through ICT. My PowerPoint slides are very basic compared to others as I'm not well versed in using animation and sound effects available in the power-point software itself. Sometimes students are better in using ICT compared to me."

Question 6: In the teacher's opinion, what factors play a role in using ICT for teaching and facilitating Thirukkural?

All teachers stated that the main factor was the infrastructure availability at each school. It was inadequate, and that constrained the use of ICT during teaching and facilitating. In addition, the teaching and facilitating period also plays an important role in the use of ICT. Six teachers, of which is 50% of the sample participants, use only existing teaching aids. They do not try to attract students during the teaching and facilitation of Thirukkural. Another six teachers said that students do not understand how to use ICT applications properly. Students also have the trouble of having home computers/laptops due to financial difficulties. Parents, however, do not understand the difficulties and necessities of today's technologically advanced education and refuse to allow their children to be exposed to it often.

Here are the respondents' views in answering this question:

(Respondent A6) "This is a complaint we get from parents we meet and interact with; they are not good at understanding the use of ICT, but they are afraid that their children will not concentrate on learning when stuck with sensitive and immoral applications. They feel bad about using this system".

(Respondent A12) "As we know, there are three categories of students that are excellent, medium, and low. Excellent and medium category students are easy to teach and train. Still, low-level students need to be deeply committed to understanding the topics that are taught consistently, and it can be difficult to teach using ICT because low-level students are not good at handling ICT applications".

Question 7: In the teacher's opinion, is teaching using ICT effective for students?

All 12 teachers expressed the same answer, 'Yes' as a whole. They say that students show fun during teaching and learning. Students are also actively involved in all activities provided by teachers and respond to teaching and facilitating. The use of ICT successfully motivates students towards positive teaching and facilitating process. High student engagement is a great source of support for teachers in their classroom management.

Question 8: Can the teacher explain the main requirement for teachers to apply ICT in their teaching and facilitating of Thirukkural?

All schools need to provide ICT infrastructure in every classroom to optimize their teaching and facilitating during a lesson. Current conditions indicate that some schools only provide ICT requirements in specialized rooms. Such a situation creates a lot of complexity in sharing many subjects. The Ministry of Education should also provide a Tamil language education website. It will make it easier for them to obtain a source for teaching and facilitating. Now teachers say they are having a hard time building creative teaching aid using ICT. The school management should emphasize the preparation of students using Tamil in ICT. The extra time needed to be given due to the use of ICT and students' movement to the special room took considerable time.

Question 9: Can the teacher tell what problems the teacher encountered in using ICT in teaching and facilitating Thirukkural?

6 teachers (50%) are not proficient in ICT. Their workload was immense, that they cannot pay attention to the use of ICT in teaching and facilitating Thirukkural. Teachers have no new idea to produce creative teaching aids to teach Thirukkural. Students are also not proficient in using the Tamil language in ICT. They also do not have basic computer facilities to carry on with the housework and training.

Here are the respondents' views in answering this question:

(Respondent A7) "The field of education is now encompassing a wide range of tasks that are not so focused on (main core business) as much as providing files, providing raw data, and so on. That causes teachers to be very depressed and ineffective in providing creative teaching aids and innovative teaching and facilitating, which is our main work."

Question 10: Do teachers need any support system for applying ICT in teaching and facilitating Thirukkural at the school level?

All teachers surveyed said that Tamil language teachers need regular ICT training and should be given attention by the school administration. The MOE needs to create a website that helps Tamil Language teaching and facilitating cover all language aspects such as listening, speaking, reading, writing, and grammar. The District Committee on Tamil Language subject should develop a sharing network of teaching aids, module training, and innovative ideas among Tamil teachers.

9. Conclusion

The current technological development and the diversity of functions should be the catalyst for transforming the educational system in Malaysia. Therefore, teachers need to have extensive knowledge of information technology, especially in the use of ICT. This study had discussed the level of ICT usage by teachers in teaching and facilitating Thirukkural in National Type Tamil Schools. All teachers acknowledged that every teacher who used ICT in teaching and facilitating should be aware of the existing infrastructure and alternate plans in case of any problems. However, most teachers still adhere to traditional methods. At the same time, the technical aspects appear to be the major issues and stigmas in hindering successful implementation of the learning process using ICT in teaching and facilitating Thirukkural. Therefore, the need for sufficient and well-equipped ICT infrastructure and facilities must also be addressed by the relevant parties, mainly on technical support, administrative roles, and encouragement from the MOE. The findings of this study show that Tamil Language teachers can use ICT in their teaching methods. However, there are still teachers who give excuses such as age, lack of ICT knowledge and gadgets, and internet issues as reasons that influence ICT usage in their teaching. However, these issues can be addressed if these teachers are willing to make an effort to improve their ICT skills. The government has created various opportunities to improve teaching skills across the country. If these teachers make the best out of the opportunities provided by the government, such problems can be easily addressed.

According to the TPACK theory, the combination of all three components, pedagogical skills, ICT, and content knowledge, is essential in influencing a student's progress. In this era of the covid-19

pandemic, students become considerably proficient in gadgets, especially smartphones. It has been a year since almost the entire mode of teaching was implemented through ICT. Teachers were found to use only the most basic ICT skills in teaching Thirukkural. Teachers can implement teaching using various synchronization and asynchronous methods. However, it was found that many Tamil teachers only practice teaching through Google Meet (Face-to-face teaching) and google classroom by uploading several worksheets. The approach of teachers should be more effective and can be further diversified. At the same time, teachers who face internet access problems can use free software such as power-point by improving the way it is presented. The MOE also needs to provide in-house courses such as diversifying basic software such as PowerPoint to be implemented in teaching. If teachers carry out these measures, then teaching in schools can be patterned in student-centered learning compared to teacher-centered learning, as preferred by teachers. Suppose Tamil language teachers implement these efforts in teaching the Thirukkural. In that case, the conditions suggested by the theoretical philosophy of TPACK can produce a generation that can seek knowledge through their effort.

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References

- [1] KHATOONY S., & NEZHADMEHR, M. EFL Teachers' Challenges in the Integration of Technology for Online Classrooms During Coronavirus (COVID-19) Pandemic in Iran. *Asian Journal of English Language and Pedagogy*, 2020, 8: 1-16. <https://doi.org/10.37134/ajelp.vol8.sp.1.2020>
- [2] ABILMAZHINOVA O. S., JANBUBEKOVA M. Z., BELENKO O. G., ABISHEVA S. S., and KASSYMOVA G. K. Development of Creative Abilities of Students Using Art Technologies in Higher Education. *Elementary Education Online*, 2021, 20(1): 803-812. <https://doi.org/10.17051/ilkonline.2021.01.76>
- [3] SHANMUGAM K., & BALAKRISHNAN B. Microsoft Power Point as a Presentation Tool for Teaching and Facilitating Science in Rural Tamil Schools in Perak [Perisian Microsoft Power Point Sebagai Peranti Persembahan Semasa PDPC Sains di SJK(T) Luar Bandar di Negeri Perak]. *Muallim Journal of Social Sciences and Humanities*, 2020, 4(1): 49-65. <https://doi.org/10.33306/mjssh/55>
- [4] ISMAIL N., HUSSIN S., and ABOSWIDER R. O. S. Examining the Mechanisms Utilized by CML Web-Logging Instructors in ESL Classroom: A Case Study. *Asian Journal of English Language and Pedagogy*, 2019, 7(2): 31-39. <https://doi.org/10.37134/ajelp.vol7.2.4.2019>

- [5] SUBAHSHINI J. The Thoughts of Thirukkural in Pattukkottai Kalyana Sundaram's Tamil Movies Songs. *Muallim Journal of Social Sciences and Humanities*, 2018, 2(1): 84-93. <https://www.mjsshonline.com/index.php/journal/article/view/21>
- [6] POONGKODI M. Analysis of the Level Critical Thinking among Students through Thirukkural Essay. *Muallim Journal of Social Sciences and Humanities*, 2017, 1(1): 39-50. <https://www.mjsshonline.com/index.php/journal/article/view/5>
- [7] SATHIYA M. Application of Maslow's Theory of Economic Safety Needs in Thirukkural. *Muallim Journal of Social Sciences and Humanities*, 2018, 2(1): 53-63. <https://www.mjsshonline.com/index.php/journal/article/view/18>
- [8] PONNIAH K., SIVANADHAN I., KUMAR M., & NADARAJAN P. Implementation of the 21st-Century Learning in Learning and Facilitation of Thirukkural in Tamil Primary Schools. *International Journal of Advanced and Applied Sciences*, 2019, 6(1): 43-50. <https://doi.org/10.21833/ijaas.2019.01.006>
- [9] RAMALINGAM S., MANIAM M., & KARUPPANAN G. Parents Involvement in Selangor Tamil School Students' Academic Achievement [Penglibatan Ibu Bapa Dalam Pencapaian Akademik Pelajar Sekolah Tamil di Selangor]. *Muallim Journal of Social Sciences and Humanities*, 2019, 3(3): 308-333. <https://doi.org/10.33306/mjssh24>
- [10] MOHAMED I. F., & KHALIB T. M. T. N. The Use of ICT in the Learning of Oral Interaction [Penggunaan ICT dalam pembelajaran interaksi lisan]. *Muallim Journal of Social Sciences and Humanities*, 2020, 4(2): 137-149. <https://doi.org/10.33306/mjssh/68>
- [11] GURUSAMY V., & THAMBU N. Development of Moral Motivation through Acting Activities in Teaching and Learning of Moral Education in Secondary Schools [Perkembangan Motivasi Moral Murid Melalui Aktiviti Lakonan Dalam Pengajaran dan Pembelajaran Pendidikan Moral di Sekolah Menengah]. *Muallim Journal of Social Sciences and Humanities*, 2018, 2(4): 234-250. <https://www.mjsshonline.com/index.php/journal/article/view/70>
- [12] KASSYMOVA G., AKHMETOVA A., BAIBEKOVA M., KALNIYAZOVA A., MAZHINOV B., and MUSSINA S. E-Learning Environments and Problem-Based Learning. *International Journal of Advanced Science and Technology*, 2020, 29(7): 346-356. <http://serisc.org/journals/index.php/IJAST/article/view/9447>
- [13] AHMAD N. Z., & AL MUHSIN M. A. Analisis Keperluan Bahasa Arab Untuk Pegawai Syariah di Bank-Bank Islam di Malaysia: Idea Untuk Pendidikan 4.0. *Muallim Journal of Social Sciences and Humanities*, 2019, 3(2): 246-257. <https://doi.org/10.33306/mjssh18>
- [14] AZIZAN C. S. N., & MOHAMAD N. N. Teachers' Perspectives on Online Learning Through Home Based Learning (HBL) Approach During the COVID-19 Pandemic Period [Pandangan Guru Terhadap Pembelajaran Dalam Talian Melalui Pendekatan Home Based Learning (HBL) Semasa Tempoh Pandemik COVID-19]. *PENDETA: Journal of Malay Language, Education and Literature*, 2020, 11: 46-57. <https://doi.org/10.37134/pendeta.vol11.edisikhas.4.2020>
- [15] MOTTAN K. Impact of Kinaesthetic Gamification on Disruptive Behaviour among Children with Attention Deficit Disorder/Attention Deficit Hyperactive Disorder (ADD/ADHD) in Primary School Learning Disabilities Program. *Muallim Journal of Social Sciences and Humanities*, 2019, 3(4): 398-405. <https://doi.org/10.33306/mjssh/30>
- [16] ABDUL A. F. A., & ABD RAHMAN F. Availability and Requirements Study Highlights Malay Teachers in Implementing Higher Order Thinking Skills (HOTS) in Classroom [Sorotan Kajian Kesediaan dan Keperluan Guru Bahasa Melayu Dalam Pelaksanaan Kemahiran Berfikir Aras Tinggi (KBAT) di Bilik Darjah]. *PENDETA: Journal of Malay Language, Education and Literature*, 2018, 9: 80-101. <https://doi.org/10.37134/pendeta.vol9.7.2018>
- [17] PONNIAH K., KUMAR M., MONEYAM S., and SIVANADHAN I. The Teaching of Thirukkural Based on HOTS Among the Students of Tamil Primary Schools in the State of Perak. *International Journal of Advanced and Applied Sciences*, 2019, 6(2): 94-101. <https://doi.org/10.21833/ijaas.2019.02.014>
- [18] KARTHEGES P. *Critical Thinking and Its Practice in Tamil Educated Indian Community in Malaysia Based on Thirukkural Text [Pemikiran Kritis dan Amalannya Dalam Masyarakat India Berpendidikan Tamil di Malaysia Berpandukan Teks Thirukkural]*. University of Malaya, Kuala Lumpur, Malaysia, 2017.
- [19] MAGESWARI T., & KARTHEGES P. Thirukkural Unarttum Saanroor Nadpu [Friendship in Thirukkural]. *Pannokkup Paarvayil Tamil Mozhiyum Tamil Ilakkiyanggalum*. Kongunadu Arts and Science College, Coibatore, India, 2019: 70-74.
- [20] SHANMUGAM K., & BALAKRISHNAN B. Designing an ICT Guiding Framework for Science Teachers in Rural Tamil Schools in Perak [Pembinaan Kerangka Panduan ICT Bagi Mata Pelajaran Sains Untuk Guru-Guru SJK(T) di Luar Bandar di Negeri Perak]. *Muallim Journal of Social Sciences and Humanities*, 2019, 3(4): 441-458. <https://doi.org/10.33306/mjssh/34>
- [21] KARTHEGES P. Thirukkural Urarthum Manitha Aalumai [Human Personality in Thirukkural]. *Ilakkiyamum samuga ariviyalum*. Tamil Linguistics Association, Kuala Lumpur, Malaysia, 2018: 77-86.
- [22] VASUDEVAN L. Information and Communication Technology in Tamil Teaching & Learning. *Muallim Journal of Social Sciences and Humanities*, 2017, 1(1): 31-38. <https://www.mjsshonline.com/index.php/journal/article/view/4>

参考文献:

- [1] KHATOONY S., & NEZHADMEHR, M. 伊朗冠状病毒大流行期间英语外语教师在在线课堂技术整合方面的挑战。亚洲英语语言与教育学杂志, 2020, 8: 1-16. <https://doi.org/10.37134/ajelp.vol8.sp.1.2020>
- [2] ABILMAZHINOVA O. S., JANBUBEKOVA M. Z., BELENKO O. G., ABISHEVA S. S., 和 KASSYMOVA G. K. 在高等教育中使用艺术技术培养学生的创造能力。基础教育在线, 2021, 20(1): 803-812. <https://doi.org/10.17051/ilkonline.2021.01.76>
- [3] SHANMUGAM K., & BALAKRISHNAN B. 微软电源点作为霹靂州泰米尔乡村学校教学和促进科学

- 的演示工具. 穆阿林社会科学与人文杂志, 2020, 4(1): 49-65. <https://doi.org/10.33306/mjssh/55>
- [4] ISMAIL N., HUSSIN S., 和 ABOSWIDER R. O. S. 检查计算机中介学习网络记录教师在英语作为第二语言课堂中使用的机制: 案例研究. 亚洲英语语言与教育学杂志, 2019, 7(2): 31-39. <https://doi.org/10.37134/ajelp.vol7.2.4.2019>
- [5] SUBAHSHINI J. 帕图科泰卡利亚娜圣达拉姆的泰米尔电影歌曲中蒂鲁库拉尔的想法. 穆阿林社会科学与人文杂志, 2018, 2(1): 84-93. <https://www.mjsshonline.com/index.php/journal/article/view/21>
- [6] POONGKODI M. 通过蒂鲁库拉尔随笔分析学生水平批判性思维. 穆阿林社会科学与人文杂志, 2017, 1(1): 39-50. <https://www.mjsshonline.com/index.php/journal/article/view/5>
- [7] SATHIYA M. 马斯洛经济安全需求理论在蒂鲁库拉尔中的应用. 穆阿林社会科学与人文杂志, 2018, 2(1): 53-63. <https://www.mjsshonline.com/index.php/journal/article/view/18>
- [8] PONNIAH K., SIVANADHAN I., KUMAR M., & NADARAJAN P. 泰米尔小学蒂鲁库拉尔学习与促进中21世纪学习的实施. 国际先进与应用科学杂志, 2019, 6(1): 43-50. <https://doi.org/10.21833/ijaas.2019.01.006>
- [9] RAMALINGAM S., MANIAM M., & KARUPPANAN G. 家长参与雪兰莪泰米尔学校学生的学业成就. 穆阿林社会科学与人文杂志, 2019, 3(3): 308-333. <https://doi.org/10.33306/mjssh24>
- [10] MOHAMED I. F., & KHALIB T. M. T. N. 信息通信技术在口语互动学习中的应用. 穆阿林社会科学与人文杂志, 2020, 4(2): 137-149. <https://doi.org/10.33306/mjssh/68>
- [11] GURUSAMY V., & THAMBU N. 透过中学德育教与学中的行动活动发展德育动机. 穆阿林社会科学与人文杂志, 2018, 2(4): 234-250. <https://www.mjsshonline.com/index.php/journal/article/view/70>
- [12] KASSYMOVA G., AKHMETOVA A., BAIBEKOVA M., KALNIYAZOVA A., MAZHINOV B., 和 MUSSINA S. 电子学习环境和基于问题的学习. 国际先进科学技术杂志, 2020, 29(7): 346-356. <http://sersc.org/journals/index.php/IJAST/article/view/9447>
- [13] AHMAD N. Z., & AL MUHSIN M. A. 分析马来西亚伊斯兰银行伊斯兰教法官对阿拉伯语的需求: 教育理念4.0. 穆阿林社会科学与人文杂志, 2019, 3(2): 246-257. <https://doi.org/10.33306/mjssh18>
- [14] AZIZAN C. S. N., & MOHAMAD N. N. 在新冠肺炎大流行期间, 教师对通过家庭学习方法进行在线学习的看法. 牧师: 马来语、教育和文学杂志, 2020, 11: 46-57. <https://doi.org/10.37134/pendeta.vol11.edisikhas.4.2020>
- [15] MOTTAN K. 动觉游戏化对小学学习障碍计划中注意力缺陷障碍/注意力缺陷多动障碍儿童破坏性行为的影响. 穆阿林社会科学与人文杂志, 2019, 3(4): 398-405. <https://doi.org/10.33306/mjssh/30>
- [16] ABDUL A. F. A., & ABD RAHMAN F. 可用性和要求研究强调马来教师在课堂上实施高级思维技能. 牧师: 马来语、教育和文学杂志, 2018, 9: 80-101. <https://doi.org/10.37134/pendeta.vol9.7.2018>
- [17] PONNIAH K., KUMAR M., MONEYAM S., 和 SIVANADHAN I. 霹靂州泰米尔小学学生基于高阶思维技能的蒂鲁库拉尔教学. 国际先进与应用科学杂志, 2019, 6(2): 94-101. <https://doi.org/10.21833/ijaas.2019.02.014>
- [18] KARTHEGES P. 基于蒂鲁库拉尔文本的马来西亚泰米尔语教育印度社区的批判性思维及其实践. 马来西亚吉隆坡马来亚大学, 2017.
- [19] MAGESWARI T., & KARTHEGES P. 蒂鲁库拉尔实现桑达鲁电流. 从多方面的角度看泰米尔语和泰米尔文学. 印度哥印拜陀孔古纳杜艺术与科学学院, 2019: 70-74.
- [20] SHANMUGAM K., & BALAKRISHNAN B. 为霹靂州泰米尔乡村学校的科学教师设计信息和通信技术指导框架. 穆阿林社会科学与人文杂志, 2019, 3(4): 441-458. <https://doi.org/10.33306/mjssh/34>
- [21] KARTHEGES P. 蒂鲁库拉尔提升人的个性. 文学与社会科学. 泰米尔语语言学协会, 马来西亚吉隆坡, 2018: 77-86.
- [22] VASUDEVAN L. 泰米尔语教学中的信息和通信技术. 穆阿林社会科学与人文杂志, 2017, 1(1): 31-38. <https://www.mjsshonline.com/index.php/journal/article/view/4>