

# Performing Arts Student Attitude Towards Dance Games as A Thai Dance Training Tool

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**Abstract**— UNESCO aims to ensure a better protection of important Intangible Cultural Heritage (ICH) worldwide and create the awareness of their significance. In Southeast Asia, performing arts is known to be one of the richest and most valuable in ICH. Ministry of Education, Thailand has also enforced Thai dance knowledge into the basic education core curriculum A.D. 2008 under arts learning area. However, no technology has been engaging and involving in the learning process on Thai dance. The technology could be involved in teaching and learning process to engage the learning motivation of the student. This paper is focusing on the attitude of the Thai dance students towards the use of technology such as the dance games utilizing motion sensors for training and practising Thai dance movements based on the Thai dance curriculum.

**Keywords**— *intangible cultural heritage; performing arts; Thai dance; dance games; motion sensor; training; practising; Thai dance curriculum;*

## I. INTRODUCTION

The process of transferring the knowledge through generations is essential for humankind to be educated on our culture to preserve it from extinction. For one's culture to survive and be passed on through generations to come we need new techniques and processes to accurately transfer our knowledge to the next generation. Start by identifying the essential knowledge then capture the knowledge and store it in an appropriate organized manner. Hence, the knowledge must be transferred to the target group. This process works in a cycle and must keep repeating to ensure the existence of the current knowledge as well as the culture. The art of Thai dance has a long history and is one of the most valuable cultural heritage of Thailand. It is a priceless culture, rich in the variety of origins and unique in its own. Moreover, Thai dance has been playing a significant role in Thai culture as a ritual for a religious purpose. Different regions of the country have its own form of dance by classifying it under four major styles of dance according to a region. Since Thailand is in Southeast Asia which has a rich cultural heritage, Thai dance has been influenced by many other country cultures, but the central Thai dance is considered the national kind of dance which is rich in detail and delicate [1].

The art of Thai dance has been taught throughout the country for generations like in the national education curriculum. Even though not all the new generation experience how to perform Khon dance or Thai dramatic dance but the majority have learnt the Thai dance terminologies, for example; "Jeeb" or "Tangwong" which are part of the fundamental core in Thai dance movement [2]. The government have put a great effort to preserve the intangible cultural heritage in the education curriculum for the new generation. However, there is lack of the efficient tools and technology to help the process of teaching the new generation. Thus, most of the process of learning requires the presence of the teacher. This paper is focusing on the attitude of the Thai dance students toward the technology of the Thai dance training tool. Moreover, we will focus on the requirements and feedback suggested from users such as the Thai dance students to meet the requirement of the Thai dance curriculum from Chiang Mai College of Dramatic Art, Thailand and to also enhance the user motivation on learning Thai dance.

## II. LITERATURE REVIEW

### A. Thai Dance Curriculum

Thai dance has a long history since the Ayutthaya kingdom which took place in the seventeenth century, Khon is the one of the most well-known and was first recognized in the international level in 1693 in the "A New Historical Relation of The Kingdom of Siam" by Simon de la Loubère. He described Thai dance as "*The dancers are masked and armed, and represent rather a combat than a dance. And though everyone runs into high motions, and extravagant postures, they cease not continually to intermix some word.*" [1]. The arts of Thai dances have been passing on from generation to generation. Thai dance is a kind of performing arts which represents gestures, actions, behaviours of nature and mankind by expressing the emotion through performers to the audiences using terminologies and the body movements. There are three main steps in learning Thai dance according to Chiang Mai College of Dramatic Arts, Thailand. The first step, the students start to learn the theory, the meaning of posture terminologies and practising the movements which are

the jargon of Thai dance for specifying postures and movements since each detail of movement can have a significant and different meaning being communicated. For example, “Jeeb” is a defined posture terminology for hands and fingers movement where the tip of the thumb touches the inside of the first knuckle of the index finger and stretches out the other fingers tensely. The second step, after learning the meaning and practising the movement of each terminology, the students learn to combine terminologies together to express it as body language. The body language is a combination of postures, gestures, actions, and expressions of the character giving meaning and based on the situation. For example, the performer makes a “Jeeb” in front of his mouth, it means “smiling”. Similarly, each character has their own specific set of body language depending on their role and gender. The last step is to combine the body languages as an action for a Khon performance and a song performance. This paper is focusing on the first step, learning the meaning and practising terminologies according to Subject 21201: Khon Dance for Actor 1, the Basic curriculum from Chiang Mai College of Dramatic Arts A.D. 2008 [2].

### B. Kinect Technology and Education

Involving technology on dance education is becoming more and more on enhancing learners’ performance and assists learners to practice their body movement skill. Many studies focused on using Motion Sensor Device such the Microsoft Kinect for getting movement data and to create as software that utilizes this data to evaluate the performance. In 2011, Dimitrios used Microsoft Kinect device to record the Salsa dance movements into a dataset and developed an online interactive environments system for evaluating the real-time motion data by comparing it to the dataset. In addition, the system provides the visual feedback in a three-dimension virtual environment [3]. Another application provides a dance movement practice system by Zoe Marquarat et. al. called “Super Mirror” in 2012. The system used motion sensor of Kinect device to record the ballet dance movements by capturing live motion and giving real-time feedback to the dancers [4]. In 2013, the Gesture Recognition Algorithm had been developed by Sriparna Saha et. al. using the Kinect sensor to capture Indian Classical Dance Style. The result showed that the algorithm could accurately detect Indian dance movement [5].

To achieve such tacit knowledge, the learning progress are labelled step by step from the beginner level to the advanced level to achieve the learning objective. The progress develops over time to get a mastery skill. Involving Game-Based interactive technology to achieve the learning objective has been done by many researchers and the result have shown to effectively increase the motivation of the learner and an increase in their learning skills. Game-based interactive technology is an important element for learner development which provides an opportunity for the learner to play via simulated game environment to develop their thinking, planning, learning, and technical skills [6]. In 2011, Lian Loke et. al. used Labanotation system to record all the humanly

movement and display the movement based on movement-based interaction to identify a range of advantages and disadvantages for its potential use in game design. The system can also capture the surrounding environment of the performing stage [7]. In 2016, Ob-orm et. al. had developed Thai Dance Training Tool using the game-based interactive system to evaluate the dance movement. The tool is to compare data between motion capture data and real-time data capturing from Kinect motion sensor device and displays the result in average percentages and a grade of the user movement [8].

### C. Dancing Game

Learning through the dancing game is one of the many methods to approach the motivation of the learner and it will be more accurate if the system could generate the feedback on how to improve the learner’s performance skill. In 2011, Dimitrios Alexiadis et. al., has experimented on the Microsoft Kinect device to evaluate dance performances compared to a gold-standard performance and provide a 3D virtual environment for responding to the performer. The result is promising, depending on the data set that is compared to the real-time interaction in an online dance class [3]. In addition, comparing dance movement from the dance instruction video with a rhythm game interface by Emiko C. et. al. in 2012 had given the result of the game-inspired interface elements alone which is not a substitute for footage of a real human dancer. However, players preferred to use both forms of media instead [9]. In the same year, Choreographing the glitch study shows that a problem occurred with 3D gaming in a form of a glitch. This may lead to receiving inaccurate data of the real-time dance movement from the students. This problem occurs due to the environment such as the dance stage. Another factor that can confuse the computer is the unpredictable movement of the dancer [10]. In 2016, Ob-orm et. al. has purposed the system which evaluated the Thai dance movement called “Thai Dance Training Tool” using Kinect motion sensor device to capture real-time movement and comparing it with data set from the motion capture system [8].

## III. METHODOLOGY

Regarding the attitude of the Thai dance students towards using game-based interactive technology such as dancing games with motion sensors for training and practising Thai dance movement based of Thai dance curriculum from Chiang Mai College of Dramatic Arts, Thailand. The dance instructors were informed about the project to involve interactive technology into Thai dance class and interview them to get their feedback toward our idea of using the dancing game for training and practising Thai dance movements. The result was positively reflected from the answer and they would like to co-experiment on the Thai dance training tool in the Thai dance class. At first, the only concern issues are how-to evaluate a movement as it is difficult to transfer the dance instructor knowledge on assessment to the tool.

According to the Thai dance curriculum, the dance instructors point out the teaching process which has been

taught for a long time then the instructor demonstrates the dance terminologies and students would repeat the movements in the classroom without any tools or system to assist the instructor. Therefore, to correct the movement of each student it would take a lot of time. Besides, students must practice their dance by themselves, mostly with classmates or by practising in front of the mirror. The issue of misunderstanding the step usually occurs during the practise time, it may take a longer time for the instructor to repeat the same dance terminologies in every class. This causes the delay in learning and teaching Thai dance in the class due to the lack of efficiency. Therefore, the main target group is the Thai dance students at Chiang Mai College of Dramatic Arts, Thailand.

The questionnaire separated into four parts, the first is personal information, the second is the gaming experience, the third is the attitude toward the dancing game for practising Thai dance movement and last part are the comments. For the first part, personal information, 79 participants responded, of which 14 are male students and 66 are female students. The average age is 18 years old, the majority of the secondary school. 59 participants are Thai dance students which are 74.68% of the total participants and another 22.77% are from Thai Musical Instrument, International Arts and Local Lanna Performance which is related to Thai dance area in the following table.

TABLE I. . SUMMARY OF QUESTIONNAIRE RESULTS

Type	Characteristics	# of Participants	% of Participants
Gender	Male	14	17.72
	Female	66	82.27
Age	Below 17	6	7.59
	17	16	20.25
	18	25	31.64
	19	14	17.72
	20	18	22.78
Education	Primary school	1	1.26
	Secondary school	42	53.16
	Bachelor	36	45.56
Major	Thai dance	59	74.68
	Khon (Male)	4	5.06
	Male	2	2.53
	Giant	1	1.26
	Monkey	1	1.26
	Drama(Female)	57	72.15
	Male	26	32.91
	Female	32	40.50
	Thai Musical instrument	14	17.72
	Thai brass instrument	3	3.79
	Thai string instrument	11	13.92
	instrument	0	0
	Singing	3	3.79
	International Art	3	3.79
	International musical	0	0
	International musical	0	0
	International dance	0	0
Local Lanna musical	0	0	
Local Lanna performance	1	1.26	
Other			

The second part, an experience with gaming, the number of the student with console gaming experience is 16 (20.3%). Among that, the majority of 10 students were experienced with PlayStation and the rest were distributed among Game Boy, PSP and Nintendo Wii with 5, 5 and 1 students respectively. 16 out of 17 samples spends about 1-2 days a week on consoles and only one sample spends 3-4 days a week. The survey shows that the sample would use the Thai Dance Device 3-4 times a week for around 1-3 hours.

For the dancing game, the result shows that 18 out of the 79 students have experience with the dancing games which is 22.78%. Among the sample with dancing game experience, 8 students have experience with the motion sensor type of dancing game and another 7 students have experience with the arrow button arcade game type and 3 students have an experience with both systems. This shows that a low number of student who has experiences with the dancing game. However, 79 students have seen dance gaming and understand the idea of how to play the game. Also, 77.77% of students spend around 1-2 days per week to play dancing games.

On the third part of the survey is split up into three parts, practical improvement (q1 – q6), fun while learning (q7 – q9) and the current mindset towards the Thai dance (q10 – q12).

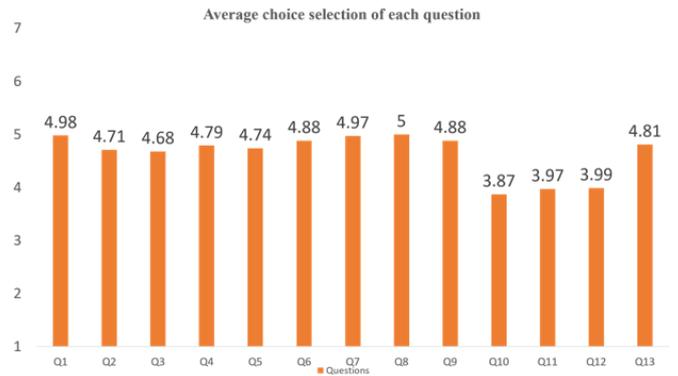


Fig. 1: Average choice selection of each question

Overall the survey gives us an average of 5 (mildly agree) on the survey, keeping in mind that the audience has no experience with Kinect-like technology or games. In all, it shows that most of the sample believes that this program/game would be beneficial to them in their Thai dance skills.

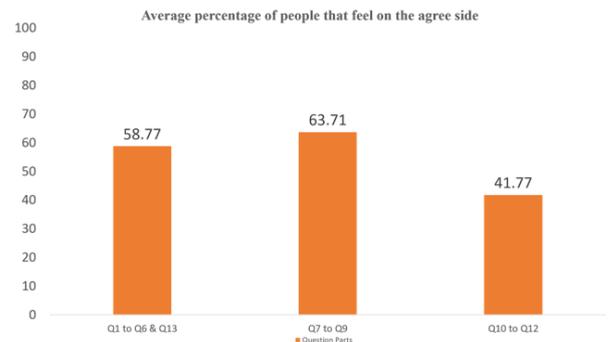


Fig. 2: Average percentage of people feel on the agree side

The practical improvement part of the survey shows that the people believe they can learn from the game and improve in their Thai dance skills but are unsure on that fact as they have little to no knowledge of how the game works and its possibilities. This is shown in numbers as at least 59.28% of people fall on the agree side of the survey, but a majority of 20.25% chose strongly agree, followed by 18.65% choosing agree and lastly 16.25% chose mildly agree. With a high percentage on agree and strongly agree we believe that this proves our fact that many of these samples do not have the background knowledge or experience with a Kinect Concept of learning through games but find it beneficial from the basic concept.

Research shows that having fun while learning increases engagement, effectiveness and memory retainment. This is also true in the case of the Thai Dance game as shown in the fun while learning part of the survey where majority of the people fall on the agree and strongly agree side with 24.05% and 20.25% respectively, therefore as the game provides that fun aspect, it's safe to say there would be an increase in learning benefits.

Lastly on the current mindset towards the Thai dance, to keep in mind the questions here are asked negatively so agreeing would lead to a negative result and disagree would be positive. The survey shows that around 50% of the samples are neutral and disagreeing while the other half are on the agree side. This indicates that majorities of people are on the fence and have an unsure mindset about the implementation of the Thai dance game but on the contrary people seem to understand the learning benefits and the fun they will get from it. Therefore, we believe the Thai dancing game might have a slow acceptance curve at the start due to lack of experience with this technology hence the 50/50 mindsets, but after some time, student/users will get the hang of it and use this as a long-term tool to practice Thai dance.

On last part of the survey, there are some interesting comments such as this might be the next great revolution in the history of performing arts and can make the great difference for the process of learning Thai dance in a positive way. This can help the student majorly improve their aptitude for the technological devices since they do not normally have a chance to use it much in their daily life. Some suggested that the Thai dance training game should have more functions to teach not only the terminologies, but it should also involve another part like Thai music lessons and content of the study lessons in a game format to make the learning process more motivating. There is some concern about the correctness of the terminology as micro-expression portray very different emotions and feelings as Thai dance is rich in detail, all the details may not be well captured and could provide inaccurate feedback compared to a human teacher that can pick up these micro expressions. Some samples are also concerned about the reliability of the reference of the dance since different gurus may relay difference dance in their own style.

#### IV. CONCLUSION

This paper shows you the usability of the Kinect Sensors and a tool to educate the future generation of student's skills in Thai dance which provides as both a practice and training platform without the use of any resources that is finite to a limited number of students. With the evidence from the previous study and the result from the survey, the conclusions for this study is that the tool for helping the process of teaching Thai dance will be essential to improve the efficiency of the learning process and to preserve the masterpiece of this performing art form extinction and transform. Therefore, the next generation will be able to appreciate the arts. The tool will also be easy to adapt to as shown by the great attitude of the students in the survey. It is also flexible enough to implement in any classroom or environment for usage and future advancements.

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