The influence of playing 3D fighting games in practicing martial arts

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Abstract. Throughout the world, many countries have their own distinctive martial arts styles. These physical cultures attracted not only the natives of the nations but also others globally. Within the progressive technology advancement, most of these distinctive martial arts have been captured truthfully within the 3D fighting games, embodied by the diverse cast of selectable fighters. The 3D graphics evolution along with the rapid development of gaming systems have made fighting games to be more easily and visibly perceptible in showing various fighting arts for the gaming communities. The researcher conducted this study to evaluate whether with this amount of experience and exposure of playing the hand-to-hand 3D fighting games—mainly Tekken series—have managed to draw the communities into learning certain martial arts in their life. Each of their personal interest is evaluated to see whether the games have influenced the communities in participating in a martial arts class. As a result, it was proven that most of the communities’ martial arts interest have indeed influenced by playing fighting games experience, typically that fashioned real hand-to-hand combat such as Tekken meanwhile, others are mostly because of health, social and cultural interests.

1. Introduction

Since the beginning of its very first production, the progressive inventions of gaming consoles and digital game (or video game) genres have been zealously sustained by the always-evolving elements of graphics, characters, voice acting and more [1]. It would seem to be an endless journey for video game researchers to make use of elements of this modern literary form. In relevance to the study, the world of fighting games has been significantly improving throughout the decades with its massive game titles, moreover, especially after the arrival of the 3D graphics evolution. This digital advancement has been attracting many gaming industries and hereafter, many 3D fighting games were produced throughout the arcade and console systems until present. One of the most noticeable and visibly existing is the Tekken franchise that was first released for the arcade in 1994. Although there were many 3D fighting games back in the 1990s such as Virtua Fighter, Dead or Alive and Battle Arena Toshinden to mention a few, but, it was Tekken from Namco that brought up the distinction of 3D fighting game with splendid game mechanics, faster movement, better graphic and most of all, bigger amounts of diverse fighters and realistic fighting arts to be exposed and play with.

In addition, the first Tekken game was also considered superior than other titles due to its aforementioned elements of diverse fighters along with the presentation of many fighting arts which were fairly captured within the gameplay, ranging from: Karate, Jeet Kune Do, Sumo, Pro-wrestling,
Baji Quan, Judo, Ninjutsu, and more. Afterward, in 1995 came Tekken 2 adding more fighters and fighting styles, such as the Zui Quan or the Drunken Fist, Taekwondo, Muay Thai Kickboxing, and other styles making the franchise’s name to be recognized as the King of 3D fighting games. Two years later in 1997, Tekken 3 was released adding new fighters and fighting arts such as Capoeira and Baguazhang, and since then, Tekken franchise has been truthfully recognized as the finest 3D fighting games that utilize realistic hand-to-hand combat. Afterward, especially with the progressive graphic development of the arcade and gaming systems, Tekken franchise keeps on evolving with more titles along with its plethora of fighters and representations of martial arts until present.

![Figure 1.](image)

The researcher presupposes the potential social and cultural influence from the experience or exposure of playing a 3D fighting game such as the Tekken franchise and how it may lead the players to be interested in participating or learning certain martial arts depicted in the game series. This research is conducted through interviews and gathering questionnaire data to measure the possibilities as well as to investigate other related reasons from the respondents who are the martial arts enthusiasts and communities. Moreover, this study is conducted in order to prove that by playing any of the realistic hand-to-hand combat 3D fighting games such as the Tekken franchise, an individual may be hypothetically appealed in practicing this physical culture embodied within the digital fighters.

2. Theoretical Framework

2.1. Martial Arts: What and Why

Martial arts or combat sports are considered as a physical culture where individuals learn the art of self-defense established on cultural and historical affecting values. An empirical research on this physical culture was conducted by Channon and Jennings and suggested on filling the niche for potential new topics and strategies within research that connecting it to the social issue [2]. For this study, in order to avoid any semantics confusion, the researcher focuses more on the definition of ‘martial arts’ rather than combat sports or martial sports, although both terms can be used interchangeably. By learning martial arts, society can also be exposed to and may learn one or two intrinsic elements of this physical culture. But the researcher firmly believes that there are more benefits in practicing martial arts than just knowing theoretical aspects. One study that focuses on the subject of results, as well as the problem of corporeality and spirituality in the anthropology of martial arts, is a research conducted by Polish scholars, Cynarski and Obodynski and an American scholar, Zeng [3]. They stated that the way of martial arts, through a psychophysical educational system, has the body primarily used as a tool to give enlightenment and wisdom, leading to spiritual mastery and associated with health potential. They also suggested this physical culture to be very useful for physical education curriculum. At odds, it is safe to say that one of the potential reasons for an
individual joining a martial art class is for either self-development or in physical extent, to become healthy as well. These are internal factors. Significantly, how about the influence of external factors such as digital media exposure?

In relevance to culture representation and growth of interest in the society, Acevedo and Cheung researched the historical overview of martial arts of China and stated that the popularity of Mixed Martial Arts (MMA) was commercialized within the conceptions credited to famous figures such as Bruce Lee, a Chinese-American actor and martial artist who became a media icon in the 1970s and still considered as revolutionary figure in the field [4]. Other iconic actors with martial arts skills such as the legendary Jackie Chen, Jet Li, Chuck Norris, Sylvester Stallone until the recent Asian fame; Tony Jaa and Iko Uwais have to make ways for other forms of martial arts and artists alike to inspire many to be interested at or even practicing the physical art forms. Television and cinema are undoubtedly forms of multimedia. So how about interactive multimedia such as digital games, specifically, 3D fighting games that depict realistic hand-to-hand combat moves? This is where Tekken, as being assertively expected, comes as the potential influence of martial arts’ interest among the respondents of this study.

2.2. 3D Fighting Games

According to Adams in his book about fundamentals of game design, the genre of fighting game can also be considered an action game since this type of hand-to-hand combat game also focus on the player’s physical skills, reaction time and timing [5]. Looking back at the history of the fighting game, in 1993, the gaming communities was in awe by the arrival of the first ever 3D polygonal fighting game, Virtua Fighter, that was created by Sega’s famous designer, Yu Suzuki. Along with its eight fighters and their each distinguished fighting styles, this 3D fighting game pioneer fashioned more on the realistic hand-to-hand combat techniques such as counterattacks and parries rather than theatrical special moves; moreover, Virtua Fighter also laid the blueprint of nowadays 3D fighting games franchises [1]. Some of these post-Virtua Fighter 3D game franchises are still flourishing until this day forward, however, one of them, branded as Tekken published by Namco, has been considered to be the focal contender of all 3D fighting games, especially on the arcade. Since 1994 until the present, Tekken has managed to attract massive gamers to play casually or even professionally competing in an international e-sport competition.

Until recently, Tekken has been generating a massive amount of distinctive and iconic cast of more than 50 fighters, which most of them having particular fighting arts mostly based on real-life martial arts or combat sports. On every Tekken games, players are able to choose from a plethora of fighters with a variety of ethnicities, background stories and primarily, fighting styles. Besides the infamous protagonists who practice their own Mishima-style Karate; Kazuya, Hethachi, and Jin, there are also other iconic fighters such as Baek and Hwoarang the Taekwondoins; Eddy and Christie the Capoeristas; Steve the British Boxer; Bruce Irvin the Muay Thai kickboxer; Raven and Kunimitsu the Ninja; Marshall Law the JeetKune Do martial artist; as well as the long list of diverse Chinese martial art fighters such as Ling Xiaoyu, Julia Chang, and more. These fighting styles, an embodiment of either martial arts or combat sports, are considered to be the game series’ main attractions along with the realistic designs and combat gameplay of the fighters. The researcher uses the Tekkenfranchise since it has been considered to be presenting more realistic hand-to-hand fighting arts rather than the theatrical and flashy animations within other fighting games titles.

2.3. Video Game Influence

There have been numerous studies on the impact of video games. Griffiths [6] discussed the educational benefits of video games which extended to the possibility of using the games for language learning, social skills, and even health care. In addition, Granic, Lobel & Engels provide strong enough evidence and a theoretical rationale to inspire new programs of research on the largely unexplored mental health benefits of gaming. They also hailed a call to intervene as researchers and practitioners to test the positive uses of video games and suggested several promising directions in this field of
research [7]. Fighting games display certain amounts of hand-to-hand combat which can be referred to as a portrayal of violence, conversely does this mean martial arts in general portrayed as equally contributing to violence on people’ behavior? Belgium scholars, Vertonghen and Theeboom reviewed the social-psychological outcomes of martial arts practice among youth. They argued that the presumptions of antisocial and aggressive behaviors in martial arts practice and found out that it has not been clear in the existing duality regarding the possible effects of martial arts involvement. They proposed a better understanding for future research such as focusing on the martial arts communities, and the social context of the physical culture [8]. To simply put, it can infer that video games that portrayed martial arts or any form of physical culture are not considered to be significant in contributing to violence nor aggression.

3. Methodology

This research focuses on the experience and exposure of playing any of Tekken series. Even though Tekken series has been around since 1994 with its first-ever Tekken game and has developed many titles afterward, the martial arts communities, however, are only able to play the current games from either the arcade or the home consoles—apart from utilizing unofficial game emulators. The game series that are still existing on the arcade is Tekken Tag Tournament 2 (2011) and Tekken 7 (2015-present) meanwhile, the home console versions from the current Tekken games that can be played easily or currently owned by the martial arts communities are strictly Tekken 6 (2007-2008) [9] as well as Tekken Tag Tournament 2 (2011) [10], both for PlayStation 3 and Xbox 360 console systems; and finally, the current Tekken 7 that was launched for PC, Playstation 4 and Xbox One console systems in 2017. On every of these Tekken games, players are able to choose from a plethora of fighters with a variety of ethnicities, background stories and primarily, fighting styles.

In the initial stage, there were exactly 55 respondents enlisted, however, as the result from the overall stages, the researcher only managed to acquire 89% valid remaining respondents (n=49) for this study. The Karate, Aikido, and Taekwondo communities are mostly from authorized martial arts classes, meanwhile, Capoeira and Kickboxing (Muay Thai style) communities come mostly from gym classes although, some are also found from authorized classes as well. All of these 49 respondents have stated that they all have played any of the Tekken series at least once or more in their life. These respondents are 11 Karate practitioners, 11 Taekwondo practitioners, 8 Capoeira practitioners, 10 Kickboxing (Muay Thai style) practitioners and 9 Aikido practitioners. Although not directly affecting this study, in addition, the communities’ age range is from 16 to 30 years old and approximately, there are 77% male and 23% female in total. The researcher gives each of the respondents a questionnaire that focuses on the measurement of this study’s research question. The questionnaire contains seven statements, divided into two parts. The first part consists of four statements on the fighting game elements (FGE). The last part consists of three statements on the communities’ perception of playing the fighting game experience towards their own personal interest in martial arts practice (MAP). Both of the parts use 3-items Likert scale ranging from (1) Disagree, (2) Neutral, and (3) Agree.

4. Findings and Discussions

This first part of the questionnaire focuses on the fighting game elements from Tekken games that considered to be appealing for the martial arts communities. The variables asked are: (FGE1) Tekken series has interesting cast of fighters, (FGE2) Tekken series has realistic martial arts depiction, (FGE3) Tekken series has simple executable fighting gameplay, and finally (FGE4) Tekken series has overall interesting battle gameplay.

| Scale | FGE1 | FGE2 | FGE3 | FGE4 |
|-------|------|------|------|------|
| Disagree | f | 2 | 3 | 2 | 1 |
| % | 4.1% | 6.1% | 4.1% | 2.0% |
Based on the calculation, interestingly more than 50% of the research population gave positive remarks for each of the FGE statements. The first two FGE statements are about the characters and how they represent some martial arts to the extent of their realistic physical culture counterparts. The high amounts of positive remarks from both of these FGE statements showed that the martial arts communities’ have collectively agreed on the fact that the Tekken series along with its plethora of various fighters are considered to be attractive in design and representative in martial arts depiction. Meanwhile, the third and fourth FGE statements which are about simple executable and interesting gameplay also resulted positive for more than 50% as well. Although only a few points away from other statements, these third and fourth FGE statements reach the highest score of more than 75% of all research population. This shows that the martial arts communities consider the Tekken games to be gameplay approachable for everyone. As implied by Adams in his book of game design fundamentals [8], non-stressful gameplay mechanics in a game will gain more interest for all gamers; hard-core or casual gamers. Tekken games are well-known to have easily executable fighting gameplay that focuses on combo attacks and timing precision in button inputs to win the game. Although not much, it is quite essential to be noted that about approximately 20-30% of the martial arts communities still uncertain of the statements given.

The second section of the questionnaire focuses more on the influence of the Tekken games with their interest in joining a martial arts class. There are three variables asked which are: (MAP1) Tekken series influences own participation in martial arts class, (MAP2) Tekken series benefits in own martial arts practice, and (MAP3) Suggesting Tekken series for others who would like to practice martial arts.

| Table 2. Questionnaire results: Martial arts practice influenced by Tekken games. |
|---|---|---|---|
| Scale | MAP1 | MAP2 | MAP3 |
| Disagree | f 7 | 6 | 1 |
| Neutral | f 9 | 12 | 8 |
| Agree | f 33 | 31 | 40 |
| Total | f 49 | 49 | 49 |

Based on the data findings, all of the three MAP statements also valued positively as for more than 50%. From the first two MAP statements on possible influence and benefits of the Tekken games with the communities’ martial arts practice, the perceptions seem to be apparently positive although scoring less than 75%, in addition, almost a quarter of the population still seems to hesitate on implying the similar notion of influence. Interestingly, however, more than 80% of the martial arts communities actually suggested for other people who would like to practice martial arts to actually try playing the Tekken games.

On a further note, during the questionnaire submission session, some of the respondents stated that they prefer to play and suggest Tekken games rather than other fighting games because of the
franchise names are able to compete among other titles such as the noteworthy 2D fighting games, Street Fighter and King of Fighters series. The communities also said that some characters may have or possibly be an influence to some extent of their willingness to learn certain martial arts. Some of them even said to be interested in trying other martial arts due to the exposure of playing some characters with distinctive fighting arts different than what they are currently practicing.

5. Conclusion
From this research, it can be stated that some martial arts communities, such as this study’s research population, tend to believe the potential influence of the 3D fighting games, especially Tekken franchise. In accordance, some respondents also claimed that most characters in Tekken games have the affinity of an actual fighting moves embodiment similar to the actual fighting arts they have been exposed too. Need to be noted that the respondents also indicated some unrealistic representations of the martial arts shown from some Tekken characters. As in Tekken 7 console release per 2017, there are actually few fighters who utilize non-realistic and non-relatable move sets that are not considered to be in any of the martial arts physical culture nor to be conducted naturally such as shooting bright magical arrows, big bazooka, teleporting, exaggeratedly high jump or even hitting your opponent with a giant fish. In conclusion, this research results can indeed be another doorway for similar research in capturing the essence of video game influence—specifically fighting game—within the martial arts practice—and what it can do to sustain the growth of interest in learning martial arts.

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