

Efficacy of Martial Arts in Higher Education Affecting Students' Psychosocial Behavior and Academic Performance

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Abstract: Martial arts, rooted in Chinese martial arts traditions, provides an avenue for cultural appreciation. In higher education, exposure to martial arts can enhance students' understanding and appreciation of diverse cultural practices; martial arts offer an alternative and culturally rich approach to physical education in higher learning institutions, diversifying the options available for students seeking physical activity beyond conventional sports. This paper draws the following conclusions: (1) The efficacy of martial arts in higher education is contingent on thoughtful program design, addressing individual differences, and recognizing the broader impact on students' psychosocial behavior and academic experiences. (2) The practice of martial arts forms and mindfulness techniques contributes to emotional balance, positively impacting the mental resilience necessary for academic success. (3) Martial arts education instills discipline and self-control, transcending the physical domain to influence positive behavioral outcomes. (4) Students participating in martial arts programs often exhibit increased self-discipline, responsibility, and a proactive approach to academic challenges, fostering a conducive learning environment. (5) Martial arts education's efficacy lies in its ability to promote holistic development. By combining physical fitness with mental focus and discipline, martial arts contribute to a well-rounded educational experience, nurturing not only academic excellence but also personal growth and character development.

Keywords: Higher education; Martial arts; Efficacy; Physical behavior; Academic Performance.

1. Introduction

The integration of martial arts into higher education is a multifaceted phenomenon, as it not only enhances physical skills but also exerts a profound influence on students' psychosocial behavior and academic performance. Martial arts training serves as a catalyst for positive psychosocial development, fostering attributes such as motivation, self-esteem, discipline, and stress management.

These psychosocial factors contribute synergistically to creating a conducive environment for improved academic performance. The holistic nature of martial arts in higher education underscores the interconnectedness between mentality and physical well-being, advocating for a comprehensive approach to student development that extends beyond traditional academic realms. As students engage in martial arts practices, the impact resonates across various aspects of their lives, enriching both their personal and academic journeys within the higher education landscape. Consequently, further research is needed to explore the connections between different forms, durations, and types of physical activity particularly on martial arts or sports and academic performance in college-aged students. Researching the efficacy of martial arts in higher education is essential to uncover how these practices impact students' psychosocial behavior and academic performance. This investigation holds promise for enhancing holistic student development, understanding cognitive benefits, promoting healthy lifestyles, reducing stress, and ultimately contributing to strategies that foster student success and well-being in the academic setting.

2. Review of Related Literature and Studies

Self-efficacy plays a crucial role in determining the level of effort individuals dedicate to tasks. Those with high self-efficacy levels are likely to persevere in the face of challenges, whereas those with low levels may withdraw or avoid such situations. For instance, a student lacking confidence in their math abilities may shy away from enrolling in advanced math courses. In essence, this underscores the power of beliefs, as articulated by Mahatma Gandhi: "Your beliefs shape your thoughts, which in turn shape your words, actions, habits, values, and ultimately your destiny."

Achievement Motivation Theory proposed by John William Atkinson (1964), particularly as applied to students' academic performance, is to understand and explain the driving forces behind individuals' efforts and persistence in achieving success in academic settings. Atkinson's theory emphasizes the interplay between motivation and achievement, suggesting that individuals are motivated to pursue tasks based on their expectations of success and the value they place on the outcomes.

Similarly, in the context of students' academic performance, achievement motivation theories researchers, and policymakers understand the factors that influence students' motivation to excel academically. By considering elements such as achievement motivation, goal orientation, and the perception of success and failure, educators can design interventions and create environments that foster positive motivational beliefs and behaviors among students, Grund, A. (2022).

Achievement motivation theories theory that is relevant to

students' academic performance includes:

Need for Achievement (nAch): This refers to an individual's desire to excel, to accomplish challenging tasks, and to meet high standards of excellence. Students with a high need for achievement are likely to set ambitious academic goals and persist in the face of obstacles.

Fear of failure: Atkinson proposed that individuals also have a fear of failure, which can either motivate or inhibit performance depending on how they perceive and respond to failure. Students who fear failure excessively may avoid challenging tasks or give up easily when faced with difficulties.

Expectancy: According to Atkinson, individuals assess the probability of success or failure in a given task based on their past experiences, skills, and the difficulty of the task. Students who believe they have the ability to succeed are more likely to invest effort and persist in their academic endeavors.

Incentive Value: This refers to the perceived value or importance of the outcomes associated with academic achievement. Students are motivated to perform well when they perceive the rewards, such as grades, recognition, or future opportunities, as desirable and attainable.

By understanding these motivational factors, educators can tailor instructional strategies, provide appropriate feedback, and create a supportive learning environment that enhances students' motivation and academic performance. Additionally, interventions aimed at promoting a growth mindset, fostering intrinsic motivation, and reducing fear of failure can help students develop a positive attitude towards learning and achievement.

Theories offer overarching frameworks or structures designed to explain, forecast, or comprehend behavior related to physical activity or behavior modification.

Martial arts teaching in colleges and universities is a vital part of physical education, rich teaching content, is the source of students' learning interest, the long-term development of college martial arts teaching system, and it will promote students' physical and mental health development concept, C. Krstev and A. Trtovac (2018).

Martial arts education distinguishes itself in fostering a robust personality, offering a distinctive and unique approach to the formation of a healthy character which cannot be matched by other disciplines. The main objective of university physical education is to promote the health of students. Health is not only superficially physical, but also includes mental health, social adaptability, and moral health (i.e., personal health), and only the harmonious and coordinated development of body and personality is true health in this sense, Pierceall and Keim, (2017).

There have been reports indicating that martial arts training can enhance various aspects related to mental health, including anxiety, depression, self-concept, and self-esteem. Moore, B. et. Al (2023).

Engaging in martial arts can positively impact students' quality of life by promoting physical fitness, mental discipline and emotional well-being. The practice fosters a sense of self-confidence, instill discipline, and provides a structured outlet for stress relief. Additionally, martial arts often emphasize values such as respect, perseverance, and self-control, contributing to overall personal development and improved quality of life for students.

Alternative expressions to delineate quality of life encompass contentment, well-being, financial stability, the alleviation of stress, anxiety, and sorrow, among other aspects.

Harris, B. (2021). Overall, those with a high QOL demonstrate good physical ability, the ability to self-regulate, and have healthy mental, emotional, and social well-being, Sanford & Gill, (2018).

Engaging in physical activity, such as martial arts, can be an effective way to reduce stress. The combination of physical exercise and mental focus can help students relax, clear their minds, and cope with the pressures of daily life. Regular martial arts practice contributes to improved physical fitness. Physical well-being is closely linked to mental and emotional health, and students often experience increased energy levels and a general sense of well-being. According to the University of Boston (2019), engaging in martial arts is characterized as a means to enhance self-esteem, cognitive acuity, concentration, and a heightened sense of satisfaction, all of which play a role in fostering the capacity for self-regulation.

2.1. Guiding Framework

Research on martial arts (MA) has garnered significant interest since the mid-twentieth century, as highlighted by Kroll and Carlson (1967) as cited by Sandford, G.T (2020). This growing attention has spurred the emergence of specialized journals dedicated to publishing MA-related studies in recent decades. These journals, such as the Journal of Combat Sports and Martial Arts, Journal of Martial Arts Anthropology, Journal of Asian Martial Arts, and the Journal of Western Martial Arts, serve as platforms for disseminating scholarly work focused on various aspects of martial arts practice and culture. These publications play a crucial role in advancing knowledge and understanding within the field, providing a forum for researchers to exchange ideas, theories, and findings related to MA.

Sandford and Gill (2018) conducted research utilizing semi-structured interviews with senior martial arts (MA) masters to elicit their theories and perspectives on the training experiences influencing behavior changes in MA practitioners. Through thematic analysis of the interview transcripts, ten distinct themes emerged, consistently recurring across a majority of the interviews. These themes were identified as integral aspects of the MA experience. While this qualitative inquiry does not provide definitive conclusions, it does offer face validity for considering these facets as a foundational framework for future studies on MA and behavioral changes among students. Consequently, these facets will serve as the basis for generating questions in a questionnaire aimed at quantifying students' MA experiences. It's important to note that while this framework may not encompass every significant element of a student's MA journey, it currently stands as the most comprehensive resource linking MA experience to student behavior, thus serving as a valuable starting point for further investigation.

2.2. Definition of Terms

The following presents the operational definitions of these terms as used in this study:

Academic Performance: Academic performance refers to the measurable achievements and outcomes of students engaged in martial arts training within an educational setting. This includes factors such as grade point averages (GPA), attendance records, and standardized test scores, providing a quantitative assessment of participants' educational accomplishments.

Goal Orientation: Goal orientation refers to the focus and commitment of individuals in martial arts towards achieving

specific objectives. It involves setting, pursuing, and attaining goals related to skill advancement, fitness improvement, or other personal milestones within the martial arts journey.

Heavy Training: Heavy training involves an intensive and physically demanding aspect of martial arts practice. It includes exercises and routines aimed at building strength, endurance, and overall physical fitness, contributing to participants' physical well-being.

Martial Arts Efficacy: Martial arts efficacy in the context of this research refers to the extent to which the practice and engagement in martial arts contributes positively to various aspects of an individual's physical, mental, and psychosocial well-being.

Meditative Training: Meditative training involves the incorporation of contemplative and mindfulness practices within the martial arts regimen. It encompasses exercises aimed at promoting mental focus, concentration, and inner calmness, contributing to participants' overall well-being.

Physical Challenge: Physical challenge in martial arts pertains to the rigorous and demanding aspects of training that test participants' physical capabilities. It involves exercises, techniques, and drills that pushes individuals beyond their comfort zones, promoting growth and resilience.

Positive Training Environment: A positive training environment is characterized by a supportive and encouraging atmosphere within the martial arts setting. It involves the creation of conditions that promote motivation, camaraderie, and a sense of belonging, contributing to the overall well-being of participants.

Psychosocial Behavior: Psychosocial behavior, in the context of this research, refers to the observable actions, attitudes, and interactions of individuals participating in martial arts training. It encompasses elements such as self-esteem, motivation, stress management, discipline, and social interaction, focusing on the psychological and social dimensions of behavior.

Respectful Discipline: Respectful discipline refers to the cultivation of a structured and orderly training environment within martial arts, emphasizing mutual respect between instructors and participants. It involves adherence to traditional martial arts values, fostering discipline through positive reinforcement and mutual courtesy.

Streaming: Streaming, in the context of martial arts, refers to the categorization or grouping of participants based on their skill levels or experience. It involves organizing training sessions in a way that accommodates varying proficiency levels, facilitating tailored instruction and progression.

Training Behavior: Training behavior encompasses the observable actions, attitudes, and approaches individuals exhibit during martial arts practice. This includes commitment, consistency, effort, and engagement in training activities, reflecting participants' dedication to the learning process.

3. Methodology

3.1. Research Locale

The study focused on the students from three universities in the province of Guangdong, China. It will assess the efficacy of martial arts in higher education using eight-factor model. Furthermore, the investigation will delve into psychosocial elements like self-esteem, motivation, stress management, discipline, and social interaction among students engaging in martial arts. Academic performance will

be evaluated through objective measures like general weighted averages (GWA). The study will be conducted on second semester, SY 2023-2024, to capture the short to medium-term impact of martial arts participation.

3.2. Sampling Method

3.2.1. Research design

Descriptive research is used to describe and explain the current state of an individual, environment, condition, or event, while researchers are studying a phenomenon of interest because it exists naturally without attempting to manipulate any variables.

3.2.2. Sampling method

This study evaluates the efficacy of martial arts using eight-factor model from three universities in Guanzhou, Province, China. The three universities are undergraduate students from Guangdong Industry Polytechnic, Guangzhou Sport University and Sun Yat-Sen University. The participants will be chosen using a stratified random sampling method without making any special choices, out of 24, 221 total population of students from three public universities in the research locale and 379 was identified by Qualtrics software. Stratified random sampling is a sampling technique where the population is divided into distinct subgroups or strata, and then random samples are taken from each stratum. This method ensures representation from different subgroups, leading to more accurate and reliable results.

3.2.3. Research Instrument

This study will utilize quantitative method. An adapted validated MAI questionnaire taken from the study of Sandford Glenn (2020) will be utilized for student respondents' assessments on the martial arts efficacy and Psychological behavior factors questionnaire (Soojung Park 2022) will also be utilized to delve in the factors affecting students to play and consider martial arts as a lifestyle which was uploaded in survey website, a Chinese website dedicated to research and data collection, accessible at <https://www.wjx.cn/>. The second tool used will be the sss software. Data collected during the research will be statistically analyzed using SPSS.

3.2.4. Statistical processing

This study will use the social science statistical software package or SPSS software at the significance level of 0.05 using the following statistical treatment methods: (1) Frequency Count and Percentage; (2) Weighted Mean; (3) Ranking; (4) Standard Deviation; (5) Standard Deviation; (6) Pearson R :The purpose of using Pearson's correlation coefficient (Pearson R) as a statistical tool ,statistical analysis would provide insights into the extent to which martial arts training may influence both psychosocial behavior and academic outcomes in higher education settings; (7) Decision Criteria: The analysis of the hypotheses will be carried out using the 0.05 level of significance. The null hypothesis will be accepted when the computed significance value is greater than the set value at 0.05. Otherwise, it will be rejected.

4. Results

Presented in the table are the results of the comparative analysis on the assessed efficacy of martial arts inventory eight-factor model when grouped by grade level through t-Test Independent Samples. It shows that meditative training, respectful discipline, positive training environment, streaming, training behavior, heavy training, goal orientation,

and physical challenge, posted no significant differences, t-values of 1.784, 1.182, 1.350, .014, 1.158, .087, .100, and 1.242, and p-values of .075, .071, .178, .989, .247, .930, .920, and 1.242, respectively. For grade level as a test variable, the hypothesis which states that there is no significant differences

on the assessed values when grouped by grade level, is hereby accepted. Thus, this means that there is a similar or comparable assessment between the grade levels across all parameters.

Table 1. Comparative Analysis on the Assessed Efficacy of Martial Arts Inventory Eight-factor Model when grouped by Grade Level

Martial Arts Inventory - Eight Factor Model	Mean		t-value	p-value	Interpretation
	I	II			
Meditative training	2.97	3.08	1.784	.075	Accept Ho
Respectful discipline	3.60	3.50	1.182	.071	Accept Ho
Positive training environment	3.55	3.47	1.350	.178	Accept Ho
Streaming	3.36	3.36	.014	.989	Accept Ho
Training behavior	3.64	3.58	1.158	.247	Accept Ho
Heavy training	2.44	2.43	.087	.930	Accept Ho
Goal orientation	3.25	3.26	.100	.920	Accept Ho
Physical challenge	3.06	2.98	1.242	.215	Accept Ho

Legend: 1-1.50 Not at all (Low efficacy); 1.51-2.50-Seldom (Moderate efficacy); 2.51-3.50-Often (High efficacy); 3.51-4.00 - Always (Very high efficacy)

Table 2. Relationship between the Martial Arts Inventory Model (MAI Model) and the Academic Performances of the Respondents

Martial Arts Inventory - Eight Factor Model		Academic Performance
Meditative training	Correlation coefficient	.189
	Sig (2-tailed)	<.001*
	N	379
Respectful discipline	Correlation coefficient	.192
	Sig (2-tailed)	<.001*
	N	379
Positive training environment	Correlation coefficient	.293
	Sig (2-tailed)	<.001*
	N	379
Streaming	Correlation coefficient	.263
	Sig (2-tailed)	<.001*
	N	379
Training behavior	Correlation coefficient	.213
	Sig (2-tailed)	<.001*
	N	379
Heavy training	Correlation coefficient	.080
	Sig (2-tailed)	.118
	N	379
Goal orientation	Correlation coefficient	.219
	Sig (2-tailed)	<.001*
	N	379
Physical challenge	Correlation coefficient	.207
	Sig (2-tailed)	<.001*
	N	379

*significant at .05 level

Presented in the table is the correlation coefficient between the martial arts eight-factor model and the academic performance of the respondents. Martial arts eight-factor model is indicated by meditative training, respectful discipline, positive training environment, streaming, training behavior, heavy training, goal orientation, and physical challenge while the academic performances of the respondents are measured in terms of their GWA.

As it is shown in the table, seven of the eight factors posted significant relationship with the respondents' academic performances. The seven factors, meditative training, respectful discipline, positive training environment, streaming, training behavior, goal orientation, and physical challenge, posted significant relationship: r-value of .189, .192, .293, .263, .213, .219, and .207, and p-values of

<.001, respectively. The positive r-values indicate a direct relationship, which means that the higher the indulgence of the respondents with the seven factors, the higher will it bring on their academic performances. Thus, on these specific variables, the null hypothesis, which states that there is no significant relationship between the eight factors of the MAI model and academic performance, is hereby rejected.

On the other hand, heavy training, posted no significant relationship, r-value of .080 and p-value of .118. Thus, on this specific variable, the null hypothesis, which states that there is no significant relationship between the eight factors of the MAI model and academic performance, is hereby accepted.

The foregoing results confirm the studies of Hillman et al. (2016); Gomes Da Silva (2015); and Concerto et al. (2017). They concluded that there is a positive connection between

intense physical activity and elevated academic achievement.

5. Conclusion and Recommendation

The significance of this study is that it has the potential to inform educational practices, policies and support mechanisms for the overall development of students, ultimately contributing to a rich higher education experience.

Students studying the efficacy of martial arts in higher education is important for understanding how these practices contribute to the overall development of students. By uncovering the effects on psychosocial behavior and academic achievement, the study aims to provide insights into cultivating students' overall well-being.

Based on the conclusions of the study, the following is recommended:

1. Enhance academic success through martial arts training, prioritize strategies emphasizing discipline, positive environments, and goal setting. Implement feedback mechanisms to continually assess the effectiveness of these strategies in improving academic performance levels.

2. Capitalize on psycho-social dynamics, prioritize enjoyment within martial arts programs, followed by intention, social interaction, and escapism. Regularly assess the effectiveness of these factors through feedback mechanisms to optimize participant experiences and outcomes.

3. Leverage psycho-social dynamics, prioritize enjoyment within martial arts programs, followed by intention, social interaction, and escapism. Continuously evaluate the impact of these factors through feedback mechanisms to enhance participant experiences and outcomes.

4. Emphasize the holistic development of martial arts programs by integrating and balancing the seven identified factors, recognizing their collective influence on enhancing the overall martial arts experience.

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