THE IMPACT OF MODERN MUSIC ON TEAMWORK EFFICIENCY: AN ANALYSIS OF THE MODERATING FACTORS OF LEADERSHIP INITIATIVE AND CORPORATE CULTURE

LI HAO

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Management

Graduate School, Siam University

2025

DECLARATION

I, Li Hao (Student ID# 6319200023), hereby certify that the work embodied in this dissertation entitled: “The Impact of Modern Music on Teamwork Efficiency: An Analysis of the Moderating Factors of Leadership Initiative and Corporate Culture” is the result of original research and has not been submitted for a higher degree to any other university or institution.

LI HAO

(Mrs. Li Hao)

April 25th, 2025

Dissertation Approval Form

Graduate School, Siam University

Doctor of Philosophy in Management

Dissertation Title	:	The Impacts of Modern Music on Teamwork Efficiency: An Analysis of The Moderating Factors of Leadership Initiative and Corporate Culture
Author	:	Mrs. Li Hao
Student ID	:	6319200023

Dissertation examination committees reach consensus to approve this dissertation.

Chairperson .....
(Dr. Chai Ching Tan)

Committee Member .....
(Dr. Lee Hsing Lu)

Committee Member .....
(Associate Professor Dr. Somkiat Korbuakaew)

Committee Member / Advisor .....
(Dr. Pattsornkun Submahachok)

Committee Member / Co-Advisor .....
(Dr. Karnjira Limsiritong)

Graduate School of Siam University approved to accept this dissertation in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Management.

.....
(Associate Professor Dr. Chaiyanant Panyasiri)
Dean of the Graduate School of Management

Date 25 / April / 25

ABSTRACT

Title : The Impact of Modern Music on Teamwork Efficiency: An Analysis of the Moderating Factors of Leadership Initiative and Corporate Culture

By : Mrs. Li Hao

Degree : Doctor of Philosophy

Major : Management

Advisor :

(Dr. Pattsornkun Submahachok)

Co-Advisor :

(Dr. Karnjira Limsiritong)

With the evolution of the modern work environment, music has gradually become one of the indispensable elements in teamwork, and its potential impact on team members' emotions and efficiency has attracted extensive attention from academia and industry. In a rapidly developing and culturally diverse country like China, how modern music affects teamwork efficiency in different work scenarios and production technology contexts has become a topic worthy of in-depth investigation. The research objectives of this study are: 1) To explore the usage of modern music as a tool to enhance teamwork efficiency within HUAWEI Technologies CO., LTD in China; 2) To investigate the impacts of modern music on teamwork efficiency in HUAWEI Technologies CO., LTD in China; 3) To evaluate the roles of mediating variables and moderating effects of corporate culture and leadership initiative on the relationship between modern music and teamwork efficiency in HUAWEI Technologies CO., LTD in China

Through an in-depth analysis of the impact of modern music on team productivity in the context of diverse workplace scenarios and production technologies in China, this study reveals the complex relationship between music and productivity and provides practical management strategies for organizations. As the survey progresses, these findings are expected to help organizations use music resources more effectively, stimulate team potential, enhance overall work efficiency, and open up new paths for future workplace innovation and productivity enhancement.

Keywords: modern music, leadership initiative, corporate culture, teamwork efficiency

ACKNOWLEDGEMENT

I wish to express my deepest gratitude to my advisor, Dr. Pattsornkun Submahachok, and my co-advisor, Dr. Karnjira Limsiritong, for their invaluable guidance, unwavering support, and encouragement throughout my research study. I am also profoundly grateful to Associate Professor Dr. Chaiyanant Panyasiri, Dean of the Graduate School, for his continuous support and leadership.

I extend my heartfelt appreciation to the committee members, Dr. Chai Ching Tan, Dr. Lee Hsing Lu, Associate Professor Dr. Somkiat Korbuakaew, and Professor Dr. Yuwat Vuthimedhi, for their insightful feedback and constructive criticisms, which have significantly enriched the quality of my work.

I would also like to acknowledge the unwavering support of my husband, Mr. Li, and my parents, whose encouragement has been instrumental in helping me persevere in my studies. A special note of thanks is extended to my daughter, Wanting Li, for being a constant source of mental and emotional strength.

Lastly, I express my sincere gratitude to all the faculty members and staff of Siam University for their dedication to my academic and personal development. Their steadfast support and encouragement have been as a continuous source of inspiration throughout my study.

Li Hao

April 25th, 2025

TABLE OF CONTENTS

TABLE OF CONTENTS

Page

TABLE OF CONTENTS

Page

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

The details in this chapter will be divided into eight parts, as follows:

1.1 Background of the Problem

1.2 Significance of the Problem

1.3 Research Questions

1.4 Research Objectives

1.5 Scope of the Study

1.6 Expected Results

1.7 Definition of Key Terms

1.1 Background of the Problem

In an era of intense global competition and economy, employee efficiency has become a cornerstone of organizational success. Businesses face immense pressure to enhance productivity to remain competitive, reduce costs, and improve overall performance (Tulenov et al., 2024). Employee work efficiency directly influences key organizational outcomes, including operational quality, cost control, and strategic goals. Despite adopting various strategies, many organizations struggle to achieve desired levels of efficiency due to increasingly complex work environments. Employees often face heavier workloads, demanding deadlines, and rising mental pressures, which can lead to burnout and declining performance (Kim et al., 2024).

Amid these challenges, organizations have explored innovative solutions to enhance employee well-being and productivity. One increasingly popular approach is the incorporation of music into the workplace. Music, a universal cultural phenomenon, has long been associated with emotional, cognitive, and social benefits.

Its role in enhancing human mood, concentration, and creativity is widely acknowledged (Schatt, 2024). Research has demonstrated that music can improve workplace environments by reducing stress, enhancing focus, and fostering employee collaboration (Jang et al., 2023). However, despite its growing adoption in organizations, the effects of music on work efficiency remain inconclusive. Existing studies often yield fragmented results, making it challenging to identify the conditions under which music can consistently improve productivity (Sweller, 2024; Zhang & Li, 2023).

Several studies have examined how music impacts cognitive and emotional processes in workplace settings. For instance, music can positively influence attention, mood regulation, and stress relief, improving overall employee engagement (Kim et al., 2024). Additionally, physiological responses such as changes in heart rate, blood pressure, and brain activity have been linked to music exposure, further highlighting its potential to enhance work performance (Morrissey et al., 2024). However, individual factors such as personality, motivation, and job type, as well as contextual elements like workplace culture and noise levels, create significant variability in the effectiveness of music interventions (Lee & McNaughtan, 2021).

Leadership and corporate culture are pivotal factors in shaping how music influences employee performance. A supportive workplace culture that prioritizes innovation and employee well-being may amplify the positive effects of music. Likewise, leadership initiatives that promote stress reduction and team cohesion are essential in leveraging music as a strategic tool for improving efficiency (Greenberg et al., 2022). For example, leaders who actively encourage music use in workplace activities may foster a collaborative and engaging environment that benefits employees' mental and emotional states.

Despite these insights, research on how music impacts workplace efficiency remains limited. Questions regarding the optimal types of music, suitable durations, and specific environmental conditions remain unanswered. This study addresses these gaps by exploring how modern music affects employee efficiency, mainly through its cognitive, emotional, physiological, and neural impacts. Furthermore, it seeks to

investigate the moderating effects of leadership, corporate culture, and music characteristics, providing practical recommendations for organizations to optimize music use as a tool for performance enhancement.

By bridging these gaps, this research contributes to a deeper understanding of the strategic value of music in the workplace, offering actionable insights for organizations seeking to create more productive and satisfying work environments.

1.2 Significance of the Problem

Music is a popular art form that gives people a pleasant feeling and makes them happy, motivated, and infectious. Therefore, it is widely used in modern society, especially in the workplace. In the past decades, many research studies have shown that music is an essential factor affecting employees' working conditions and productivity. Therefore, this research explores the mechanism of music's influence on employees' work efficiency and takes HUAWEI, a knowledge-intensive enterprise, as a case to examine the value of music's application in the workplace to provide suitable reference suggestions for the enterprise.

(1) The influence mechanism of music on employees' work efficiency has always been the research object of sociology, psychology, and management. With the development of modern society, the pressure and challenges faced by employees in their work are also increasing, and work efficiency has become an important issue in company management and enterprise development. As for improving work efficiency by adjusting employees' mentality, music is naturally essential as an optional auxiliary means.

In studying the influence mechanism of music on employees' work efficiency, we need to understand the influence of music on employees' physical and mental state. With the increasing attention to mental health, researchers began to pay more attention to the impact of music on employees' mental health. Through experiments and research, they found that when employees listen to soothing and beautiful music at work, they will feel relaxed and happy, and their emotions will become more stable, thus improving their work efficiency. On the contrary, hearing busy, noisy, or

harsh music in the work scene may cause employees' emotional fluctuations and hurt work efficiency.

In addition, because the rhythm and tone of music also have a particular impact on people's physical reactions, music can also affect the physiological state of employees, thus affecting employee work efficiency in a more detailed way(Tulevov et al., 2024). For example, fast-paced concerts can improve employees' heart rate and blood pressure, make them feel more excited and energetic, and be more efficient when performing high-stress tasks. Slow-paced music can bring a calmer and more relaxed state, suitable for performing tasks requiring a quiet emotional environment.

Generally speaking, the influence mechanism of music on employees' work efficiency is a complex research problem that needs to be explored in many aspects. However, it has a very positive impact on the development of enterprises and the improvement of employees. Especially in modern society, employees' work pressure and intensity are increasing, so improving work efficiency and protecting employees' mental health are becoming urgent problems that must be solved. Therefore, studying the influence mechanism of music on employees' work efficiency will help enterprises find the best way to improve their work efficiency, working environment, and comprehensive competitiveness.

(2) Everyone's preference for music is unique, and different types of music have different effects on different people. Therefore, enterprises need to understand employees' music preferences better, provide better music services based on personal preference, and better mobilize employees' enthusiasm, thus improving work efficiency. In the research, by analyzing the workers' responses to different types of music, enterprises can understand the employees' music preferences and appropriately provide music closer to the employees' needs for personal preference, thus making the employees more comfortable and relaxed at work.

In addition, studying the influence of music on employees' psychological state and behavior is also of great benefit to enterprise management employees. For some high-intensity and high-pressure jobs, employees often have problems such as fatigue, anxiety, and psychological obstacles, and these psychological problems will have

different degrees of impact on employees' work, thus reducing their work efficiency(Morrissey et al., 2024). By understanding the mechanism of music and its influence on employees' psychological state, enterprises can take appropriate measures, such as providing an appropriate music environment and adjusting work intensity, to reduce the pressure on employees, to better manage employees, and to improve the efficiency of enterprises.

Excellent employee performance is often inseparable from exerting concentration and creativity at work. Research shows that appropriate music can improve employees' creativity and concentration, thus promoting them to achieve better work performance. By understanding the influence mechanism of music on employees' cognitive state and emotional adjustment, enterprises can choose specific types and styles of music according to their work needs to promote employees' concentration and creativity and improve their work efficiency.

To sum up, understanding employees' preference for music and studying the influence mechanism of music on employees' work is vital for enterprises to improve their work efficiency. Through the reasonable choice of music types and styles, enterprises can enhance the creativity and concentration of employees at work and reduce the pressure on employees, thus improving employee work efficiency and enabling enterprises to develop better and gain a competitive advantage.

1.3 Research Questions

1 . How is modern music implemented to enhance teamwork efficiency in Huawei Technologies Co., Ltd. in China?

2 . What are the specific impacts of modern music on teamwork efficiency in Huawei Technologies Co., Ltd. in China?

3. How do mediating and moderating variables influence the relationship between modern music usage and teamwork efficiency in Huawei Technologies Co., Ltd. in China?

1.4 Research Objectives

1 . To explore the usage of modern music as a tool to enhance teamwork efficiency within Huawei Technologies Co., Ltd. in China.

Music, as a language of emotion and shared experience, can promote trust and cooperation among team members. In a musical group, members must utilize their talents and cooperate to create harmonious and beautiful music. This collaborative process helps to cultivate mutual trust and a sense of cooperation among team members (Kupec et al., 2022). In addition, music encourages communication and coordination among team members. For example, in an orchestra, each instrumental group must accurately master the rhythm and pitch and play in an ensemble with other instrumental groups. This precise coordination and cooperation is crucial to the cultivation of teamwork ability. Using modern music, team members' moods, communication, and collaboration abilities can be improved, thus enhancing the team's overall collaboration efficiency.

2 . To investigate the impacts of modern music on teamwork efficiency in Huawei Technologies Co., Ltd. in China.

The study will explore the use of modern music in Huawei Technologies Co.'s workplace scenarios and how it affects communication, collaboration, and overall productivity among team members. The study will assess whether modern music can enhance team cohesion, increase employee job satisfaction, and stimulate innovative thinking (Santa Barbara et al., 2022). In addition, the study will examine the role of modern music in the technology production process, including how it is integrated with Huawei's Total Scene Intelligent Listening technology and the potential impact of this combination on improving team collaboration efficiency. Through a case study of Huawei Technologies, the research expects to reveal the practical effects of modern music in high-tech companies and provide strategies and insights that can be applied to other organizations.

3. To evaluate the mediating roles of perception on work success and production technology context and the moderating effects of corporate culture and

leadership initiative on the relationship between modern music and teamwork efficiency in Huawei Technologies Co., Ltd. in China.

This research investigates how modern music shapes employees' perceptions of their work environment, creating a positive mood and improving their interaction with production technology. It examines how this mediating effect enhances team performance and efficiency through better communication and workflow optimization (Gomes et al., 2023). Moreover, this research focuses on understanding how corporate culture influences the adoption of modern music in workplaces to foster creativity, team spirit, and collaboration. Leadership initiatives, such as motivation and foresight, are also analyzed for their role in enhancing teamwork performance, engagement, and innovative outcomes (Zuluaga et al., 2020; Allaeva et al., 2022).

1.5 Scope of the Study

1. Area of Studies

This study aims to explore the influence mechanism of music on employees' work efficiency, covering psychology, management, and musicology. From a psychological point of view, this study explored the regulating effect of music on employees' emotions, how to relieve employees' nervousness through music, improve employees' work happiness, and thus enhance employees' work efficiency. From the management perspective, this study explored the application of music in enterprise management, how to create a comfortable working environment through music, and how to improve the enthusiasm and productivity of employees. From the musicology perspective, this study explored the effects of music volume, etc., on employees' work efficiency and further understand the role and application of music in the workplace. By comprehensively studying the different disciplines, this study aims to explore the role of music in the workplace and provide enterprises with effective ways and strategies to improve the efficiency of employees.

2. Area of Population

The target population comprised 11,601 employees from five departments within Huawei Technologies Co., Ltd. From five departments within Huawei Technologies Co., Ltd., there are Market System Department, Technical Support System Department, Financial System Department, Production System Department, and Management Engineering Department. Then, the samples included 640 respondents from these 5 departments.

3. Scope of Contents

The scope of this study focuses on the following research objectives:

(1) This study designed a framework to investigate the influence of different employees' music factors on work efficiency, focusing on the following issues:

The influence of music volume level and musical rhythm on employees' working status; Differences in habits and behaviors of employees in choosing and using music under different working conditions; Mediating effect of music preference and habit on employees' work efficiency.

(2) This study analyzed the cognitive, emotional, and psychological state required by different types of jobs to explore the acceptance and use effect of music by employees' background, including:

Workflows of employees under different work types; The preference of employees with different backgrounds and work types for music use, musical rhythm, and music volume level are different; The moderating effect of workflow and work type on music usage.

(3) This study comprehensively examined the relationship between music and employee work efficiency in different working scenes and production technology contexts, including:

The influence of music in different working scenes; The matching degree between music and working environment; Characteristics of work efficiency and working state in different working scenarios and production technology contexts.

1.6 Expected Results

1: The findings of this research provide new ideas for Huawei and other enterprises to optimize the working environment and improve the efficiency of employees, teamwork ability, and efficiency in any enterprise from modern music factors.

2: The moderating effect of the moderator variables not only confirms the positive influence of modern music on teamwork efficiency but also provides a valuable reference for other organizations on optimizing the application of modern music through leadership and corporate culture.

3: The findings of this research can help leaders of an organization to apply of music factors as one of the strategies to improve employee satisfaction and productivity.

1.7 Definition of Key Terms

Modern Music

“Modern music refers to innovative musical forms that emerged in the 20th century and continue to evolve, characterized by experimental techniques, including the use of electronic instruments, digital sampling, and computer programming. It encompasses diverse genres, such as jazz, rock, and electronic music, and serves as a cultural phenomenon that challenges traditional harmonic, melodic, and rhythmic norms."

Perception on Work Scenes

"Perception on work scenes refers to an individual's psychological response to the workplace, encompassing the atmosphere, interactions among colleagues, workflow efficiency, and physical environment. This perception influences employees' emotions, attitudes, and behaviors, impacting teamwork efficiency."

Production Technology Context

"Production technology context refers to the technological and environmental framework in which production occurs, shaped by socio-economic needs, scientific advancements, and sustainability goals. It includes the application of technologies like microelectronics and computer systems to improve efficiency, reduce costs, and enhance product quality while considering environmental impacts and sustainable development."

Corporate Culture

"Corporate culture is the shared values, beliefs, habits, and behaviors that shape an organization's internal dynamics and external image. It is reflected in daily employee actions, decision-making processes, organizational structure, and branding, influencing how employees think and act while embodying the organization's philosophy."

Leadership Initiative

"Leadership initiative refers to proactive actions and strategies by leaders to achieve organizational goals. It embodies forward-thinking, innovation, and responsibility, including setting strategic goals, motivating team members, fostering collaboration, and adapting to challenges."

Teamwork Efficiency

"Teamwork efficiency is the ability of team members to collaborate effectively, emphasizing communication, coordination, resource allocation, and the quality of outcomes rather than solely the speed of task completion."

CHAPTER 2
LITERATURE REVIEW

The main content of this chapter is a literature review, which is mainly divided into the following sections:

2.1 Introduction

2.2 Theories

2.3 Variables

2.4 Relationships

2.5 Huawei Case Study

2.6 Conceptual Framework

2.7 Conclusion

2.1 Introduction

As a common environmental element, music's influence on employees' work efficiency has gradually attracted widespread attention in the modern workplace. This chapter deeply explores the influence mechanism of music on employees' work efficiency, builds a theoretical framework of the system, analyzes the relationship between variables, and builds a conceptual framework.

(1) A theoretical framework is formulated to sort out the relevant scholars' research on the relationship between music and employee work efficiency.

(2) The interaction between various dimensions of music and employees' work efficiency is deeply discussed, and the internal mechanism of music's influence on work efficiency is revealed. On this basis, a conceptual framework is constructed to clarify the role and function of music elements in improving work efficiency.

(3) A conclusion is drawn through comprehensive analysis and induction of the research results.

.

2.2 Theories

2.2.1 Interpersonal Theory

Interpersonal Theory is central to organizational behavior. It focuses on the interactions of individuals in the workplace and how these interactions affect employee behavior and effectiveness (Yalch, 2023). In this study, Interpersonal Theory explains how music can enhance productivity by influencing employee interactions and emotional connections.

As a universal form of nonverbal communication, music can create a shared emotional experience in the workplace. This shared experience helps to enhance teamwork and a sense of belonging among employees, which promotes closer and more effective collaboration. According to interpersonal theory, when employees feel part of a team and have a positive emotional connection with their coworkers, they are more likely to demonstrate higher work input and productivity. Music enhances productivity by directly boosting individual moods and indirectly strengthening the social bonds between employees.

In addition, music can act as a tool to regulate the atmosphere of the workplace, influencing the mood and behavior of employees. Emotional contagion is an essential concept in interpersonal relationship theory, whereby a person's emotional state can affect the emotions of those around them. Music creates a positive and relaxing work environment, reducing employee stress and anxiety and promoting more harmonious relationships and effective communication. This positive emotional climate helps to alleviate potential conflicts and increase teamwork effectiveness, ultimately leading to increased productivity throughout the organization.

Interpersonal Theory provides a framework for understanding how music can enhance productivity by influencing social interactions and emotional connections among employees. Music indirectly contributes to employees' work efficiency by improving teamwork and a sense of belonging and moderating the emotional climate of the workplace. This mechanism of influence underscores the importance of building and maintaining positive interpersonal relationships in organizations and the

potential role of music as a nonverbal communication tool in enhancing work productivity.

2.2.2 Motivation Theory

Motivation Theory suggests that intrinsic and extrinsic factors influence employee motivation and effectiveness. Music, as a unique motivational tool, can affect the motivational state of employees on several levels. Music can stimulate emotions and resonate with employees, thus enhancing their intrinsic motivation. When employees listen to their favorite music at work, they can feel pleasure and relaxation, and this positive emotional experience can be transformed into a positive attitude towards work and higher work commitment. In addition, the rhythm and melody of music can stimulate creativity and active thinking, which is especially important for jobs that require innovation and problem-solving. This motivational effect of music helps employees think outside the box and increase problem-solving efficiency (Mitra et al., 2023).

On the other hand, music can also be used as an extrinsic motivator. In organizations, it can be used as a reward for employees by playing music or creating a work environment accompanied by music. Such rewards enhance employee satisfaction and loyalty and serve as a form of social recognition that enhances employees' sense of belonging to the organization. At the same time, the shared experience of music can strengthen the bond between team members and promote teamwork, which is especially important for team-oriented work. In teamwork, shared musical experiences can be used as a team-building tool to enhance team cohesion and collaboration through shared musical experiences. Thus, music can be used not only as a direct motivational tool to strengthen individual employees' work efficiency but also as an indirect motivational tool to indirectly enhance the productivity of the organization as a whole by improving teamwork and organizational cohesion.

Motivation Theory provides a multi-dimensional perspective to understand and analyze the impact of music on employee work efficiency. Music can enhance employees' work efficiency while promoting teamwork and organizational cohesion

by stimulating intrinsic motivation and providing extrinsic incentives. Organizations can rationally design and use music according to the principles of motivation theory to achieve the goal of enhancing employee work efficiency and organizational performance.

2.2.3 Individual Differences Theory

Individual Differences Theory suggests significant differences in employees' personalities, preferences, work styles, and psychological needs, and these differences affect their responses to the work environment, including their preferences and reactions to music. The effects of music on different individuals may be very different; some employees may feel more relaxed and happy because of their favorite music, thus increasing their work efficiency, while others may feel distracted by the music, resulting in decreased efficiency (Sweller, 2024). Therefore, when considering the effects of music on work efficiency, it is essential to consider the individual differences of employees, including their preferences for the type of music, their tolerance for the volume and tempo, and their need for music in different work tasks.

Further, Individual Differences Theory also emphasizes the importance of individualizing the management of employees. Organizations should recognize that not all employees will respond to music in the same way; therefore, providing individualized music choices or allowing employees to choose whether and what music to listen to within certain limits can better meet the needs of different employees. In addition, considering individual differences in employees, organizations can also use surveys and feedback to understand employees' specific preferences for music, thus designing more effective music application strategies. For example, a music-free or soft background music environment can be provided for tasks that require a high degree of concentration, while fast-paced, melodic music can be provided for tasks that require creativity and inspiration. In this way, organizations can not only respect and adapt to the individual differences of their employees but also use music as a non-traditional means to enhance employees' work efficiency and overall job satisfaction.

By considering employees' differences, organizations can more accurately use music as a motivational and conditioning tool to enhance employees' work efficiency and job satisfaction. This human-centered management philosophy helps build a more harmonious and productive work environment and promotes employees' personal growth and career development.

2.2.4 Social Exchange Theory

Social Exchange Theory is a theoretical framework for explaining interpersonal relationships and organizational behavior that posits that interactions between individuals are based on a trade-off between costs and rewards. In this study, social exchange theory is utilized to explore how music can be used as a non-material incentive by influencing employees' emotional experiences and psychological states, affecting their productivity (Plastira et al., 2023).

First, Social Exchange Theory emphasizes that individuals seek to maximize their organizational benefits, including material and non-material rewards. Music, as a non-material reward, can stimulate employee motivation and loyalty by enhancing their emotional state and job satisfaction without increasing costs. Employees who feel that the organization cares about and invests in them are more likely to reciprocate by being more productive. This positive effect of music can be viewed as a social exchange in which employees reciprocate the excellent working environment and psychological support provided by the organization by being more productive. Secondly, the effect of music on employees' work efficiency is also reflected in its shaping of the work atmosphere. A harmonious and positive work environment promotes employee social interaction and enhances team cohesion. Social Exchange Theory suggests positive social interactions can improve employees' commitment to the organization, increasing their work input and efficiency. In addition, music can signal that the organization values the welfare of its employees, and this signaling effect can enhance employees' sense of identification with the organization, further motivating them to reciprocate the organization's trust and care by working more efficiently.

Music acts as a non-material incentive that affects employees' emotional experience and psychological state to understand better its role in enhancing work efficiency. At the same time, the positive impact of music on the work atmosphere and its role as a signal of organizational care are important factors that influence employees' work efficiency through social exchange.

2.2.5 The Aesthetics of Organizations

The Aesthetics of Organizations refers to a management philosophy that incorporates aesthetic elements in organizational management to enhance organizational culture, work efficiency, and employee satisfaction. It emphasizes the importance of pursuing efficiency and effectiveness and focusing on the environment's aesthetics, the workflow's harmony, the workflow's harmony, and the employees' emotional pleasure in the organization's daily operation (Fryzel & Marcinkowski, 2024). Organizational aesthetics believes that a work environment with aesthetic value can stimulate employees' creativity and enthusiasm for work and thus improve the competitiveness of the whole organization.

In practice, organizational aesthetics can be embodied in a variety of ways. First, organizations can enhance employees' work experience by designing beautiful, functional office spaces. For example, using natural light, green plants, and artwork to decorate the office can create a comfortable and creative work environment. Second, organizations can incorporate artistic and cultural elements into their daily management, such as holding regular art exhibitions, concerts, or cultural lectures, so that employees can come into contact with and appreciate different art forms outside of work, thus enriching their spiritual lives. In addition, organizations can also encourage employees to participate in the design and improvement of the work environment so that they can have a greater sense of belonging and participation in the workplace. In these ways, organizational aesthetics can enhance employee satisfaction and promote teamwork and overall organizational development.

2.3 Variables

2.3.1 Volume Level

In audio technology, acoustics, and music production, “volume level” is a central concept directly related to sound strength, size, and auditory perception and can be precisely measured in decibels (dB). Scholars have defined “volume level” in terms of sound amplitude and frequency, waveform, and environmental factors such as distance from the source, medium of transmission, and environmental noise.

Padilla et. al. (2023) stated that volume level is usually expressed in decibels (dB), which reflects the energy of the sound. They emphasized that volume level control requires a combination of the sound's amplitude, frequency, and waveform to achieve the desired auditory effect. For example, the volume level of a sound measured in decibels may exhibit different energy distributions at different frequencies, affecting our auditory experience. Despina and Panagiotis (2024) further explained that volume level measures the intensity of the stimulus produced by the auditory organ as the sound propagates through space. This process is influenced by many factors, including the source's distance, medium of transmission, and environmental noise. Their study mentioned that a moderate volume level can improve the listening experience. In contrast, excessive volume levels (e.g. over 85 dB) may cause damage to the human ear, especially if proper hearing protection is not taken. Therefore, care should be taken to control the volume level when using audio equipment to protect hearing health. The definition of volume level by Uleng et al. (2024) emphasizes the amplitude of the sound signal during transmission or storage, which determines the loudness of the sound during playback. They mentioned that volume level can be controlled by adjusting parameters such as gain and attenuation of audio equipment to achieve different listening effects. These scholars also emphasized the advantages of digital audio technology in precisely controlling the volume level and achieving high-quality audio processing, especially when the volume needs to be precisely adjusted to suit different work environments and listener needs. For example, keeping volume levels below 70 dB in a work environment may be necessary to ensure employees' hearing health while maintaining sufficient

loudness to enhance productivity and satisfaction. In this way, volume level measurement and control become an important tool for optimizing the listening experience and protecting hearing health.

Scholars have different definitions of the concept of volume level but generally agree on its importance in audio technology, acoustics, and music production. Volume level is usually measured in decibels (dB), a quantitative metric that describes the strength of a sound and is directly related to the listener's auditory perception. By delving into other scholars' understanding and application of volume level, we can grasp this concept more comprehensively and control the volume more precisely in practical applications to enhance audio quality and listening experience. At the same time, while enjoying the pleasure of audio, we must protect our hearing health by avoiding prolonged exposure to high volume levels (e.g., over 85 dB) to minimize the risk of hearing damage.

In the workplace, noise levels significantly impact employees' mental state and productivity. Studies have shown that excessive noise levels not only distract employees but can also lead to health problems such as stress, coronary heart disease, stroke, and sleep disorders. Specifically, when the sound level in an office environment exceeds 50 decibels (dB), for every 10 decibels increase in sound level, an employee's physical health may decline by 1.9%. However, an environment that is too quiet (below 50 dB) can also negatively impact employee health, which may decrease by 5.4% for every 10 dB decrease. This suggests that moderate background noise may help to improve team productivity, but either too high or too low a volume may have a detrimental effect (Mohammadreza et al., 2024). A study by Lee et al. (2024) stated that appropriate volume levels can improve teamwork efficiency. They collected a large amount of data on office volume levels and employee efficiency through questionnaires and field observations. After statistical analysis, it was found that teamwork efficiency was generally higher when the volume level in the office was maintained at around 70 dB. This is because appropriate volume levels help employees stay alert and focused, reduce distraction and fatigue, and thus increase teamwork efficiency. They further pointed out that different types of work may require different volume levels. For example, some jobs requiring high concentration

and thinking may be more suitable for a relatively quiet environment (e.g., below 50 dB). In comparison, some jobs that require teamwork and communication may be ideal for a slightly noisy environment (e.g., 60-70 dB). Therefore, in practical applications, it is necessary to reasonably adjust the volume level according to the nature of the work and the needs of the employees to achieve optimal teamwork efficiency.

In her study, Anonymous (2024) explored the specific effects of volume levels (measured in decibels dB) on employee creativity. Through well-designed experiments and data analysis, the study found that employees' creativity was significantly enhanced, and their problem-solving skills increased when the volume of background music was controlled within a moderate range of 60-70 dB. This moderate volume level helps to create a relaxing work atmosphere, making employees feel comfortable and psychologically relaxed, and thus more likely to think creatively. In addition, the study also pointed out that individual differences have an impact on the volume level of employee creativity and that there may be differences in the acceptance and preference of volume among different employees, so in practical applications, the volume needs to be adjusted according to the individual characteristics of the employees, and 60-70 dB is appropriate. The study by Yasuo et al. (2024), however, paid attention to the effect of the volume level on the employees' mood and job satisfaction. They collected a large amount of data on office volume levels, employee mood, and job satisfaction through questionnaires and interviews. The study found that when office volume levels were too high (over 70 dB) or too low (below 50 dB), employees' moods were easily affected, and job satisfaction decreased accordingly. On the other hand, maintaining volume levels in the moderate range of 50-60 dB can help employees maintain a pleasant emotional state and increase their job satisfaction and engagement. Research has shown that volume, as an environmental stimulus, directly affects employees' psychological feelings and emotional responses. A moderate volume level can create a positive and harmonious working environment, making employees feel comfortable and happy and, thus, more actively engaged in their work. Yang's (2000) research suggests that appropriate volume can enhance productivity, while too high or too low can lead to distraction or

discomfort. For example, some studies have found that music at a moderate volume can improve employees' moods, leading to increased productivity. However, a volume that is too high may increase work stress and decrease performance. Additionally, consistency and predictability of volume are critical in maintaining productivity. These studies provide a theoretical basis for understanding how music volume affects team productivity and guide the appropriate music volume setting in actual work environments.

By summarizing the research results of scholars, it can be seen that the volume level positively impacts the teamwork efficiency of employees. Appropriate volume levels can improve teamwork efficiency, creativity, mood, and job satisfaction. However, in practical application, the volume level needs to be reasonably adjusted according to the nature of the work, the needs of employees, and individual differences, as in most office environments, a suitable volume range between 50-70 dB to achieve the best results. Meanwhile, future research can further explore the interaction between volume level and other work environment factors (e.g., temperature, light, etc.) and how to optimize the work environment to improve the efficiency and quality of employees' work.

Table 2.1 Literature Review on Volume Level

Scholar (Year)	Theory	Dependent Variable	Key Findings
Padillah et al. (2023)	Sound intensity measurement theory	Sound energy and loudness	Volume level is related to sound amplitude, frequency, and waveform; it affects auditory experience.
Despina & Panagiotis (2024).	Auditory perception and environmental factors theory	Auditory experience and health	Volume level is affected by distance, medium, and ambient noise; moderate levels improve

Scholar (Year)	Theory	Dependent Variable	Key Findings
			experience, while high levels can harm hearing.
Uleng et al. (2024)	Digital Audio Processing Theory	Loudness and audio quality	Digital audio technology facilitates volume control for high-quality audio processing.
Mohammadreza et al. (2024)	Occupational Health and Acoustics Theory	Employee health and performance	Optimal background noise can improve team efficiency, but extreme levels have adverse effects.
Lee et al. (2024)	Work Environment and Productivity Theory	Teamwork efficiency	Moderate volume levels maintain alertness and focus, improving work efficiency, with variations by job type.
Anonymous (2024)	Creativity and Background Noise Theory	Employee creativity	Moderate background music volume stimulates creativity and problem-solving ability.
Yasuo et al. (2024)	Emotional Response and Job Satisfaction Theory	Employee emotions and job satisfaction	Moderate volume levels maintain positive emotions and improve job satisfaction and engagement.

2.3.2 Music Rhythm

In Western music theory, tempo usually refers to the tempo in music, which BPM measures. As an emerging phenomenon, music presents properties that the sum of parts does not have. This means that the tempo of music is not only a simple beat count but a complex factor that affects the overall feeling and expression of music. Westerners may emphasize how music rhythm interacts with other elements of music (such as melody and harmony) to influence the emotions and behaviors of listeners jointly (Mori et al., 2024).

Chinese traditional musicologists' point of view: Chinese musicologists may define music rhythm from the relationship between music, emotion, and culture. Music, like language, is a symbol system that carries human emotions. In China's music theory, the tempo may be related to the emotional expression of music and internal knots (such as the rhythm of poetry). Chinese traditional music scholars may explore how the tempo reflects and affects people's emotional state and how to improve work efficiency by adjusting the tempo (Safdar & Wessells, 2023). Cross-cultural music psychology research: Cross-cultural research may provide a more comprehensive perspective. The application of music in sports has been widely discussed, which implies the potential role of music rhythm in motivation. Cross-cultural scholars may study people's perceptions and responses to festival tempo in different cultural backgrounds and how to adjust the tempo of music according to the characteristics of different cultures to improve teamwork efficiency in different cultural backgrounds (Datema & Voela, 2022).

Based on integrating the above viewpoints, we can get a comprehensive definition: music rhythm is the number of beats per unit of time in music, which BPM usually measures. It not only determines the basic rhythm of music but also is closely related to the emotional expression and cultural background of music. In different cultures and working environments, the choice and adjustment of music rhythm can affect employees' mood, cognitive function, and work efficiency. In order to deeply understand the influence of music rhythm on employees' work efficiency, future research can consider individual differences, such as employees' preferences and

reactions to different tempos. You can also explore cultural factors and study employees' perceptions of music rhythm under different cultural backgrounds.

Howe and Blair (2021) pointed out in their research that a moderate pace can effectively improve teamwork efficiency. By investigating employees in different industries and positions, he found that teamwork efficiency will be significantly improved when the pace of work matches employees' abilities and tasks. This is because a moderate pace can enable employees to maintain high concentration and enthusiasm, reduce mistakes and delays in their work, and thus improve overall work efficiency. He also pointed out that a moderate pace does not mean that the sooner, the better. The pace is too fast, which may cause employees to feel too stressed, quickly leading to fatigue and anxiety and reducing work efficiency. Therefore, in practical application, adjusting the music rhythm reasonably according to employees' personal characteristics and work needs is necessary to achieve the best work efficiency.

Patrick and Anderson (2021) analyzed the relationship between music rhythm and employee work efficiency in their research and drew a positive conclusion. He believes that a moderate pace is essential to improve the efficiency of employees. They pointed out that must maintain high concentration and adaptability in a fast-paced working environment to cope with changing work needs. A moderate pace can enable employees to maintain an efficient work rhythm in a tense and orderly working state and reduce mistakes and delays caused by too fast or too slow a pace. They further pointed out that the adjustment of music rhythm should be carried out according to the characteristics of different industries and positions. For example, in some industries that need quick response and efficient execution (such as finance, Internet, etc.), a moderately fast-paced speed can help employees deal with tasks quickly and improve work efficiency. However, in some fields that need in-depth thinking and innovation (such as scientific research and design), too fast may limit employees' thinking space and innovation ability, so it is necessary to reduce the pace to promote creativity moderately.

In addition, they also emphasized the relationship between music rhythm and employees' mental health. He believes a moderate pace can improve work efficiency and reduce employees' psychological pressure and anxiety. Too fast of a work rhythm may lead to employees being in a state of tension for a long time, affecting their physical and mental health. A slow pace may make employees feel bored and lack motivation. Therefore, adjusting the pace reasonably to maintain employees' mental health and job satisfaction is significant.

In terms of foreign scholars, Prescott (2021) deeply discussed the influence of music rhythm on employees' creativity in their research. Through experimental design and data analysis, they found that a moderate pace can stimulate employees' creativity and promote the emergence of innovative thinking. They believe that a moderate pace can provide enough time and space for employees to analyze problems more deeply and find solutions, thus showing higher creativity in their work. In addition, they also pointed out that the impact of pace on employees' creativity may be affected by the nature of work. A moderate pace is significant for jobs requiring high innovation and flexibility. For some repetitive and mechanical work, a pace that is too fast may not be conducive to creativity. Therefore, in practical application, it is necessary to adjust the music rhythm reasonably according to the nature of the work to maximize employees' creativity. Kropff et al. (2021) paid attention to the influence of music rhythm on employees' mental health and job satisfaction. Through questionnaires and interviews, they collected a large of data on the relationship between work and music rhythm, employees' mental health, and job satisfaction. They found that when the pace of work is too fast, employees tend to feel stressed and anxious, affecting their mental health and job satisfaction. Moderate music rhythm can keep employees happy and positive, improving their job satisfaction and engagement. They believe that a moderate pace can keep employees in a balanced state at work, neither too nervous nor too lax, which is conducive to their physical and mental health and work performance.

The above domestic and foreign scholars' research shows that the music rhythm positively impacts employees' work efficiency. A moderate pace can improve employees' work efficiency, stimulate creativity, and improve mental health and job

satisfaction. However, in practical application, adjusting the music rhythm reasonably according to employees' characteristics, work nature, and work requirements is necessary to achieve the best results. At the same time, future research can further explore the interaction between music rhythm and other work factors and how to improve employees' work efficiency and quality by optimizing work rhythm.

Table 2.2 Literature Review on Musical Rhythm

Scholar (Year)	Theory	Dependent Variable	Key Findings
Mori et al. (2024)	Entrainment Theory	The listener's perception and behavior	Music tempo is a complex factor that influences the overall musical experience and interacts with melody, harmony, etc.
Safdar & Wessells (2023)	Emotional Contagion Theory	Emotional state and work efficiency	Music rhythm reflects and influences emotional states and can be adjusted to improve work efficiency.
Datema & Voela (2022)	Cross-Cultural Music Perception Theory	Teamwork efficiency in different cultures	Perception and response to music tempo vary across cultures, affecting teamwork efficiency.
Howe & Blair (2021).	Optimal Stimulation Level Theory	Teamwork efficiency	Moderate tempo improves work efficiency when matched with personal ability and task requirements.
Patrick & Anderson (2021).	Yerkes-Dodson Law	Work efficiency and adaptability	Moderate tempo is crucial for maintaining focus and efficiency in fast-paced environments.
Prescott (2021)	Creative Cognition Theory	Employee creativity	Moderate tempo stimulates creativity and innovative thinking, especially in creative and flexible work.

2.3.3 Personal Preference

Psychologists may regard personal preference as an individual's subjective evaluation of the emotional value of music. According to psychological research, personal preference includes the preference for music type, rhythm, melody, and harmony and the personal emotional state, previous experience, and cultural background. Psychologists emphasize that personal preference will affect employees' acceptance of background music and their mood and work performance. For example, some employees may prefer fast-paced music to boost motivation, while others may prefer slow-paced music to stay calm and focused (Vevoda et al., 2023). Sociologists may define personal preferences from a social and cultural perspective. They believe personal preference is formed during socialization and influenced by social groups, cultural traditions, and popular trends. Sociologists will explore how personal preferences are related to social identity and group belonging, and how this preference affects employees' expectations and reactions to workplace music. For example, employees of different age groups or professional backgrounds may have different music preferences, affecting their acceptance of playing music in the workplace (Khalid et al., 2023). Human resource management experts may regard personal preferences as part of employees' values and work motivation. In their view, personal preference is critical to employees' characteristics, directly impacting their job satisfaction, involvement, and efficiency. Human resource management experts will study designing an effective working environment by considering employees' music preferences, including music selection, volume control, and playing time. They believe that by respecting and adapting to employees' personal preferences, employees' job satisfaction and loyalty can be improved, thus improving the overall work efficiency (Sharabi et al., 2023).

Personal preference is an individual's subjective preference and choice for music, which is influenced by emotion, experience, culture, and social factors. In the workplace, personal preference will affect employees' perception and reaction to background music and their mood and work efficiency. To maximize the positive impact of music on work efficiency, managers and organizations should consider employees' personal preferences and create a more harmonious and efficient working

environment by providing a diversity of music choices, controlling the playing time and volume of music, and allowing employees to choose background music to a certain extent.

Personal preference plays a vital role in employees' work as an internal source of motivation. Through research, many domestic and foreign scholars have intensely discussed the positive influence of personal preference on employees' work efficiency. Quiñones Rozo and Canaval Erazo (2024) pointed out in their research that a significant positive correlation exists between personal preference and work efficiency. By investigating employees in different industries and positions, he found that when employees' work content matches their individual preferences, their work enthusiasm, engagement, and creativity will be significantly improved. This is because personal preference can stimulate employees' intrinsic motivation and make them more willing to invest time and energy to complete tasks, thus achieving better work outcomes. He further discussed optimizing the working environment and task allocation according to employees' preferences. He suggested that enterprises should pay attention to employees' interests and specialties and provide employees with jobs and career development paths that fit their preferences. This can improve employees' job satisfaction and loyalty and promote enterprises' long-term stable development.

Harcourt et al. (2022) deeply analyzed the influence mechanism of personal preference on employees' work efficiency in their research. Through experimental design and data analysis, he found that personal preference can affect employees' cognitive processes and behavior choices, thus indirectly affecting work efficiency. Specifically, when employees are faced with tasks that meet their personal preferences, their brains will be more active, their thinking will be more agile, and they will be able to find ways and means to solve problems faster. At the same time, they will be more willing to accept challenges and try new things, thus showing higher creativity and flexibility in their work. His research also pointed out that personal preference is not static but will change with the accumulation of time and experience. Therefore, enterprises need to continuously pay attention to the changes in employees' personal preferences and make adjustments and optimizations

according to the actual situation. Only in this way can we ensure that teamwork efficiency is always maintained at a high level.

Morley et al. (2022) discussed the influence of personal preference on employees' work efficiency from a psychological perspective. He believes that personal preference is a reflection of employees' internal needs. When such needs are met, employees will feel happy and satisfied, thus showing higher enthusiasm and efficiency in their work. He collected much data about employee preferences and work efficiency through questionnaires and interviews. He found that employees who can give full play to their strengths and interests in their work can often get higher job satisfaction and a sense of accomplishment, thus improving work efficiency. He further pointed out that enterprises should attach importance to employees' personal preferences and provide employees with diversified job opportunities and training resources to help them explore and enhance their potential. At the same time, enterprises should establish a suitable incentive mechanism and feedback mechanism to encourage employees to pursue personal growth and progress in their work.

Breaugh and Ripoll (2022) have a profound research background in psychology. He pays attention to the influence of individual internal factors on work behavior, including the effect of personal preference on teamwork efficiency. He believes that personal preference is an essential source of employees' intrinsic motivation and a critical factor in shaping their work behavior. Through empirical studies, he deeply analyzed the relationship between personal preference and work efficiency. He found that when employees can fully show their personal preferences at work, their work enthusiasm, creativity, and satisfaction will be significantly improved. Personal preference can stimulate employees' internal motivation and make them more engaged and willing to face challenges. In addition, he pointed out that the degree of matching personal preference with work content is the crucial factor affecting work efficiency. When the work content is highly compatible with the personal preferences of employees, employees can enter the working state faster and complete tasks more efficiently.

On the contrary, if the work content is far from personal preference, employees may feel bored and need more motivation, decreasing work efficiency. The scholar's research further discusses how to better satisfy employees' individual preferences by optimizing the working environment and task allocation. He suggested that enterprises fully understand candidates' preferences and specialties at the recruitment stage to arrange more suitable jobs. At the same time, enterprises should encourage employees to participate in job design and task assignments and choose suitable tasks according to their preferences and abilities.

The above scholars' research shows that personal preference positively impacts employees' work efficiency. Enterprises should pay attention to employees' preferences and provide them with a working environment and task assignments that are compatible with their preferences to promote employees' work efficiency. At the same time, enterprises also need to pay attention to the changes and development of employees' personal preferences and adjust and optimize the working environment and incentive mechanism to ensure that employees can maintain efficient working conditions.

Table 2.3 Literature Review on Personal Preference

Scholar (Year)	Theory	Dependent Variable	Key Findings
Vevoda et al. (2023)	Music Preference Theory	Employee's acceptance of background music	Personal music preferences affect the acceptance of background music and subsequent emotional and performance outcomes.
Khalid et al. (2023)	Social Identity Theory	Music preference and workplace expectations	Social and cultural influences shape preferences and affect the acceptance of workplace music.
Sharabi et al. (2023)	Self-Determination Theory	Work satisfaction, engagement, and efficiency	Considering employees' music preferences can enhance job satisfaction and loyalty, improving overall work efficiency.

Scholar (Year)	Theory	Dependent Variable	Key Findings
Quiones et al. (2024)	Self-Determination Theory	Work enthusiasm, dedication, and creativity	Matching work content with personal preferences significantly boosts intrinsic motivation and work outcomes.
Harcourt et al. (2022)	Cognitive Engagement Theory	Cognitive processes and behavioral choices	Personal preferences influence cognitive engagement and behavior, indirectly affecting work efficiency.
Morley et al. (2022)	Motivation-Hygiene Theory	Work satisfaction and efficiency	Aligning work with personal preferences satisfies intrinsic needs, leading to higher work motivation and efficiency.
Breaugh & Ripoll (2022)	Job Characteristics Model	Work enthusiasm, creativity, and satisfaction	Preference-match in work tasks enhances intrinsic motivation, improving work engagement and efficiency.

2.3.4 Work Outcome

Van Hal et al. (2024) studied the influence of Chopin's music on work outcomes through digital n-back experimental paradigm and event-related potential technology (ERP technology). They discussed the EEG activity of ordinary people's cerebral cortex under different music conditions and then analyzed the neural mechanism of the influence of music on work outcomes. In this study, work achievement may be defined as the correct rate and reaction time of work outcome, which is closely related to the cognitive efficiency of employees when performing tasks. Søndergaard et al. (2024) discussed the influence of background music on spatial work outcomes. The research mainly focuses on whether background music will occupy cognitive resources, thus affecting the concentration and efficiency of work outcomes. In her study, work achievement may be defined as the performance

of spatial work outcomes under the influence of background music, including emotional release, concentration, and improvement of study and work efficiency.

With the diversification and complexity of the modern working environment, music, as a common background sound, has gradually attracted scholars' attention. As an essential dimension to measure work efficiency, the research on the influence of music on work achievement is increasingly affluent.

Kolibaba et al. (2024) pointed out that music has a differentiated influence on different work outcomes. The empirical study of employees in many industries found that music plays a significant role in promoting repetitive and mechanical work results. They believe that this type of work is often monotonous, and adding music can improve the emotional state of employees, reduce fatigue, and thus increase work output. For example, workers on the assembly line, accompanied by music, have improved their working speed and accuracy. However, their research shows that music may have a specific interference effect for jobs requiring high concentration and deep thinking. This kind of work often requires employees to maintain a high degree of concentration, and factors such as the rhythm and melody of music may distract employees' attention, thus affecting the work quality results. Therefore, they suggest that employees avoid listening to music for jobs requiring deep thinking. Sisson (2021) analyzed the influence of music on work achievement from the perspective of neuroscience. He believes that music can activate certain areas in the brain and improve employees' cognitive flexibility, thus helping to solve complex problems. He found through experiments that under the condition of playing light music, employees' performance in solving innovative issues is better than that in no music environment. He pointed out that this positive influence may be related to the regulatory effect of music on emotional state, and music can enhance employees' positive emotions, thus enhancing their creativity. However, he also pointed out that the influence of music on work outcomes is not static. Factors such as music rhythm, volume, and employees' personal preferences may affect the effect of music on work outcomes. Therefore, in practical application, enterprises should reasonably choose background music according to the nature of employees' work and personal needs to achieve the best work effect.

Röhr et al. (2023) discussed the influence of music on work achievement from a cross-cultural perspective. Through the comparative study of employees in different countries and regions, he found cultural differences in music's influence on work outcomes. In some cultures, music is regarded as a part of work, which can stimulate the enthusiasm and creativity of employees. Music may be a distracting factor affecting employees' concentration in other cultures. Therefore, when introducing background music, enterprises must thoroughly consider employees' cultural backgrounds and values to avoid the negative impact caused by cultural differences.

Maurer et al. (2023) discussed the effect of music on work achievement in detail. She compared employees' work outcomes in different music environments through experiments and found that appropriate music can significantly improve teamwork efficiency and work outcomes. She pointed out that music can stimulate employees' creativity and enthusiasm by adjusting their emotional state, reducing work pressure, and enhancing job satisfaction so they can be more involved in their work and achieve better results. At the same time, she also emphasized the matching between music and the nature of work. She believes that for jobs requiring high concentration and deep thinking, music with gentle rhythm and beautiful melody should be chosen to avoid interfering with employees' thinking. You can select lively and energetic music for repetitive and mechanical work to improve employees' speed and accuracy. This view provides a valuable reference for enterprises to choose and apply background music in practical work. Raffaella et al. (2023) analyzed the influence of music on work outcomes from an empirical perspective. Through questionnaire surveys and field observations of employees in a large enterprise, he found that music can significantly improve employees' work efficiency and quality of results. He believes that music can activate the pleasure center in the brain so that employees can maintain a happy mood at work and complete tasks with more devotion. In addition, music can also improve employees' attention and memory and help them better deal with information and solve problems. However, he also pointed out that the influence of music on work outcomes is not absolute.

Different employees have different preferences and acceptance of music. Therefore, in practical application, enterprises must choose appropriate music according to employees' needs and preferences. In addition, the volume and rhythm of music are essential factors that affect work outcomes. Too high a volume or intense music may interfere with employees' work and reduce work efficiency. Shim et al. (2023) discussed the influence of music on work achievement from a cross-cultural perspective. By investigating employees in different countries and regions, he found cultural differences in music's impact on work outcomes. In some cultures, music is regarded as a part of work, which can stimulate employees' creativity and spirit of cooperation, thus improving work outcomes. In other cultures, music may be regarded as distracting, affecting employees' concentration and work efficiency. His research reminds us that when applying music to the work environment, we must thoroughly consider employees' cultural backgrounds and values. Enterprises should respect the cultural differences of employees and avoid promoting a particular music style or type across the board. At the same time, enterprises can also help employees understand and accept the positive role of music in their work through training and guidance to play to the potential of music in improving work outcomes.

The influence mechanism of music on employees' work efficiency is a complex and diverse problem. From the perspective of work achievement, music has a differentiated influence on different types of work. In practical application, enterprises should reasonably select and apply background music in combination with the nature of employees' work, personal needs, and cultural background to improve employees' work efficiency and quality of results. At the same time, future research can further explore the interaction between music and other working environment factors (such as light, temperature, etc.), as well as the influence of music on employees' mental health and happiness, to reveal the mechanism of music in the working environment more comprehensively.

Table 2.4 Literature Review on Work Outcome

Scholar (Year)	Theory	Dependent Variable	Key Findings
Van Hal et al. (2024)	Cognitive Neuroscience Theory	Work outcome (accuracy and reaction time)	Chopping music impacts cortical brain activity and work performance through neural mechanisms.
Ndergaard et al. (2024)	Cognitive Resource Allocation Theory	Spatial work performance under background music	Background music may occupy cognitive resources, affecting concentration and efficiency.
Kolibaba et al. (2024)	Task-Music Fit Theory	Work outcome in repetitive and mechanical tasks	Music significantly boosts performance in monotonous tasks but may distract in tasks requiring deep concentration.
Sisson (2021)	Mood Regulation Theory	Creativity and problem-solving in music	Light music enhances mood and creativity, aiding in solving complex problems.
Hauke and Clarke (2023)	Cross-Cultural Music Perception	Work outcome across cultures	Cultural differences influence the impact of music on work performance.
Maurer et al. (2023)	Emotional and Cognitive Interaction Theory	Teamwork efficiency under music	Appropriate music improves team efficiency by adjusting emotional states and reducing stress.
Raffaella et al. (2023)	Music and Brain Activation Theory	Work efficiency and quality under music	Music activates the brain's pleasure centers, improving mood and work engagement.
Shim et al. (2023)	Cross-Cultural Work Music Integration	Work outcome in different cultures	Cultural background influences the perception and effect of music on work performance.

2.3.5 Work Quality

As an essential consideration dimension, work quality has attracted the attention of many domestic and foreign scholars. Quiñones Rozo and Canaval Erazo (2024) pointed out in their research that work quality refers to the accuracy, meticulousness, and innovation employees show in the work process. He believes that the work quality is reflected in the number of tasks completed and the quality and level of tasks completed. He further emphasized the influence of music on work quality and thought that appropriate music would help enhance the staff's concentration and creativity, thus improving work quality. In their research, Vigna et al. (2024) defined work quality as the degree to which employees reach or exceed predetermined standards. He emphasized the close relationship between work quality, customer satisfaction, and organizational performance. Through experimental research, he found that some types of music can reduce employees' tension, improve job satisfaction, and improve work quality. Crozier and Atkinson (2024) proposed that work quality refers to employees' professionalism and sense of responsibility in the work process. He believes that high-quality work requires employees to have solid professional knowledge and skills and be enthusiastic and actively involved. Through comparative study, he found that a suitable music atmosphere can stimulate employees' positive emotions, enhance their sense of responsibility and mission, and thus improve work quality.

Three scholars defined work quality from different angles and discussed the influence of music on it. These studies provide a valuable reference for understanding the relationship between music and employee work efficiency. However, the specific mechanism of music's influence on work quality still needs further research and exploration.

Choi et al. (2024) deeply discussed the influence of music on work quality in their research. He pointed out that work quality not only refers to the work quality results but also includes a series of factors in the work process, such as accuracy, innovation, meticulousness, and compliance with work standards. He believes that music, as an emotional adjustment tool, can significantly affect

employees' mood, emotional state, and work performance. Through experimental research, he found that some relaxed and pleasant music can dramatically improve the mood of employees, make them more engaged in their work, and thus enhance the quality of work. At the same time, he also pointed out that not all types of music are suitable for the working environment. Too intense or noisy music may interfere with employees' attention and reduce the work quality. Beloor (2024) believes that work quality is a comprehensive reflection of the professional skills, responsibility, and professionalism employees display during work. He pointed out that music can be a compelling incentive to improve employees' enthusiasm by affecting their emotional state. Through the investigation and study of employees in different industries, he found that employees who often come into contact with music usually show higher job satisfaction and lower turnover rate, indirectly proving music's positive role in improving work quality. In addition, he further discussed the influence of music types on work quality. He found that some kinds of music, such as classical and light music, are more helpful for employees to relax and improve work efficiency and quality.

From their unique perspective, Shaherah and Farghaly (2024) conducted an in-depth study on the relationship between music and work quality. He believes work quality embodies employees' best working conditions in a specific working environment. As an environmental factor, he proposed that music can optimize employees' working state by influencing their psychological state and cognitive process. Through a series of experimental studies, he found that appropriate music can significantly reduce employees' fatigue and stress, improve their attention and concentration, and improve work quality. At the same time, he also pointed out that different individuals have different preferences and reactions to music, so it is necessary to choose the appropriate music type according to employees' differences in practical application. In their research, Quinones Rozo et al. (2024) discussed the influence mechanism of music on work quality. She pointed out that work quality comprehensively reflects employees' professionalism, attitude, and efficiency. As a particular stimulating factor, music can affect employees' performance by adjusting their emotional state. Through empirical research, she found that employees' work enthusiasm has significantly improved with the appropriate music background.

At the same time, they have shown higher concentration and creativity, which are conducive to improving work quality. She further analyzed the influence of different types of music on the work quality. She found that a brisk melody can stimulate employees' positive emotions and make them more involved in their work. Soft music helps employees relax and relieve work pressure, thus improving work efficiency. However, she also stressed that not all types of music suit the working environment. Too noisy or irritating music may interfere with employees' attention and reduce the work quality.

Based on the above scholars' research, music has many effects on the quality of employees' work. First of all, music can improve the enthusiasm and engagement of employees by adjusting their emotional state. Secondly, music can optimize employees' working environment and reduce fatigue and stress. Finally, music can also improve employees' attention and concentration when completing tasks. However, these studies also remind us that not all types of music are suitable for the working environment, so it is necessary to choose the appropriate music type according to the specific situation in practical application. In addition, future research can further explore the particular mechanism of the influence of music on work quality and how to maximize the improvement effect of music on work quality through personalized music selection. At the same time, we can also consider combining music with other working environment factors, such as light and temperature, to create a more comfortable and efficient working environment.

In a word, the influence of music on the quality of employees' work is a complex and exciting topic that needs more scholars to study and explore deeply.

Table 2.5 Literature Review on Work Quality

Scholar (Year)	Theory	Dependent Variable	Key Findings
Quiones Rozo et al. (2024)	Music and Work Performance Theory	Work quality (accuracy, thoroughness, innovation)	Music can enhance focus and creativity, thus improving work quality.
Vigna et al. (2024)	Customer Satisfaction and Organizational Performance Theory	Work quality as meeting or exceeding standards	Certain types of music reduce tension and improve job satisfaction and work quality.
Crozier & Atkinson (2024).	Professionalism and Responsibility Theory	Work quality (professionalism, responsibility)	An appropriate music atmosphere can stimulate positive emotions and enhance responsibility.
Choi et al. (2024)	Emotional Regulation Theory	Work quality (accuracy, innovation, thoroughness, adherence to standards)	Relaxing music improves mood and engagement, thus enhancing work quality.
Nanjundeswaraswamy & Beloor (2024)	Motivational Effect of Music Theory	Work quality (professional skills, responsibility, and work ethic)	Regular exposure to music at work correlates with higher satisfaction and lower turnover rates.
Shaherah & Farghaly (2024)	Psychological State and Cognitive Process Theory	Work quality as optimal work state	Proper music reduces fatigue and stress, improving attention and work quality.
Quinones Rozo, et al. (2024)	Emotional State Regulation Theory	Work quality (professionalism, attitude, efficiency)	Music as a motivational factor can improve enthusiasm, focus, and creativity, enhancing work quality.

2.3.6 Work Speed

As an essential measurement dimension, work speed has attracted the attention of many scholars. When Sheng et al. (2023) studied the relationship between music and work efficiency, they defined work speed as follows: "Work speed refers to the number or progress of employees completing work tasks in a certain period. It reflects the work efficiency and ability of employees in unit time. " He believes that music, as an external stimulus, can affect employees' psychological state, work rhythm, and work speed. Safdar & Wessells (2023) defined work speed more specifically in their research: "Work speed includes not only the speed of completing tasks but also the accuracy and quality of task completion. An efficient working speed should improve the speed of completing tasks as much as possible to ensure the quality of functions. " Through empirical research, he found that some types of music can improve the working speed of employees, but at the same time, it is also necessary to consider the influence of music on employees' attention and work accuracy. Zinovieva et al. (2021) defined working speed from a psychological point of view: "Working speed is the speed at which individuals process information, make decisions, and perform operations during their work. It is influenced by individual cognitive ability, emotional state, and external environmental factors. " He believes that music, as an external factor that can affect emotions, may affect the working speed of employees by adjusting their emotional state.

Work speed is an essential indicator of employee work efficiency. It covers the speed, accuracy, and quality of completing tasks. Music can positively or negatively impact employees' working speed as an external stimulus, affecting their psychological state and cognitive process.

Estibeiro et al. (2024) analyzed the working speed deeply. He pointed out that working speed refers to employees' time to complete tasks in a specific working environment. Through empirical research, he found that moderate music stimulation can improve the working speed of employees, which is mainly attributed to the positive influence of music on employees' psychological state. He believes that music can relieve the work pressure of employees, improve their job satisfaction and

enthusiasm, and thus urge employees to complete their work tasks faster. At the same time, he also pointed out that different types of music have different effects on work speed. For example, light and fast-paced music is more helpful to improve work speed, while low and slow music may reduce work speed. Pataskar et al. (2024) elaborated on the definition of working speed and its relationship with music. He believes that working speed not only refers to the speed of completing tasks but also includes the accuracy and quality of task completion. Through comparative experiments, he found that under the appropriate music background, the working speed of employees has been significantly improved, and the quality of task completion has not been significantly affected. He further pointed out that music can affect the working speed because it can adjust employees' emotional state and cognitive process, make them more focused on work tasks, and improve the speed of information processing and decision-making.

Ferguson and Foley (2023) discussed the concept of working speed more extensively. He defined work speed as the amount of work completed by employees in a unit of time and regarded it as one of the essential indicators to measure work performance. Through comprehensive analysis of several research data, he found that the influence of music on work speed is significant and universal. He believes music can stimulate employees' work enthusiasm and creativity by changing their working environment and psychological state, thus improving their work speed. At the same time, he also pointed out the individual differences in the influence of music on work speed. For example, employees with different personalities, ages, and cultural backgrounds may react differently to music. Reyentovich et al. (2023) analyzed the mechanism of music on working speed from a psychological perspective. He pointed out that work speed is an essential indicator of work efficiency and involves employees' psychological, cognitive, and emotional states. Through empirical research, he found that in a suitable music environment, the working speed of employees improved significantly. He explained that music can adjust employees' psychological state, relieve tension, enhance concentration, and thus speed up work. In addition, he also pointed out that different types of music have different effects on working speed.

The above scholars defined the working speed from different angles and discussed the influence of music on working speed. They believe music can improve employees' working speed and efficiency by regulating their emotional and cognitive states. However, the influence of music on working speed is not static; many factors, such as music type, individual differences of employees, and working environment, influence it. Therefore, future research must explore the complex relationship between music and work speed to provide a scientific basis for enterprises to formulate more effective music management strategies.

Table 2.6 Literature Review on Work Speed

Scholar (Year)	Theory	Dependent Variable	Key Findings
Sheng et al. (2023)	External Stimuli and Work Pace Theory	Work speed as task quantity or progress over time	Music as an external stimulus can affect psychological state and work rhythm, influencing work speed.
Safdar & Wessells (2023)	Music and Task Efficiency Theory	Work speed, including accuracy and quality	Certain types of music can improve work speed while maintaining task quality and accuracy.
Zinovieva et al. (2021)	Emotional State and Information Processing Theory	Work speed is influenced by cognitive abilities and emotional state	Music can adjust emotional states, affecting information processing speed and work pace.
Estibeiro et al. (2024)	Music and Work Satisfaction Theory	Work speed is the time needed to complete tasks.	Moderate musical stimulation can enhance work speed through positive psychological impacts.
Pataskar et al. (2024)	Music and Cognitive Process Theory	Work speed with maintained task accuracy and quality	A proper musical background significantly improves work speed without compromising quality.
Ferguson & Foley (2023)	Work Performance and Environmental Psychology Theory	Work speed as a measure of work output over time	Music can stimulate enthusiasm and creativity, affecting work speed with individual variability.

Scholar (Year)	Theory	Dependent Variable	Key Findings
Reyentovich et al. (2023)	Psychological Cognition and Emotion Regulation Theory	Work speed involving cognitive processes and emotional states	Suitable music environments can enhance work speed by adjusting psychological states and focus.

2.3.7 Work Input

Phan et al. (2023) pointed out in their research that work input refers to employees' positive attitude and behavior at work, including their concentration, efforts, and enthusiasm for work. He believes that work input is the critical factor in improving employees' work efficiency, and music, as an environmental stimulus, can affect employees' work input by adjusting their psychological state. In their research, Watson and Warner (2024) defined work input as the employee's total devotion to work, including cognitive, emotional, and physical devotion. They believe work input is related to employees' characteristics and influenced by factors such as working environment and task characteristics. As an essential environmental factor, music can improve employees' work input by changing the working atmosphere. Smith et al. (2023) defined work input from the psychological level. They believed that work input was a positive psychological state experienced by employees in their work, manifested in their high recognition and engagement. Their research shows that music can adjust employees' emotional state, promote their positive cognition of work, and thus improve the level of work input.

These scholars emphasize different definitions of work input, but all emphasize employees' positive attitudes and behavior at work. Music can affect employees' job involvement in many ways, affecting work efficiency. Therefore, when studying the influence mechanism of music on employees' work efficiency, we need to consider the role of this dimension of work input fully.

Fischer and Maag (2022) deeply discussed the influence of music on work input in their research. They pointed out that work input is the degree of concentration, enthusiasm, and hard work employees show in the work process. Through empirical research, they found that appropriate music can effectively

improve the level of employees' work input. They selected different styles of music to carry out experiments. They discovered that relaxed and pleasant music can reduce employees' sense of stress, enhance their positive emotions towards work, and thus improve their work input. Music with a bright rhythm and dynamic feeling can stimulate employees' vitality and make them more focused on their work. This research provides theoretical support for enterprises to apply music reasonably in the working environment.

Ogilvie et al. (2021) defined and expounded work input in detail in their classic research. They believe that work input is a process in which employees integrate themselves with their job roles, manifested in their full participation in cognition, emotion, and physical strength. They stressed that job involvement helps improve teamwork efficiency and enhances job satisfaction and happiness. They further pointed out that music, as an environmental factor, can promote employees' devotion to work by adjusting their psychological state. His research laid a theoretical foundation for further discussion on the relationship between music and work input.

Sunagawa et al. (2020) believe job involvement is the opposite of job burnout, and when employees have a high degree of job involvement, their job burnout will decrease. In terms of the influence of music on work input, they pointed out that the rhythm and melody of music can affect employees' emotional state and their work input. They believe enterprises should pay attention to employees' music needs and create a positive working atmosphere by providing appropriate background music to improve employees' work input and efficiency.

When discussing the influence mechanism of music on employees' work efficiency, these scholars all pay attention to the dimension of work input. Through empirical research, they revealed the influence of music on work input and its mechanism, which provided the theoretical basis and practical guidance for enterprises to apply music in helpful work. These studies help to deeply understand the relationship between music and work input and provide new ideas and directions for future research. However, it should be noted that the influence of music on work input may be influenced by many factors, such as employees' personal preferences,

job nature, music type, and so on. At the same time, we need to pay attention to the differences in the relationship between music and work input in different cultural backgrounds to provide more targeted suggestions and guidance for multinational enterprises.

Research on the influence mechanism of music on employees' work efficiency is a complex and fascinating field. Through in-depth discussion of this dimension of work input, we can better understand the role of music in the workplace and strongly support enterprises in creating a more active and efficient working environment.

Table 2.7 Literature Review on Work Input

Scholar (Year)	Theory	Dependent Variable	Key Findings
Phan et al. (2023)	Environmental Psychology Theory	Work engagement as positive attitudes and behaviors	Music as an environmental stimulus can regulate psychological states, affecting work engagement.
Watson & Warner (2024)	Job Engagement Theory	Work engagement, including cognitive, emotional, and physical investment	Work engagement is influenced by personal traits, work environment, and task characteristics, with music altering the work atmosphere.
Smith et al. (2023)	Positive Psychological State Theory	Work engagement as a positive psychological state	Music can regulate emotional states and promote positive cognition towards work, enhancing work engagement.
Fischer & Maag (2022)	Music and Mood Regulation Theory	Work engagement in terms of focus, enthusiasm, and effort	Appropriate music can significantly improve work engagement by reducing stress and enhancing positive emotions.
Ogilvie et al. (2021)	Job Involvement Theory	Work engagement as cognitive, emotional, and physical	Work engagement contributes to team efficiency, job satisfaction, and

Scholar (Year)	Theory	Dependent Variable	Key Findings
		participation	well-being, with music adjusting psychological states.
Sunagawa et al. (2020)	Opposing Work Engagement and Burnout Theory	Work engagement as opposed to burnout	Music's rhythm and melody can affect emotional states and work engagement, which can have implications for creating a positive work atmosphere.

2.3.8 Perception of Work Scenes

In his study, Wissmann (2024) conducted an in-depth empirical analysis of a typical office environment in China. Through comparative experiments, he found that soft background music can significantly enhance the teamwork efficiency and emotional state of employees in the office. He pointed out that in a fast-paced, high-stress urban office environment, the appropriate introduction of background music, such as light or classical music, can effectively relieve teamwork tension and reduce work pressure, thus improving teamwork efficiency. In addition, he emphasized the importance of the type of music, pointing out that music that is too intense or contains lyrics may distract employees, which is not conducive to work.

On the other hand, Morawska et al. (2024) turned their attention to the manufacturing shop floor in China, a workplace dominated by manual labor and a relatively noisy environment. Through field observations and interviews, he found that playing fast-paced music on the production line motivates workers, delays fatigue to a certain extent, and improves productivity. He points out that this music effect is particularly applicable to work tasks that are highly repetitive and physically demanding. At the same time, he warns that when choosing music, it is essential to consider the noise level in the workshop to ensure that the workers perceive the music and not become a new source of distraction.

Sokolova & Feshchenko's (2024) research focuses on China's fast-growing Internet companies, known for their unique cultural atmosphere and flexible working practices. Using questionnaires and in-depth interviews, he reveals the critical role of music in these companies. He found that Internet companies tend to pay more attention to their employees' physical and mental health and job satisfaction, so many will set up music-playing devices in the office area, allowing employees to choose music according to their preferences. This personalized choice of music enhances teamwork's sense of belonging and promotes communication among team members, indirectly improving teamwork efficiency. He also pointed out that the openness and innovation of Internet companies make music a unique cultural symbol, further stimulating employees' creativity and enthusiasm.

Table 2.8 Literature Review on Work Scenes

Scholar (Year)	Theory	Dependent Variable	Key Findings
Wissmann (2024)	Environmental Enrichment Theory	Office workers' efficiency and mood state	Soft background music significantly improves efficiency and mood in urban office settings.
Morawska et al. (2024)	Motivational Music Theory	Workers' motivation and fatigue delay in manufacturing	Up-tempo music on production lines can motivate workers and delay fatigue, enhancing productivity.
Sokolova & Feshchenko (2024)	Music Personalization and Teamwork Theory	Employees' well-being, satisfaction, and communication	Personalized music selection in internet companies enhances belonging and communication, indirectly improving efficiency.

2.3.9 Production Technology Context

Hanning (2024) conducted an in-depth study on highly automated production lines in China and analyzed the role of music in enhancing team productivity. He points out that in highly automated production environments. However, workers are

relieved of the burden of physical labor; they are often prone to mental fatigue and distraction in the face of complex machine operations and monitoring tasks. At this time, the appropriate introduction of background music, such as light rhythmic music or nature sounds, can effectively relieve workers' tension and improve their concentration and focus. His study also found that the choice of music should match the rhythm of the production line to avoid creating distractions or adding extra cognitive load.

Jiang (2024), on the other hand, turned his attention to high-tech research and development environments. This is predominantly cerebral and requires high innovation and concentration. Through a series of experiments and questionnaires, he found that music plays a vital role in high-tech R&D processes. He believes that different types of music can stimulate different modes of thinking and creativity in R&D personnel. For example, soft classical music helps R&D staff enter deep thinking, while fast-paced pop music stimulates innovative thinking and inspiration. He also pointed out that in teamwork R&D projects, choosing and playing music together can enhance team cohesion and facilitate communication and collaboration among members, thus improving overall work efficiency.

Chambers' (2024) research focuses on intelligent manufacturing in China, a new production technology environment that integrates advanced information technology and manufacturing techniques. Through field research and data analysis, he reveals the potential impact of music on team productivity in the context of intelligent manufacturing. He found that in brilliant manufacturing workshops, music provides a more comfortable working environment for workers and improves their work efficiency and production quality to a certain extent. He noted that this is mainly because music can regulate the workers' emotional state, reduce work stress, and make them more focused. In addition, he emphasized the coordination and synchronization between music and intelligent manufacturing systems, arguing that controlling the playback of music through innovative technology can achieve seamless integration with the production process and further enhance work efficiency.

Table 2.9 Literature Review on Production Technology Context

Scholar (Year)	Theory	Dependent Variable	Key Findings
Hanning (2024)	Cognition and Emotion Regulation Theory	Team productivity in automated production lines	Background music, such as rhythmic tunes or nature sounds, can alleviate tension and improve concentration in automated environments.
Jiang (2024)	Creativity and Collaboration in Music Theory	Role of music in high-tech R&D processes	Different types of music stimulate various thinking patterns and creativity in R&D personnel, and shared music enhances team cohesion and communication.
Chambers (2024)	Emotional and Cognitive Synchronization Theory	Team productivity in intelligent manufacturing	Music provides a comfortable work environment and improves work efficiency and quality in intelligent manufacturing by regulating emotional states and stress levels.

2.3.10 Corporate Culture

Modern music as a cultural phenomenon and its impact on teamwork efficiency is a multidimensional topic. In exploring this topic, it is possible to analyze how modern music combines with corporate culture and thus affects teamwork efficiency from the perspective of corporate culture.

Chatjuthamard et al. (2024) explored the relationship between corporate culture, corporate governance, and independent directors by analyzing texts. They pointed out that corporate culture is not just a symbolic presence but can profoundly influence a company's decision-making process and governance structure. Especially in the role of independent directors, corporate culture can shape their behavior and decision-making, thus indirectly affecting the company's operational efficiency.

Modern music can improve work efficiency as part of corporate culture by enhancing employees' emotional identity and team cohesion.

In her study, Ilieva (2024) focused on the dark side of social networks and corporate culture, primarily through the Olympus scandal, and explores the role of corporate culture in crisis management. She argues that corporate culture shapes employee behavior and the company's external image. As a form of cultural expression, modern music can be used as a communication and solidarity tool in times of crisis to help team members work together to meet challenges and maintain team stability and efficiency.

On the other hand, Afzali and Thor's (2024) study focused on the relationship between corporate culture and tax planning. They suggested that values and codes of behavior in corporate culture can influence a company's tax strategy and planning. Modern music can communicate a company's values and image as a cultural element, thus playing a positive role in tax planning. For example, a corporate culture that emphasizes innovation and social responsibility may adopt a more transparent and compliant tax strategy, improving the efficiency of the team's work in tax planning.

In HUAWEI's R&D department, modern music can stimulate innovative thinking and promote the development of new technologies; on the production floor, it can boost employees' work enthusiasm and improve productivity; and in the marketing department, it can help shape the brand image and attract consumers. Based on these scenarios, contemporary music is an art form and an essential tool to enhance the team's efficiency.

Combining modern music and corporate culture can affect the team's work efficiency on multiple levels. Modern music has become an integral part of corporate culture by promoting employees' emotional identity, enhancing team cohesion, stimulating innovative thinking, enhancing work enthusiasm, and shaping brand image. The case study of HUAWEI Technologies provides a hands-on perspective on how modern music can play a role in different work scenarios and how it interacts with corporate culture to drive organizational development and progress.

Table 2.10 Literature Review on Corporate Culture

Scholar (Year)	Theory	Dependent Variable	Key Findings
Chatjuthamard et al. (2024)	Organizational Aesthetics Theory	Decision-making quality Independence of directors	As part of corporate culture, modern music shapes independent directors' behavior and decisions, impacting operational efficiency.
Ilieva (2024)	Organizational Identity Theory	Crisis response strategies Public perception of the company	Modern music can act as a communication and unity tool in crisis, helping to maintain team stability and efficiency.
Afzali & Thor (2024)	Corporate Social Responsibility Theory	Ethical compliance in tax strategies Transparency of tax reporting	Modern music conveys company values, potentially influencing tax strategies to be more transparent and compliant, thus improving efficiency in tax planning.

2.3.11 Leadership Initiative

In exploring the impact of modern music on team productivity, it is possible to analyze how it combines with leadership initiatives and thus affects team productivity from the perspective of leadership initiatives. The following is a review of several scholars' research in this area:

Kurik et al. (2024) conducted a study to standardize and simplify the Global Leadership Initiative for Malnutrition (GLIM) application for broader application. Their research highlights the importance of the Leadership Initiative in improving the problem of malnutrition and improving the efficiency and effectiveness of the initiative by standardizing the process. Contemporary music can be used as a motivational tool by boosting team morale and cohesion, facilitating team member response, and participating in leadership initiatives.

Bryant et al. (2024) explored the application of leadership training based on emotional intelligence in a radiation oncology department. He examined how this training constructed teamwork by exploring working relationships. Their study showed that emotional intelligence is crucial in leadership training and helps improve team members' communication and understanding. Contemporary music, as a form of emotional expression, can enhance the emotional resonance of team members, thus facilitating more effective teamwork and leadership initiatives.

El Alami El Hassani et al. (2024) investigated the congruence between nutritional assessment tools and phase angles derived from bioelectrical impedance and their applicability to the Global Leadership Initiative's criteria for malnutrition in hemodialysis patients. Their study reveals how the Leadership Initiative can be combined with nutritional assessment tools to improve the quality of patient care in specific healthcare settings. Modern music in healthcare settings can create a more positive and relaxing atmosphere for patients and healthcare teams, which can help improve team productivity and patient response to treatment.

By analyzing the research of these scholars, it is possible to see the use of leadership initiatives in different fields and environments and how modern music can be combined with these initiatives to improve team productivity. In the case study of HUAWEI Industries, we can further explore how modern music plays a role in different work scenarios and production techniques and how it can be combined with leadership initiatives to promote team collaboration and innovation.

Using modern music as a cultural element in leadership initiatives can have multiple benefits. It not only enhances the emotional experience of team members and strengthens team cohesion but also serves as a communication and motivational tool to help team members better understand and respond to leadership initiatives. In the case of HUAWEI, modern music may play a role in many aspects of R&D, production, and marketing, promoting efficient team operations and innovation by creating a positive work environment and culture.

Table 2.11 Literature Review on Leadership Initiative

Scholar (Year)	Theory	Dependent Variable	Key Findings
Kurik et al. (2024)	Global Leadership Initiative on Malnutrition (GLIM) Standardization Theory	GLIM application effectiveness、Initiative simplification impact on malnutrition outcomes	The study suggests that standardizing and simplifying GLIM can enhance its general application and effectiveness in addressing malnutrition.
Bryant et al. (2024)	Emotional Intelligence (EI) Theory in Leadership Training	Leadership effectiveness、Teamwork quality in a radiation oncology department	Emotional intelligence-based leadership training, including the use of modern music, can significantly improve leadership effectiveness and team dynamics.
El Alami El Hassani et al. (2024)	Nutritional Assessment Consistency with GLIM Criteria in Hemodialysis Patients	Accuracy of nutritional assessment tools Correlation between bio-electrical impedance phase angle and GLIM criteria	The investigation indicates a high degree of agreement between nutritional assessment tools and GLIM criteria, with modern music potentially enhancing the patient care environment.

2.3.12 Teamwork Efficiency

Adetomiwa et al. (2023) noted in their research that teamwork efficiency refers to the quantity and work quality employees complete in unit time. He emphasized that efficiency is not only the work speed but also the accuracy and innovation of work.

Through empirical research, he found that many factors, including personal skills, working environment, and organizational culture, influence teamwork efficiency. He further suggested that by optimizing these factors, teamwork efficiency can be effectively improved. Clauhs et al. (2024) define employee work efficiency as the effectiveness and efficiency displayed by employees in the work process. He believes that work efficiency is reflected in the speed of task completion, the quality of task completion, and the effective use of resources. By comparing teamwork efficiency in different industries and enterprises, he found that effective incentive mechanisms and good teamwork can significantly improve teamwork efficiency. Schatt (2024) defined teamwork efficiency from the perspective of psychology. She believes that employees' work efficiency is affected not only by external factors but also by employees' psychological state. Their research found that employees' positive emotions, self-efficacy, and work motivation are closely related to work efficiency. They suggested that by improving the mental health level of employees, teamwork efficiency can be effectively improved.

Employee work efficiency is a multi-dimensional concept that involves the quantity, quality, speed, and resource utilization of work. Different scholars have defined and studied it from various angles, which provides rich perspectives and ideas for a deeper understanding of this concept.

Lupton et al. (2022) pointed out in their research that teamwork efficiency refers to the quantity and quality of tasks completed by employees in a unit of time, as well as the work attitude and degree of effort shown. They believe employee efficiency directly affects enterprises' productivity and economic benefits. Through empirical research on employees in different industries and positions, they found that employees' work efficiency is affected by many factors, including personal characteristics, working environment, task characteristics, and incentive mechanisms. Among them, music, as a standard environmental stimulus, has been proven to affect employees' work efficiency and psychological state to a certain extent. This study provides theoretical support for further discussion on the relationship between music and employee work efficiency. Parker et al. (2022) conducted a more in-depth discussion on teamwork efficiency in their research. He believes that employees' work

efficiency not only involves quantity and work quality but also includes employees' innovation ability, teamwork ability, and ability to cope with pressure. Through many empirical studies, he found that the influence of music on employees' work efficiency is twofold.

On the one hand, suitable music can create a relaxed and pleasant working atmosphere and enhance the enthusiasm and creativity of employees. On the other hand, inappropriate music may distract employees and reduce work efficiency. Therefore, he stressed that background music needs to be considered comprehensively according to the specific working environment and task characteristics. Dahabiyeh et al. (2022) discussed the influence mechanism of music on employees' work efficiency from the perspective of neuroscience. She pointed out that music can stimulate dopamine in the brain, thus improving employees' emotional state and happiness. This positive emotional state helps facilitate employees' work motivation and innovative thinking, improving work efficiency. Through a series of experimental studies, she found that different types of music affect employees' work efficiency. For example, light and pleasant music is more suitable for tasks that require innovative thinking and creativity. In contrast, music with a stable rhythm is ideal for tasks requiring high concentration.

Employee work efficiency is a multi-dimensional concept that is influenced by many factors. As a familiar environmental stimulus, music can affect employees' work efficiency and psychological state to a certain extent. However, the influence of music on employees' work efficiency is dynamic but needs to be comprehensively considered according to the specific working environment and task characteristics. Therefore, in practical application, it is necessary to choose the appropriate music type and playing mode according to the enterprise's actual situation and the employees' needs to maximize the positive role of music in teamwork efficiency. Through these studies, we can provide more specific and practical suggestions for enterprises and help them stay ahead in the competitive market environment.

Table 2.12 Literature Review on Teamwork Efficiency

Scholar (Year)	Theory	Dependent Variable	Key Findings
Adetomiwa et al. (2023)	Multidimensional Productivity Theory	Teamwork efficiency (quantity, quality, accuracy, innovation)	Individual skills, work environment, and organizational culture influence efficiency.
Claushs et al. (2024)	Effectiveness and Resource Utilization Theory	Employee work efficiency (effectiveness, efficiency, quality, resource use)	Incentive mechanisms and team collaboration significantly improve work efficiency.
Schatt (2024)	Psychological State Impact Theory	Teamwork efficiency influenced by psychological factors	Positive emotions, self-efficacy, and work motivation are closely related to work efficiency.
Lupton et al. (2022)	Environmental Stimulation and Work Attitude Theory	Teamwork efficiency (task completion, attitude, effort)	Work efficiency is affected by personal characteristics, environment, task characteristics, and incentive mechanisms.
Parker et al. (2022)	Dual Effect of Music on Work Efficiency Theory	Work efficiency involving innovation, teamwork, and stress-handling	Suitable music enhances positivity and creativity, while unsuitable music may distract and reduce efficiency.
Dahabiyeh et al. (2022)	Neuroscientific Music Impact Theory	Work efficiency influenced by brain dopamine secretion	Different types of music have varying impacts on work efficiency, depending on task requirements.
Adetomiwa et al. (2023)	Multidimensional Productivity Theory	Teamwork efficiency (quantity, quality, accuracy, innovation)	Individual skills, work environment, and organizational culture influence efficiency.

2.4 Relationships

2.4.1 Effect of Music Rhythm on Teamwork Efficiency

As an intangible art form, music plays a vital role in people's daily lives. Especially in the working environment, music is often used to adjust the atmosphere and improve employees' mood. Among them, the influence of the music rhythm of music on employees' work efficiency has attracted much attention.

Music rhythm refers to the speed and compactness of the beat in music, which directly affects people's psychological state and physiological reactions. Research shows that a moderate pace can stimulate employees' positive emotions, improve their attention and concentration, and improve work efficiency. This is because moderate music rhythm is in harmony with people's heartbeat frequency, which helps employees maintain a stable mentality and efficient working conditions. However, the positive relationship between music rhythm and employee's work efficiency is not absolute. Too fast a pace may cause employees to feel nervous and anxious, affecting their thinking and judgment ability. Too slow a pace may make employees feel sleepy and reduce work efficiency. Therefore, when choosing music, selecting the appropriate musical rhythm is necessary according to the nature of employees' work and personal preferences.

In their research, McFerran and Rickson (2014) pointed out that the pace significantly impacts employee work efficiency. He found that employees' work efficiency and satisfaction were improved moderately through experiments. He believes that a moderate pace can stimulate the enthusiasm and creativity of employees and make them more engaged in their work. At the same time, he also put forward some suggestions, such as choosing the appropriate music type according to the nature of work, adjusting the music rhythm of music, etc., to optimize the working environment and improve employee work efficiency. Safety & Health Group (2014) deeply discussed the relationship between music rhythm and employee's work efficiency in his works. Through experimental research, he found that fast-paced music can stimulate the excitement and motivation of employees and make them work harder to complete the task. He believes that this fast-paced music helps to improve

employees' concentration and reaction speed, which is especially effective in jobs that require rapid decision-making and efficient execution. However, he also pointed out that fast-paced music is unsuitable for all types of work. Too fast for tasks requiring in-depth and creative thinking may interfere with employees' thinking processes. Fong and Li (2024) analyzed the influence of music rhythm on employees' work efficiency from a psychological perspective. She believes the pace can affect people's emotional state and cognitive process, thus affecting employees' work efficiency. Through empirical research, she found that with fast-paced music, employees' attention is more focused, their thinking is more agile, and their work efficiency is improved accordingly. She further pointed out that this effect may be related to the synchronization of music rhythm and brain activity; that is, the rhythm of music can guide the brain's activity pattern and improve the speed and accuracy of information processing.

There is a positive relationship between music rhythm and employee work efficiency, but many factors influence this. A moderate pace can stimulate employees' positive emotions and improve work efficiency, while too fast or too slow a pace may have a negative impact. Therefore, when choosing background music, it needs to be adjusted and optimized according to employees' personal preferences and work nature. The influence of music on employees' work efficiency is a complex process involving many factors. In addition to the rhythm of the music, the melody, harmony, and timbre of the music will also impact employees. Therefore, when choosing background music, it is necessary to comprehensively consider multiple factors to create a comfortable and efficient working environment.

2.4.2 Effect of Volume Level on Teamwork Efficiency

With the continuous change in the modern working environment, music, as an important environmental variable, plays an increasingly important role in employee work efficiency. As a critical parameter of music, the volume level significantly impacts employees' work efficiency.

Appropriate volume levels can create a comfortable working environment, help employees concentrate, and improve work efficiency. This is because music can

affect people's mood, psychology, and behavior through the volume. Moderate volume can bring pleasure, reduce stress, and keep employees positive and efficient. However, the positive relationship between volume level and employee work efficiency is not absolute. Excessive volume may distract employees' attention and interfere with their thinking, decreasing work efficiency. On the contrary, too low volume may not play a positive role in music, making employees feel bored and depressed. Therefore, in practical application, choosing the appropriate volume level according to employees' preferences and work nature is necessary.

Sun (2024) empirically studied the relationship between volume level and work efficiency. By setting different volume levels, he observed the changes in employees' work efficiency under different volume levels. The results show that employees' work efficiency and satisfaction are improved at a moderate volume level. He believes enterprises can appropriately adjust the volume level of background music according to the nature of employees' work and personal preferences to optimize the working environment and improve employees' work efficiency. Pinet (2019) also conducted an in-depth study on the relationship between the volume level and the employee's work efficiency. Her research pointed out that a moderate volume level can stimulate employees' creativity and improve work efficiency. By comparing the performance of employees at different volume levels, she found that employees can better cope with complex tasks and show higher work quality and innovation ability at moderate volume levels. Kuyucu and Korkmaz (2014) discussed the influence of sound level on employees' work efficiency from the physiological point of view. Through a series of experiments, he found that a moderate volume level can reduce employees' heart rate and blood pressure, relieve tension, and help employees stay calm and focused. In addition, he also found that under the appropriate volume level, employees' attention and memory will also be improved, thus further improving work efficiency.

A positive relationship exists between volume level and employee work efficiency, but many factors influence this. In practical application, enterprises must choose the appropriate volume level according to employees' preferences and work nature. At the same time, enterprises should also pay attention to employees' feedback

on the volume and adjust the volume level in time to create a comfortable and efficient working environment. It is worth noting that the influence of volume level on employees' work efficiency may vary from individual to individual. Therefore, enterprises should fully respect employees' personal needs and wishes when implementing the music management strategy and provide diversified music choices. At the same time, enterprises can also guide employees to realize the influence of music on work efficiency through training and education and help them learn to choose the appropriate music type and volume level to better cope with work challenges.

There is a positive relationship between volume level and employee work efficiency, but it needs to be adjusted and optimized according to the specific situation in practical application. Through in-depth research and continuous exploration, we can better use music as a resource and improve employees' work efficiency and happiness.

2.4.3 Effect of Personal Preference on Teamwork Efficiency

Music can create a comfortable working atmosphere and affect employees' psychological state and work efficiency. Personal preference is essential in the relationship between employees and music. Personal preference refers to the individual's preference for different music types and styles in a specific situation. Many factors, such as cultural background, growth experience, and personality characteristics, influence everyone's music preference. In the working environment, employees' preference for music will directly affect their acceptance and response to music, affecting work efficiency.

The positive relationship between personal preference and employees' work efficiency is reflected in the adjustment of music to mood. Employees' choice of music according to their preferences can stimulate optimistic emotional States, such as pleasure, relaxation, or excitement, thus enhancing their work motivation and creativity. Research shows that a positive emotional state helps improve employees' attention, memory, and problem-solving ability, improving work efficiency. Personal preference can also affect the degree of matching between employees and the working

environment. When employees can choose background music according to their preferences, they will feel more comfortable and satisfied, so they can easily integrate into the working environment and improve their work input. Improving this matching degree helps reduce work pressure and fatigue and keeps employees in a better working state.

In his research, Whiteman (2024) pointed out that personal music preference significantly impacts employees' work efficiency. He found through experiments that when employees can choose background music according to their preferences, their work efficiency and satisfaction are improved. He believes that personal music preference can meet the emotional needs of employees and enhance their work enthusiasm and creativity. At the same time, he also suggested that enterprises should give full consideration to employees' personal preferences when providing background music for employees to create a more harmonious and efficient working environment. Tong and Feng (2024) discussed the influence mechanism of personal music preference on employees' work efficiency in their research. Through experiments, he found that when employees can choose their favorite music, their attention is more concentrated, the error rate is reduced, and the overall work efficiency is improved. He believes personal music preference can stimulate employees' positive emotions and improve their work motivation and creativity. In addition, he also pointed out that enterprises can meet the music needs of different employees by providing diversified music choices, thus improving overall work efficiency. From a psychological perspective, Canaza et al. (2024) analyzed the influence of personal music preference on employees' work efficiency. She believes music preference is closely related to individual emotion, cognition, and behavior. When employees hear their favorite music, they will react positively, affecting their cognitive process and behavior. There is a positive relationship between personal preference and employee work efficiency. When employees can choose background music according to their preferences, their emotional state, work motivation, and creativity will improve, thus improving work efficiency. Therefore, when providing a working environment for employees, enterprises should fully consider employees' music preferences to create a more comfortable and efficient working environment.

2.4.4 Mediating Role of Perception on Work Scenes

In his study, Crossley (2016) delved into how music affects team productivity by moderating the psychological climate in a work scenario. He noted that different types of music stimulate different emotional responses, which in turn are directly related to employees' attitudes and behaviors. For example, in technical production environments requiring high concentration levels and delicate operations, he found that soft classical music, such as Bach's compositions, effectively reduced tension and increased concentration, improving productivity and product quality. Meanwhile, he also observed that playing rhythmic and energetic pop music in a team discussion or creative collision scenario can stimulate team members' motivation and innovative thinking and promote more effective communication and collaboration.

Rose's (2024) study focused on the synchronization between ambient music and work rhythms and how this synchronization affects team productivity. Through experiments, he verified that choosing a musical tempo that matches the workflow can significantly improve team productivity in different production technology environments. For example, on an automated assembly line, he found that playing ambient music with a rhythm similar to the machine's operation reduced employee fatigue and improved the smoothness and accuracy of operations. In addition, he noted that when the tempo of the music matched the complexity and intensity of the task, it was easier for employees to enter a state of "mindfulness," i.e., to focus on the task itself, which led to significant increases in productivity and creativity.

2.4.5 Mediating Role of Production Technology Context

In his study, Llano (2024) provided insight into how music can be used to enhance team productivity in automated production lines' highly technological work scenarios. He observed that employees face more significant work pressure and monotony in automated production lines with a tight tempo and a single task. He conducted experiments by introducing different types of modern music and found that light and moderately rhythmic pop music can effectively reduce employee fatigue and, at the same time, form a kind of "resonance" with the rhythm of machine operation so that employees can psychologically synchronize with the production line,

and improve the accuracy and consistency of operation. In addition, he points out that the choice of music should match the rhythm of the production line so that music that is too intense or gentle does not negatively impact productivity.

Duarte and Konstantinidi's (2024) study focused on high-tech R&D teams as a knowledge-intensive workplace. He found that in the R&D process, which requires highly innovative thinking and complex technical solutions, modern music regulates team members' emotional state and stimulates their inspiration and creativity through its unique artistic expression. Through comparative experiments, Professor Qian found that playing inspiring or exploratory music (e.g., electronic music, experimental music, etc.) can significantly improve discussion quality and collaboration among team members. He explains that this music can break the conventional thinking framework and motivate team members to think about problems from different perspectives, thus finding more effective solutions.

Roberts' (2024) research focuses on intelligent manufacturing systems in the manufacturing industry, a production environment incorporating advanced information technology and automation. He points out that in smart manufacturing systems, music not only exists as background music but can also be deeply integrated with the production process through intelligent algorithms to achieve further productivity improvements. Through practical case studies, he shows how music elements can be introduced into intelligent manufacturing systems, such as dynamically adjusting the music tempo and volume according to the production progress and efficiency indicators, to motivate employees to maintain efficient working conditions. In addition, he discusses the role of music in enhancing employee job satisfaction and reducing the risk of occupational diseases, pointing out that the reasonable integration of music elements into intelligent manufacturing systems can help build a healthy working environment.

2.4.6 Moderating Role of Corporate Culture

The moderating role of corporate culture is a critical perspective when exploring the effects of modern music on team productivity. The following is a

synthesis of research in this area by several scholars who demonstrate how corporate culture moderates the impact of modern music on productivity to varying degrees.

Zhang et al. (2024) explored how corporate culture serves as a moderating variable that influences the role of modern music on team innovation. They found that an open and inclusive corporate culture enhances the effect of modern music on stimulating innovative thinking in teams. This cultural environment encourages employees to think more freely and experiment boldly, inspired by music. Atwah Alma'aitah (2024) study focused on the moderating effect of corporate culture on the impact of modern music on team cohesion. They found that in a context with a strong teamwork culture, modern music was more effective as a team-building tool to promote emotional connection and team spirit among employees. On the other hand, Fred & Morounkeji's (2023) study focused on how corporate culture moderates the effects of modern music on employee job satisfaction and loyalty. They point out that when corporate culture emphasizes employees' values and contributions, modern music enhances employees' satisfaction and loyalty to the company.

These studies suggest that corporate culture is not just a static contextual factor but a dynamic moderating variable that can significantly influence the effect of modern music on team productivity. The characteristics and intensity of corporate culture in different perceptions of work scenes and production techniques at HUAWEI determine how employees perceive and utilize modern music, affecting overall team performance. By integrating these scholars' studies, the moderating role of corporate culture is critical to understanding and implementing modern music strategies. The effectiveness of modern music depends not only on the characteristics of the music itself but also on how it interacts with corporate culture. This interaction may manifest itself differently in different teams and departments. Hence, leaders and managers need to understand the corporate culture in depth and design and adjust the application strategy of modern music accordingly to maximize its positive impact on team productivity.

2.4.7 Moderating Role of Leadership Initiative

Mahmood et al. (2024) focused on the moderating role of leadership initiatives in shaping team response to contemporary music. They found positive leadership initiatives toward contemporary music significantly increased team acceptance and engagement. This modeling effect of leadership enhanced the positive impact of modern music and promoted collaboration and innovation among team members.

Erikson et al. (2024) explored the differential moderating effects of leadership initiatives on the impact of modern music in different perceptions of work scenes. They analyzed how leadership initiatives adapted modern music application strategies to other work demands and team characteristics. The results suggest that leadership initiatives can provide direction for the application of modern music and ensure its alignment with team goals and work processes.

Gill et al. (2024) study focused on the moderating role of leadership initiatives in the impact of modern music on individual employee productivity. They found that leadership initiatives can enhance the positive effects of modern music on individual productivity by providing support and resources. In addition, leadership initiatives reinforced employees' positive attitudes toward contemporary music through motivation and recognition.

These studies suggest that leadership initiatives play an important moderating role in the impact of modern music on team productivity. Leadership initiatives enhance the positive effects of modern music and maximize its contribution to team productivity by adapting modern music to different perceptions of work scenes and team needs. By integrating these scholars' studies, the moderating role of leadership initiatives is critical to understanding and implementing modern music strategies. The effectiveness of modern music depends not only on the music's characteristics but also on how leadership initiatives guide and support its application. This moderating effect may manifest differently in different teams and departments. Hence, leaders and managers need to understand the importance of leadership initiatives deeply and design and adjust the application strategy of modern music accordingly to maximize its positive impact on team productivity.

2.5 Huawei Case Study

Huawei Technologies Co., Ltd. was selected as a case study for this research to explore the application of modern music in different work scenes and production technology contexts and its impact on teamwork efficiency. The study focused on the marketing system department, the technical support system department, the financial system department, the production system department, and the management and engineering departments, which have different work natures and rhythms and different effects of music on work efficiency.

For example, in the marketing systems department, fast-paced electronic music may stimulate creativity and teamwork, especially in market planning and promotion activities that require quick response and innovative thinking. In the technical support system department, relaxing background music is preferred to ease the pressure on staff when dealing with complex technical issues, helping them stay calm and improve problem-solving efficiency. The work of the financial system department requires a high degree of concentration and precision, and soft classical music may be more appropriate as a background to minimize external distractions and help employees focus on data analysis and preparing financial reports. As the core of Huawei's material production, the production system department may need fast-paced music in its working environment to enhance the operating rhythm and work enthusiasm of production line workers. On the other hand, the management and engineering departments may need diverse music strategies to accommodate the work needs of different management levels and engineering technicians.

The case study of music applications in different Huawei Technology Co., Ltd. departments shows that modern music positively regulates employees' emotions, enhances team cohesion and improves work efficiency. For example, when conducting team building activities, energetic music can stimulate team members' enthusiasm and promote teamwork; in work that requires in-depth thinking and analysis, soft instrumental music can provide a peaceful working environment and help employees focus their attention.

In addition, Huawei's use of modern music also reflects personalization and flexibility. The company encourages employees to choose music according to their personal preferences and work needs, and this process of self-selection is in itself a way of respecting and empowering employees' individuality. In the application, employees can adjust the music type and volume according to the nature of their work tasks and emotional state to achieve the best working conditions.

Through quantitative analysis, this study verified the positive impact of modern music on teamwork efficiency in Huawei. It revealed the interaction mechanism between music and work scenes and production technology.

In summary, Huawei's case study provides empirical support for the role of modern music in enhancing teamwork efficiency. The findings have important theoretical and practical significance for companies seeking to optimize the work environment and improve employee satisfaction and productivity. They also provide a reference for other organizations using music to enhance employee productivity. With the deepening of globalization and information, the application of modern music in the workplace will become increasingly widespread, and its potential to improve team efficiency is worth further exploring and exploiting.

Through the above analysis and summary of employees' work efficiency, it can be concluded that they are influenced by music, and there is a specific relationship between music and various dimensions of employees' work efficiency. Therefore, the theoretical framework of this research is as follows:

2.6 Conceptual Framework

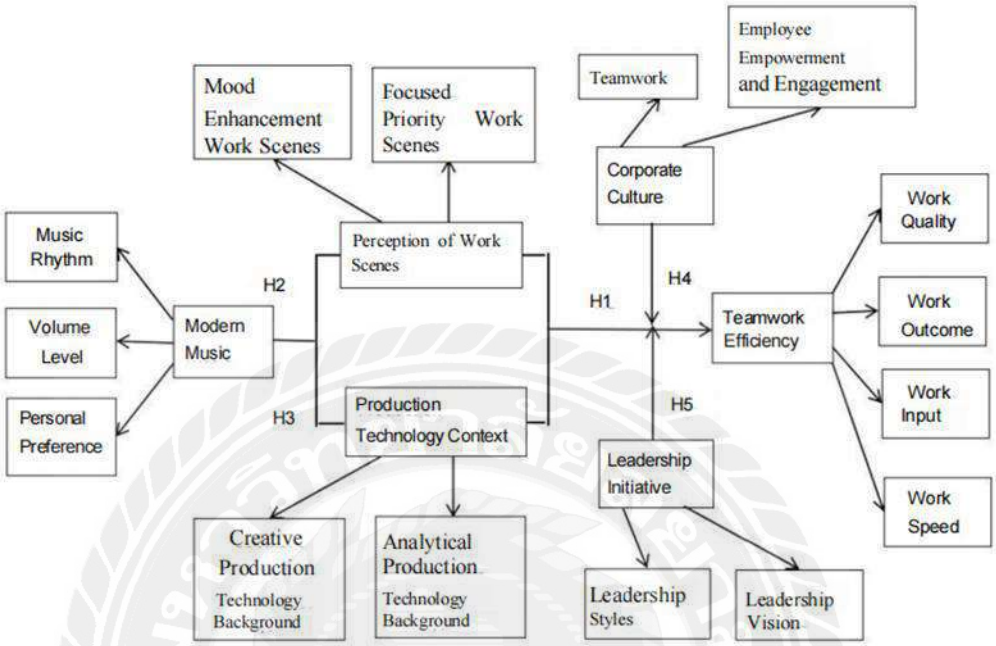


Figure 2.1 Conceptual Framework

2.7 Hypotheses

In order to reveal the relationship between the variables in the conceptual framework above, this research constructs the following five hypotheses:

H1: Usage of modern music in organizations affects teamwork efficiency.

H2: Perception on work scenes mediates the relationship between modern music usage and teamwork efficiency.

H3: Production technology context mediates the relationship between modern music usage and teamwork efficiency.

H4: Corporate culture moderates the relationship between modern music usage and teamwork efficiency.

H5: Leadership initiative moderates the relationship between modern music usage and teamwork efficiency.

2.8 Conclusion

This chapter constructs a complete theoretical framework by profoundly exploring the influence mechanism of music and employee work efficiency. It analyzes the relationship between variables in detail, forming a clear conceptual framework. The research results show that music does have a significant impact on improving employees' work efficiency.

Specifically, music improves work efficiency by adjusting employees' emotions, enhancing work motivation, and improving concentration. At the same time, employees' personal music preferences and other factors will also impact the relationship between music and work efficiency.

CHAPTER 3
RESEARCH METHODOLOGY

This chapter is divided into seven secions as follows:

3.1 Research Design

3.2 Population and Sample

3.3 Research Tools

3.4 Data Collection Strategy and Procedure

3.5 Data Analysis

3.6 Research Ethics

3.1 Research Design

This study employed a quantitative research design to investigate the impact of modern music on teamwork efficiency within HUAWEI Technologies CO., LTD. This study aimed to investigate the factors that influence performance management in HUAWEI and used a questionnaire as the primary research method. The questionnaire was designed to collect data, using the Likert five-point scale to ensure the accuracy and reliability of the results. The reliability and validity of the questionnaire were tested using SPSS software to safeguard the stability and validity of the research results. The scales involved in this study mainly included modern music, perception on work scenes, production technology context, and teamwork efficiency, aiming at comprehensively analyzing the impact of contemporary music on teamwork efficiency and providing a solid foundation for the subsequent development of targeted strategies.

3.2 Population and Sample

3.2.1 Population

The target population comprised 11,601 employees from five departments within HUAWEI Technologies CO., LTD. This study provides valuable insights into the impact of music on work efficiency through in-depth research of HUAWEI 's employees. From five departments within HUAWEI Technology Co., LTD, there are 11,601 employees as follows.

Table 3.1 Distribution of Sample Departments and Number of Employees

Department	Number of employees
Market System Department	4,521
Technical Support System Department	2,153
Financial System Department	1,452
Production System Department	1,632
Management Engineering Department	1,843
Total (sample population)	**11,601**

3.2.2 Sample Size

The sample size required for this study was obtained from the following sampling estimation formula:

Among them:

n represents the sample size

N represents the population size

e stands for marginal error

Sample size with an accuracy level of 5%, in which the confidence level is 95%, P= 0.5:

$$n = \frac{11601}{1+11601\times(0.05)^2} \approx 387 \text{ (Sample)}$$

3.2.3 Sampling Design

A multi-stage sampling technique was employed to ensure a representative and systematic approach to participant selection. This multi-stage approach ensures the diversity and representativeness of the sample, reflecting variations in work environments and departmental roles. This method involves two key steps:

1. Stratified Sampling: To ensure proportional distribution, the population was divided into strata based on departmental representation. The five departments include:

Department	Number of Employees	Number of Questionnaire
Department of Market Systems	4,521	136
Technical Support Systems Division	2,153	131
Department of Finance Systems	1,452	127
Production System Department	1,632	133
Management Engineering Department	1,843	113
Total	**11,601**	**640**

Although the calculated sample size was approximately 400 participants, data were collected from 640 respondents to ensure robust statistical analysis, account for potential non-responses, and enhance the representativeness of the sample. This approach also allowed for subgroup analyses, further enriching the study's insights.

2. Simple Random Sampling within Strata: After stratification, a simple random sampling method was applied within each stratum to select participants, ensuring equal chances for all employees in each department to be included in the sample.

This multi-stage approach ensured the diversity and representativeness of the sample, reflecting variations in work environments and departmental roles.

3.3 Research Tool

The questionnaire is separated into two parts as follows:

Part 1: General information of the respondents.

It includes gender, age, education degree, full-time or part-time status, professional level of teaching staff, and tenure in current position (year).

Part 2: The opinions and attitudes of towords the impact of modern music on teamwork efficiency. The rating scale of the questionnaires with five levels is as follows:

Level	Score
Strongly Agree	5
Agree	4
Undecided	3
Disagree	2
Strongly Disagree	1

The meaning of each score is as follows:

Score 5 means respondents strongly agree with the statement

Score 4 means respondents agree with the statement

Score 3 means respondents are undecided with the statement

Score 2 means respondents disagree with the statement

Score 1 means respondents strongly disagree with the statement

The interpretation of the score would be (Best, 1981):

Mean	Significance Level
1.00 - 1.80	Strongly Disagree
1.81 - 2.60	Disagree

2.61 - 3.40	Undecided
3.41 - 4.20	Agree
4.21 - 5.00	Strongly Agree

3.4 Data Collection Strategy and Procedure

3.4.1 Questionnaire Construction

1) Review literature to formulate the conceptual framework.
2) Create a questionnaire in alignment with the research objectives.
3) Use IOC (Item Objective Congruence Index) to check Content Validity and seek comments from the following 5 specialists
   (1) Dr. Liu Pe
   (2) Dr. Yin Aiqing
   (3) Dr. Song Yi
   (4) Dr. Wang Zhaoxia
   (5) Dr. Yu Hong

$$IOC = \frac{\Sigma R}{n}$$

where IOC = Index of item-objective congruence value

R = Score from experts

ΣR = Total score from all experts

n = number of experts

The criteria to verify the score is

+1 means “the measurement item is congruent with the study's objectives.”

0 means “the measurement item is undecided with the study's objectives.”

-1 means “the measurement item is inconsistent with the study's objectives.”

IOC needs to be between 0.5-1.00 for every question.

4) Find the mean of the IOC and use the following criteria.

Means between 0.5-1.00 means “the measurement passes the criteria from experts.”

Means below 0.5 means “the measurement needs to make change or correction.”

Less than 0 means “the measurement fails the expert' s qualify.”

5) Check the reliability. The formula of Cronbach’s alpha coefficient is

$$\alpha = \left[\frac{n}{(n-1)}\right]\left[1 - \frac{\Sigma_{i=0}^{n}/S_i^2}{S_t^2}\right]$$

where α = a coefficient of reliability

n = the number of informants

$\sum_{i=0}^{n}$ = the variance of the sum of informants

S_i^2 = the ratio of the variance of each informant

S_t^2 = the ratio of inter-informants’ variance

6) The complete questionnaire was distributed to the research sample.

3.4.2 Data Collection

The following steps were exercised

1) Request a letter from the management department requesting permission to distribute the questionnaire.

2) Send the questionnaire and the approval letter to target groups via mailing and email.

3) Follow up to ensure that the recipients complete the questionnaire.

4) Analyze the collected data using SPSS and AMOS.

3.5 Data Analysis

The following step were applied to analyze quantitative data.

1) Analyze the respondents' basic information with frequency and percentage.

2) Analyze data regular distribution test with Mean and Standard Deviation (SD).

3) Analyze reliability with Correlation Coefficient or Pearson Correlation.

4) AMOS confirmatory factor analysis (CFA) with loading values at 0.5 for the questionnaire's quality.

3.5.1 Data Analysis Process

The data analysis process was a critical step in revealing the relationship between music and employee productivity. This process required precise statistical methods and in-depth interpretation and analysis of the data to ensure that the findings are scientific and practical.

The first step in data analysis was cleaning and pre-processing the collected data. This included checking the integrity of the data, dealing with missing values and outliers, and coding and categorizing the data. For example, employees' choice of music genre was coded as a categorical variable, while continuous variables such as work speed was standardized for subsequent statistical analysis. Descriptive statistical analysis was conducted next to understand the sample's bassic characteristics and the data distribution. The descriptive statistical analysis results will provided the basis for the subsequent inferential statistical analysis. During the inferential statistical analysis stage, the researcher will used various statistical methods to test the research hypotheses and explore the relationships between the variables. To further examine the mechanism of music's influence on employees' work efficiency, the researcher used multiple regression analysis to assess the effects of music variables (volume

level, music rhythm, personal preference) on work efficiency variables (work outcome, work quality, work speed, work input). By constructing regression models, the researcher quantified the effects of each music variable on work efficiency and test whether these effects are statistically significant. During the data analysis process, attention was also paid to the robustness of the data. This included conducting sensitivity analyses to assess the extent to which the study results depend on different hypothesized conditions, as well as conducting robustness regression analyses to test the robustness of the model. Finally, the results of the analysis were interpreted and discussed. This included the interpretation of the statistical results and the exploration of possible theoretical and practical implications. The researcher presented conclusions based on the analysis results and discuss their impact on business management and human resource optimization.

The entire data analysis process strictly followed statistical principles and methodology to ensure the scientific validity and accuracy of the results. Through this process, the researcher was able to provide strong evidence for understanding the impact of music on employee productivity and provide valuable insights and recommendations on how organizations can utilize music to improve employee productivity.

3.5.2 Statistical Methods of Analysis

Choosing the appropriate statistical analysis method is crucial in revealing the relationship between music and teamwork efficiency. This study aims to accurately measure and explain the effects of music on teamwork efficiency and explore the underlying mechanisms through quantitative analysis.

First, data collection was based on a pre-designed questionnaire covering several dimensions, including employees' basic information, music preferences, and teamwork efficiency. The questionnaire data were collected through on-site or online surveys to ensure the breadth and representativeness of the data. In the data pre-processing stage, descriptive statistical analysis was conducted to understand the sample's basic characteristics and the data distribution characteristics. In addition, data

were checked for completeness and accuracy, and missing values and outliers were dealt with to ensure data quality.

Multiple regression analysis was used to delve into the potential mechanisms of the influence of music on teamwork efficiency. By constructing a regression model, it is possible to quantify the predictive power of dimensions such as music rhythm and volume on teamwork efficiency and to test whether the relationship between these dimensions and teamwork efficiency is significant. Reliability analysis and validity analysis were conducted to test the reliability and validity of the questionnaire. Cronbach's alpha coefficients were used to assess the questionnaire's internal consistency reliability. In contrast, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to evaluate the construct validity of the questionnaire.

Finally, hypothesis testing was conducted to validate the research hypotheses and draw conclusions. This included testing the relationship between the various dimensions of music and the multiple dimensions of teamwork efficiency. Throughout the process of statistical analysis, statistical principles and methodology were strictly followed to ensure that the results were scientific and accurate. Through these rigorous statistical analysis methods, this study provided strong evidence for understanding the impact of music on teamwork efficiency and provide valuable insights and suggestions on how organizations can use music to improve teamwork efficiency.

3.5.3 Variable Operations and Measurement

The operationalization and measurement of the variables in the study are the study's core parts, determining the accuracy and reliability of the results. In this study, the independent variable was subdivided into three dimensions: Volume Level, Music Rhythm, and Personal Preference, while the dependent variable, Teamwork Efficiency, was divided into four dimensions: Work Outcome, Work Quality, Work Speed, and Work Input.

3.5.3.1 Dimeansions of Music

Music Rhythm measurements focus on the speed and rhythmic intensity of the music, which may affect employees' moods and work rhythms. The study asks employees through questionnaires about their preferred music rhythms, such as fast, medium, or slow. It analyzes the rhythmic characteristics of the actual music played through music software.

Volume Level is measured by a questionnaire that asks employees how loud they prefer their music to be at work, usually measured in decibels (dB). The study provides a volume-level scale for employees to choose from based on their preferences, ranging from "too low a volume" to " high volumes."

Personal Preference addresses employees' overall level of preference for music, including whether they like to listen to music at work and how music affects their work experience. The questionnaire includes items about their personal preference for music and open-ended questions about how music affects their mood and productivity at work.

3.5.3.2 Dimeansion of Teamwork Efficiency

Work Outcome is measured by the number of tasks and projects employees complete. The study will collect data on the number of tasks completed by employees in a given period to assess the impact of music on work outcomes.

Work Quality measurements are based on metrics such as error rates, accuracy of task completion, and customer satisfaction.

Work Speed is measured by the time it takes to complete a task. The items record how long it takes employees to complete tasks under different music conditions to assess the effect of music on work speed.

Work Input is measured based on employees' work hours, intensity, and focus. The items assess the impact of music on work input through work time records and employee self-reported concentration scales.

3.5.3.3 Mediator Variables

As one of the mediating variables, perception on work scenes is subdivided into mood enhancement and focused priority work scenes. Mood Enhancement Work Scenes mainly refer to those tasks that require employees to be in a positive emotional state, such as a creative meeting or a team-building activity. Focused Priority Work Scenes, on the other hand, refer to work that requires a high degree of concentration, such as data analysis or programming tasks. These scenarios are measured to assess employees' perceptions of modern music and their impact on productivity in different work scenes.

Another mediating variable, production technology context, is categorized into Creative Production Technology Background, which is usually associated with work environments related to art, design, and innovation, and Analytical Production Technology Background, which is associated with work environments that require logical analysis and precise calculations. These contexts are measured through relevant items designed to understand the potential impact of modern music on teamwork efficiency in different technological contexts.

By accurately measuring these two mediating variables, the study gained a deeper understanding of how modern music influences different work scenes and production technology, which in turn affects teamwork efficiency. The measurement results provide a solid foundation for subsequent data analyses and research conclusions.

3.5.3.4 Moderator Variables

Corporate Culture is not just a symbolic presence; it can profoundly influence a company's decision-making process and governance structure. Especially for independent directors, corporate culture can shape their behavior and decision-making, thus indirectly affecting the company's operational efficiency. Modern music can improve teamwork efficiency as part of corporate culture by enhancing employees' emotional identity and team cohesion.

Using modern music as a cultural element in Leadership Initiatives can have multiple benefits. It not only enhances the emotional experience of team members and strengthens team cohesion but also serves as a communication and motivational tool to help team members better understand and respond to leadership initiatives. In the case of HUAWEI, modern music may play a role in many aspects of R&D, production, and marketing, promoting efficient team operations and innovation by creating a positive work environment and culture.

3.6 Research Ethics

The researcher obtained formal consent from the questionnaire respondents to ensure their full consent and to inform the study's purpose, process, risks, and benefits, Respondents were voluntary, agreed to participate, were free from coercion or undue influence, and had autonomy. Respondents' rights were respected throughout the study. The PIM-REC is 048/2567.

Purpose and Content: This survey collects and analyzes relevant data to further understand the situation in a specific field. The questions in the questionnaire will be related to pertinent topics in the field.

Confidentiality and Anonymity: Personal information will be treated confidentially, and all collected data will be used only for research purposes and protected strictly by relevant laws and regulations.

Voluntary Participation: Participation is voluntary; participants choose to answer each question. Even if they decide to participate, they can terminate and exit the survey anytime.

Rights and Responsibilities: During the survey, participants can refuse to answer questions they are unwilling to. The answers will play an essential role in the accuracy and credibility of the research results.

CHAPTER 4
RESEARCH RESULTS

This chapter presents the results of data analysis identified the associations between the various variables. Details are as follows:

4.1 Description of Sample Characteristics

4.2 Data Normal Distribution Test

4.3 Discriminatory Power, Reliability, and Primary Confirmatory Factor Analysis

4.4 Structural Equation Models and Hypothesis Testing

4.5 Conclusion

The main goal of this study is to discover the relationship between modern music and work scenarios, production technology background, corporate culture, leadership initiative, and teamwork efficiency. Descriptive statistical analysis was performed using SPSS, and structural equation modeling was performed using AMOS. A descriptive statistical analysis was performed to check whether demographic characteristics and data fit into a normal distribution. Next, the questionnaire was evaluated for its reliability and validity. The validation factor analysis was used to assess the extracted mean-variance (AVE) and composite reliability dimensions. In addition, the correlation coefficient of each dimension was calculated, and the relationship between different variables was analyzed. Finally, the structural equation model was analyzed to verify the hypothesis and draw the research conclusion.

4.1 Description of Sample Characteristics

Table 4.1 provides a descriptive statistical analysis of the respondents' characteristics.

The gender distribution showed that males accounted for 43.1% and famales accounted for 56.9%. Regarding age distribution, respondents under -30 age group

accounted for 21.9%, and respondents aged 30-39 and 40-49 years were 23.8% and 21.7%, while the proportion of respondents aged 50 was 32.7%. This age structure may reflect the acceptance and preference of modern music in different age groups and may be related to the activities in the workplace in various age groups. The distribution of departments revealed that respondents were from functional departments. The Department of market systems had the most significant number of respondents at 21.3%, which may be related to the nature of the work of the technical sector, which requires more innovation and inspiration. A similar number of technical support systems division, department of finance systems, and production system department, accounting for 20.5%, 19.8%, and 20.8%, respectively, may indicate that the three sectors are equally interested in research on the impact of modern music on teamwork efficiency. Management engineering department accounted for 17.7%. Finally, regarding educational level, the number of highly educated respondents is high, including 25.6% master's degree holders and 25.5% doctoral degree holders, which may be related to Huawei as a knowledge-intensive enterprise.

Table 4.1 Statistical Analysis of Respondents' Characteristics

Variable	Option	Frequency	Percentage %
Sex	Man	276	43.1
	Female	364	56.9
Age	Under 30	140	21.9
	30-39 Years old	152	23.8
	Age 40-49	139	21.7
	Age 50 or older	209	32.7
Department	Department of Market Systems	136	21.3
	Technical Support Systems Division	131	20.5
	Department of Finance Systems	127	19.8
	Production System Department	133	20.8
	Management Engineering Department	113	17.7
Education Level	College and below	160	25
	Baccalaureate	153	23.9
	Master's degree	164	25.6
	Doctor's degree	163	25.5
Total		**640**	**100**

4.2 Data Normal Distribution Test

4.2.1 Modern Music

The study analzed the normal distribution of the data on modern music. Modern music is divided into three dimensions: the first dimension is "music rhythm," (MM1 to MM5); the second dimension is "music level," measured (MM6 to MM10); the third dimension is "personal preference," (MM11 to MM15), The results in table 4.2 indicate that the respondents considered the levels of modern music above the average, between moderate and high. Meanwhile, the skewness and kurtosis were determined for each measurement problem item. According to the standard distribution criteria, the data were considered normal when the absolute value of the skewness coefficient was within 3 and the kurtosis coefficient was within 8. The results show that all dimensions' absolute skewness and kurtosis values met the criteria.

Table 4.2 Percentage Distribution of Modern Music

Item	Mean	Std. Deviation	Variance	Skewness	Kurtosis
MM1	3.41	0.743	0.552	-0.002	0.041
MM2	3.4	0.724	0.525	-0.046	0.092
MM3	3.42	0.74	0.548	0.044	-0.048
MM4	3.41	0.78	0.609	0.025	-0.314
MM5	3.41	0.73	0.534	-0.039	-0.321
MM6	3.42	0.746	0.556	0.086	-0.05
MM7	3.42	0.725	0.526	0.032	-0.272
MM8	3.4	0.749	0.561	-0.009	-0.11
MM9	3.4	0.749	0.561	-0.076	-0.145
MM10	3.38	0.749	0.561	0.035	0.14
MM11	3.43	0.752	0.565	-0.053	-0.243
MM12	3.42	0.756	0.572	0.011	-0.356
MM13	3.41	0.724	0.525	-0.144	0.056
MM14	3.41	0.761	0.58	-0.065	-0.186
MM15	3.41	0.752	0.565	-0.038	-0.132

4.2.2 Perception on Work Scenes

The scale composition is divided into "emotional enhancement work scenes" and "centralized priority work scenes." The former covers WS1 to WS5, and the latter

covers WS6 to WS10, with 10 items. The normal distribution was evaluated, and the final results are shown in Table 4.3.

Table 4.3 Percentage Distribution of Perception on Work Scenes

Item	Mean	Std. Deviation	Variance	Skewness	Kurtosis
WS1	3.12	0.685	0.469	-0.187	-0.42
WS2	3.13	0.687	0.472	-0.171	-0.543
WS3	3.17	0.693	0.481	-0.321	-0.097
WS4	3.16	0.705	0.497	-0.262	-0.417
WS5	3.12	0.697	0.485	-0.163	-0.294
WS6	3.09	0.679	0.461	-0.143	-0.372
WS7	3.11	0.686	0.47	-0.172	-0.084
WS8	3.14	0.691	0.477	-0.226	-0.131
WS9	3.12	0.696	0.484	-0.087	-0.587
WS10	3.12	0.707	0.5	-0.149	-0.634

4.2.3 Production Technology Context

The scale composition of the production technology context is divided into two dimensions: "creative production technology background" and "analytical production technology background." The former items are from PT1 to PT5, while the latter has 10 items from PT6 to PT10. The normal distribution was evaluated, and the final results are shown in Table 4.4.

Table 4.4 Percentage Distribution of Production Technology Context

Item	Mean	Std. Deviation	Variance	Skewness	Kurtosis
PT1	2.98	0.68	0.463	-0.097	0.038
PT2	2.97	0.683	0.467	0.037	-0.158
PT3	2.99	0.685	0.469	-0.021	-0.263
PT4	2.97	0.686	0.47	-0.046	-0.112
PT5	2.98	0.683	0.466	0.023	-0.15
PT6	2.97	0.667	0.445	-0.026	0.006
PT7	3	0.689	0.474	0.085	-0.296
PT8	2.99	0.687	0.472	-0.042	-0.372
PT9	3.01	0.682	0.465	-0.069	0.038
PT10	3	0.695	0.484	-0.058	-0.115

According to the data in Table 4.4, the mean value of each item in the production technology context scale is between 2.97 and 3.01, which is higher than the average level that meets the requirements. The absolute value of the skewness coefficient is within 3, which meets the requirement, and the absolute value of the kurtosis coefficient is within 8. Therefore, it can be determined that this scale meets the requirements of normal distribution.

4.2.4 Corporate Culture

The scale composition of corporate culture is divided into two dimensions: "teamwork" and "employee authorization and" participation. The former is from CC 1 to CC5, and the latter is CC6 to CC10, with ten items. The normal distribution was evaluated, and the final results are shown in Table 4.5.

Table 4.5 Percentage Distribution of Corporate Culture

Item	Mean	Std. Deviation	Variance	Skewness	Kurtosis
CC1	3.67	0.858	0.736	-0.135	-0.56
CC2	3.65	0.851	0.724	-0.169	-0.572
CC3	3.65	0.824	0.679	-0.166	-0.487
CC4	3.64	0.875	0.766	-0.128	-0.613
CC5	3.65	0.831	0.691	-0.144	-0.448
CC6	3.64	0.836	0.698	-0.153	-0.454
CC7	3.61	0.857	0.735	-0.066	-0.575
CC8	3.63	0.855	0.731	-0.119	-0.614
CC9	3.66	0.841	0.707	-0.109	-0.514
CC10	3.65	0.833	0.694	-0.084	-0.499

According to the data analysis results in Table 4.5, the average value of each item in the corporate culture scale is between 3.61 and 3.67, higher than the average level that meets the requirements. The absolute value of the skewness coefficient is within 3, which meets the requirement, and the absolute value of the kurtosis coefficient is within 8. Therefore, it can be determined that this scale meets the requirements of normal distribution.

4.2.5 Leadership Initiative

The leadership initiative scale composition is divided into two dimensions: "leadership style" and "leadership vision." The items of "leadership style" range from LI 1 to LI5, and the items of "leadership vision" are LI6 to LI10, for 10 items. The normal distribution was evaluated, and the final results are shown in Table 4.6.

Table 4.6 Percentage Distribution of Leadership Initiative

Item	Mean	Std. Deviation	Variance	Skewness	Kurtosis
LI1	2.99	0.719	0.516	-0.088	-0.78
LI2	3.02	0.687	0.472	-0.173	-0.433
LI3	2.99	0.676	0.457	-0.111	-0.448
LI4	3	0.72	0.518	-0.048	-0.783
LI5	2.99	0.676	0.457	-0.084	-0.536
LI6	2.99	0.706	0.499	-0.038	-0.691
LI7	2.98	0.694	0.482	-0.092	-0.602
LI8	2.99	0.671	0.451	-0.141	-0.132
LI9	2.99	0.692	0.479	-0.101	-0.581
LI10	3.01	0.689	0.474	-0.068	-0.545

According to the data analysis results in Table 4.6, the mean value of each item in the leadership initiative scale is between 2.98 and 3.02, which is higher than the average level that meets the requirements. The absolute value of the skewness coefficient is within 3, which meets the requirement, and the absolute value of the kurtosis coefficient is within 8. Therefore, it can be determined that this scale meets the requirements of normal distribution.

4.2.6 Teamwork Efficiency

The scale composition of teamwork efficiency, is divided into four dimensions: "work quality," "work outcome," "work input," and "work speed". Work quality" items range from TWE 1 to TWE 5, "Work outcome" from TWE 6 to TWE 10, "Work input" from TWE 11 to TWE 15, and "Work speed" from TWE 16 to TWE 20, a total of 20 items. The normal distribution was evaluated, and the final results are shown in Table 4.7.

Table 4.7 Percentage Distribution of Teamwork Efficiency

Item	Mean	Std. Deviation	Variance	Skewness	Kurtosis
TWE1	3.11	0.668	0.446	-0.162	-0.273
TWE2	3.16	0.69	0.476	-0.187	-0.511
TWE3	3.15	0.658	0.433	-0.101	-0.583
TWE4	3.17	0.663	0.44	-0.173	-0.306
TWE5	3.14	0.686	0.47	-0.215	-0.256
TWE6	3.14	0.697	0.485	-0.256	-0.408
TWE7	3.13	0.681	0.463	-0.161	-0.318
TWE8	3.13	0.682	0.466	-0.226	-0.464
TWE9	3.12	0.677	0.458	-0.149	-0.466
TWE10	3.17	0.693	0.48	-0.176	-0.475
TWE11	3.12	0.679	0.462	-0.181	-0.552
TWE12	3.13	0.694	0.482	-0.156	-0.536
TWE13	3.14	0.663	0.439	-0.161	-0.354
TWE14	3.14	0.7	0.49	-0.221	-0.697
TWE15	3.17	0.656	0.431	-0.255	-0.243
TWE16	3.12	0.704	0.495	-0.175	-0.666
TWE17	3.12	0.687	0.472	-0.16	-0.545
TWE18	3.12	0.705	0.497	-0.166	-0.52
TWE19	3.15	0.687	0.472	-0.203	-0.376
TWE20	3.15	0.678	0.459	-0.126	-0.528

According to the data analysis results in Table 4.7, the average value of each item in the teamwork efficiency scale is between 3.11 and 3.17, which is higher than the average level that meets the requirements. The absolute value of the skewness coefficient is within 3, which meets the requirement, and the absolute value of the kurtosis coefficient is within 8. Therefore, it can be determined that this scale meets the requirements of normal distribution.

Overall, the average distribution index of each variable showed that the data met the standard distribution criteria.

4.3 Discriminatory Power, Reliability, and Primary Confirmatory Factor Analysis

In this study, 640 validated questionnaires were collected, and the collected data were checked for reliability and validity. Reliability was assessed using Cronbach's Alpha and modified item-collective correlation (CICT). Validity was tested using preliminary confirmatory factor analysis (CFA), including path coefficient, combined reliability (CR), and mean-variance extraction (AVE). The applicability of the model was also evaluated using the structural equation model.

4.3.1 Reliability

Questionnaires were used to collect data in the study, and reliability checks of the collected data were required. Reliability analysis of all scales used Cronbach's Alpha and Cronbach's Alpha (if items removed). The questionnaire variables included 75 items with a Cronbach's Alpha of 0.957, indicating a strong reliability and meeting the criteria, as shown in Table 4.8

Table 4.8 Reliability Testing

Cronbach's Alpha	N of Items
0.957	75

1. Reliability Test of Modern Music Scale

Table 4.9 shows the reliability analysis of the modern music scale. Cronbach's Alpha must be more significant than 0.7, and the corrected item-total correlation (TC) is more important than 0.5 to meet internal consistency and reliability criteria. The analysis found that the Cronbach's Alpha was 0.916, 0.913 and 0.911, all greater than 0.7, indicating that the collected data are reliable. The modern music scale consists of 15 components, each with CITC greater than 0.5, meeting the criteria.

Table 4.9 Reliability Analysis of Modern Music Scale

Dimension		Item	Corrected Item-Total Correlation	Cronbach's Alpha
Modern Music	Musical Rhythm	MM1	0.784	0.916
		MM2	0.787	
		MM3	0.780	
		MM4	0.801	
		MM5	0.776	
	Volume Level	MM6	0.783	0.913
		MM7	0.775	
		MM8	0.782	
		MM9	0.774	
		MM10	0.777	
	Personal Preference	MM11	0.782	0.911
		MM12	0.775	
		MM13	0.755	
		MM14	0.792	
		MM15	0.772	

2. Reliability Test of Perception on Work Scenes Scale

Table 4.10 shows the reliability analysis of the perception on work scenes scale. The results show that the Cronbach's alpha of both dimensions of the perception on work scenes scale is 0.89 and 0.891, both greater than 0.7, indicating that the collected data are reliable. The perception on the work scenes scale consists of 10 components, each with CITC greater than 0.5, meeting the criteria.

Table 4.10 Reliability Analysis of Perception on Work Scenes Scale

Dimension		Item	Corrected Item-Total Correlation	Cronbach's Alpha
Perception on Work Scenes	Mood enhancement work scenes	WS1	0.733	0.890
		WS2	0.748	
		WS3	0.726	
		WS4	0.727	
		WS5	0.739	
	Focused priority work scenes	WS6	0.726	0.891
		WS7	0.733	
		WS8	0.724	
		WS9	0.750	
		WS10	0.739	

3. Reliability Test of Analytical Capability Scale

Table 4.11 shows the reliability analysis of the production technology context scale. The results show that the Cronbach's alpha of both dimensions of the production technology context scale is 0.954 and 0.956, both greater than 0.7, indicating that the collected data are reliable. The production technology context scale consists of 10 components, each with CITC values greater than 0.5, meeting the criteria

Table 4.11 Reliability Analysis of Production Technology Context Scale

Dimension		Item	Corrected Item-Total Correlation	Cronbach's Alpha
Production Technology Context	Creative Production Technology Background	PT1	0.859	0.954
		PT2	0.870	
		PT3	0.888	
		PT4	0.880	
		PT5	0.873	
	Analytical Production Technology Background	PT6	0.865	0.956
		PT7	0.879	
		PT8	0.884	
		PT9	0.877	
		PT10	0.895	

4. Reliability Test of Corporate Culture Scale

Table 4.12 shows the reliability analysis of the corporate culture scale. The results showed that the Cronbach's alpha of both dimensions of the corporate culture scale is 0.934 and 0.935, both greater than 0.7, indicating that the collected data are reliable. The corporate culture scale consists of 10 components, each with a CITC value greater than 0.5, meeting the criteria.

Table 4.12 Reliability Analysis of Corporate Culture Scale

Dimension		Item	Corrected Item-Total Correlation	Cronbach's Alpha
Corporate Culture	Teamwork	CC1	0.821	0.934
		CC2	0.840	
		CC3	0.810	
		CC4	0.836	
		CC5	0.816	
	Employee Empowerment and Engagement	CC6	0.822	0.935
		CC7	0.828	
		CC8	0.839	
		CC9	0.826	
		CC10	0.815	

5. Reliability Test of Leadership Initiative Scale

Table 4.13 shows the reliability analysis of the leadership initiative scale. The results showed that the Cronbach's alpha of the two dimensions of the leadership initiative scale is 0.883 and 0.88, both greater than 0.7, indicating that the collected data are reliable. The leadership initiative scale consists of 10 components, each with CITIC greater than 0.5, meeting the criteria.

Table 4.13 Reliability Analysis of Leadership Initiative Scale

Dimension		Item	Corrected Item-Total Correlation	Cronbach's Alpha
Leadership Initiative	Leadership Styles	LI1	0.745	0.883
		LI2	0.700	
		LI3	0.726	
		LI4	0.736	
		LI5	0.690	
	Leadership Vision	LI6	0.732	0.88
		LI7	0.715	
		LI8	0.693	
		LI9	0.731	
		LI10	0.701	

6. Reliability Test of Teamwork Efficiency Scale

Table 4.14 shows the reliability analysis of the teamwork efficiency scale. The results showed that the Cronbach's alpha of the four dimensions of the teamwork efficiency scale is 0.885, 0.891, 0.888, and 0.892, all greater than 0.7, indicating that the collected data are reliable. The teamwork efficiency scale consists of 20 components, each with CICTC values greater than 0.5, meeting the criteria.

Table 4.14 Reliability Analysis of Teamwork Efficiency Scale

Dimension		Item	Corrected Item-Total Correlation	Cronbach's Alpha
Teamwork Efficiency	Work Quality	TWE1	0.717	0.885
		TWE2	0.707	
		TWE3	0.733	
		TWE4	0.709	
		TWE5	0.748	
	Work Outcome	TWE6	0.728	0.891
		TWE7	0.747	
		TWE8	0.746	
		TWE9	0.719	
		TWE10	0.729	
	Work Input	TWE11	0.722	0.888
		TWE12	0.744	
		TWE13	0.734	
		TWE14	0.746	
		TWE15	0.699	
	Work Speed	TWE16	0.742	0.892
		TWE17	0.724	
		TWE18	0.755	
		TWE19	0.746	
		TWE20	0.716	

Cronbach's alpha must be greater than 0.7, and the revised item-total correlation coefficient (CITC) must be 0.5 or above to meet internal consistency and reliability requirements. Some items or dimensions must be changed or deleted if they do not conform. The above analysis shows that all items meet the reliability requirements, and subsequent research can be carried out.

4.3.2 Effectiveness

This study used confirmatory factor analysis to test the scale's validity. The structural equation model must consider the average variance extraction, combined validity, and discriminatory validity. This study used the average variance extraction (AVE) to determine the scale's convergent validity. In contrast, the combined validity (CR) was used to evaluate the consistency of variable measurement. The association

between the square root of the AVE values and the normalization coefficient serves as the basis for the discriminant validity.

According to the relevant studies and criteria, the minimum AVE value is 0.5 (Hair et al., 2010), and the minimum CR value is 0.7 (Fornell & Larcker, 1981), with good aggregate validity and combination reliability. This study used a structural equation model. Both the AMOS and SPSS software were applied throughout the study. First, a model fitting test was performed, and all key indicators were met. Second, the findings were determined using the parameter estimates.

1. Modern Music

According to Table 4.15, the results of the model fitness index test reveal that the Chi-square/df is 0.962, which is less than 3 to meet the requirements, and the test results of GFI, AGFI, CFI, and TLI are all greater than 0.9 to fulfill the requirements, while the RMSEA is zero which is less than 0.08. Therefore, the results demonstrate a good confirmatory factor analysis model fit of the modern music scale and indicate the strong construct validity of the scale used in this study.

Table 4.15 Modern Music Model Fit

Indicator	Chi-square	df	Chi-square/df	GFI	AGFI	CFI	TAG	RMSEA
Results	83.733	87	0.962	0.983	0.977	1	1	0

Modern music has three dimensions: musical rhythm, volume level, and personal preference. Five measurement items are set for each dimension. As shown in Table 4.16, the path coefficient estimate is more significant than 0.7 on the modern music scale. Items in this dimension must have a factor loading value (standard estimated regression weight) greater than or equal to 0.5. The AVE of the musical rhythm dimension is 0.6861, AVE of the volume level dimention is 0.6764, and the AVE of the personal preference dimension is 0.6728, which are more than 0.5, and the CR is 0.9161, 0.9127 and 0.9113, which are larger than 0.7. Therefore, the scale meets the requirements of structural validity. The specific structure is shown in Figure 4.1.

Table 4.16 AVE and CR of Modern Music

Path Relationship			Estimate	AVE	CR
MM1	<---	MR	0.815	0.686	0.916
MM2	<---	MR	0.831		
MM3	<---	MR	0.828		
MM4	<---	MR	0.852		
MM5	<---	MR	0.815		
MM6	<---	VL	0.825	0.676	0.913
MM7	<---	VL	0.814		
MM8	<---	VL	0.828		
MM9	<---	VL	0.824		
MM10	<---	VL	0.821		
MM11	<---	PP	0.816	0.673	0.911
MM12	<---	PP	0.811		
MM13	<---	PP	0.814		
MM14	<---	PP	0.827		
MM15	<---	PP	0.833		

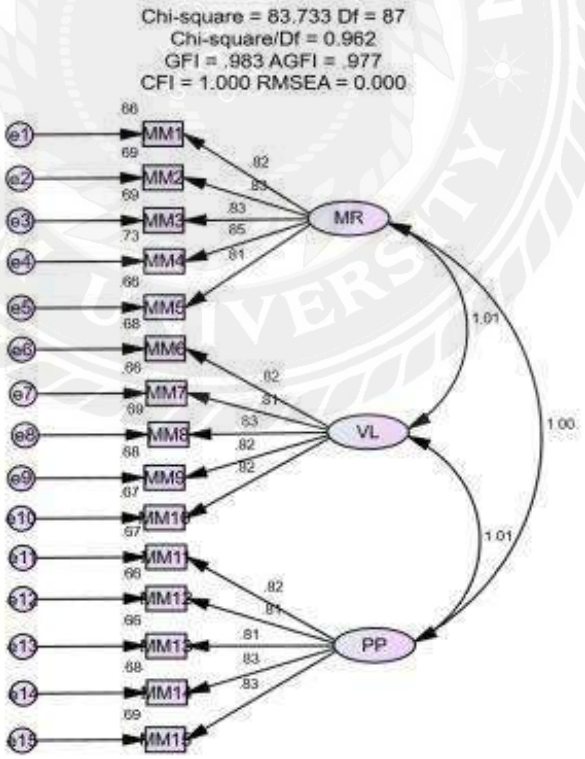


Figure 4.1 Primary Confirmatory Factor Analysis of Modern Music

2. Perception on Work Scenes

According to Table 4.17, the results of the model fitness index test reveal that the Chi-square/df is 1.002, which is less than 3 to meet the requirements, and the test results of GFI, AGFI, CFI, and TLI are all greater than 0.9 to fulfill the requirements, while the RMSEA is 0.002 which is less than 0.08. Therefore, the results indicate that the perception on work scenes scale confirmatory factor analysis model is a fit and indicate the strong structural validity of the scale used in this study.

Table 4.17 Perception on Work Scenes Model Fit

Indicator	Chi-square	df	Chi-square/df	GFI	AGFI	CFI	TAG	RMSEA
Results	34.056	34	1.002	0.989	0.983	1	1	0.002

Perception on work scenes is divided into two dimensions: mood enhancement perception on work scenes and focused priority perception on work scenes. Five measurement items are set for each dimension. As shown in Table 4.18, the path coefficient estimate is more significant than 0.7 on the perception on work scenes scale. Items in this dimension must have a factor loading value (standard estimated regression weight) greater than or equal to 0.5. The AVE of the mood enhancement perception on work scenes dimension is 0.619, the AVE of the focused priority perception on work scenes is 0.621, which is more than 0.5, and the CR is 0.890 and 0.891, which is more significant than 0.7. Therefore, the scale meets the requirements of structural validity. The specific structure is shown in Figure 4.2.

Table 4.18 AVE and CR of Perception on Work Scenes

Path Relationship			Estimate	AVE	CR
WS1	<---	MEW	0.803	0.619	0.890
WS2	<---	MEW	0.795		
WS3	<---	MEW	0.775		
WS4	<---	MEW	0.784		
WS5	<---	MEW	0.776		
WS6	<---	FRW	0.777	0.621	0.891
WS7	<---	FRW	0.774		
WS8	<---	FRW	0.781		
WS9	<---	FRW	0.808		
WS10	<---	FRW	0.799		

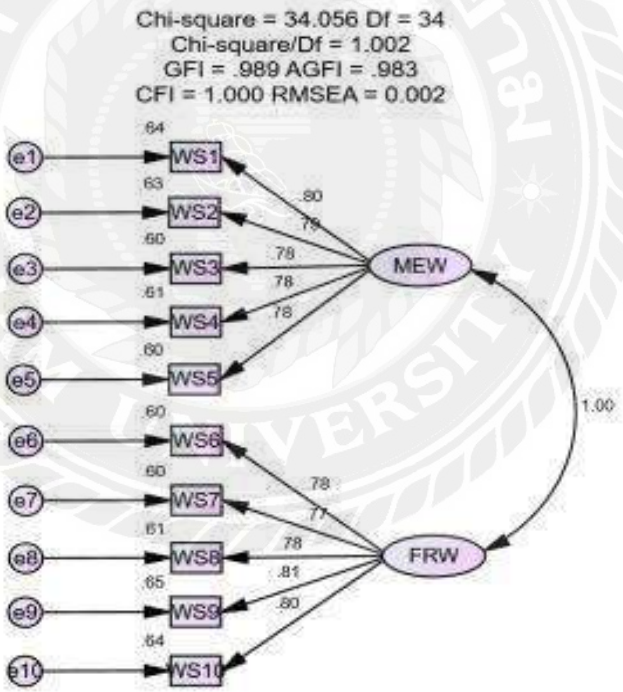


Figure 4.2 Primary Confirmatory Factor Analysis of Perception on Work Scenes

3. Production Technology Context

According to Table 4.19, the results of the model fitness index test reveal that the Chi-square/df is 2.007, which is less than 3 to meet the requirements, and the test results of GFI, AGFI, CFI, and TLI are all greater than 0.9 to fulfill the requirements,

while the RMSEA is 0.04 which is less than 0.08. Therefore, the results indicate that the production technology context scale confirms a factor analysis model that fits well and indicate the strong construct validity of the scale used in this study.

Table 4.19 Production Technology Context Model Fit

Indicator	Chi-square	df	Chi-square/df	GFI	AGFI	CFI	TAG	RMSEA
Results	68.221	34	2.007	0.979	0.966	0.996	0.996	0.04

Technology production context is divided into two dimensions: creative production technology and analytical production technology. Five measurement items are set for each dimension. As shown in Table 4.20, the path coefficient estimate is more significant than 0.7 on the production technology context scale. Items in this dimension must have a factor loading value (standard estimated regression weight) greater than or equal to 0.5. The AVE of the creative production technology context dimension is 0.808, the AVE of the analytical production technology context is 0.815, which is more than 0.5, and the CR is 0.955 and 0.956, which is more significant than 0.7. Therefore, the scale meets the requirements of structural validity. The specific structure is shown in Figure 4.3.

Table 4.20 AVE and CR of Production Technology Context

Path Relationship			Estimate	AVE	CR
PT1	<---	CPTB	0.889	0.808	0.955
PT2	<---	CPTB	0.902		
PT3	<---	CPTB	0.905		
PT4	<---	CPTB	0.900		
PT5	<---	CPTB	0.897		
PT6	<---	APTB	0.881	0.815	0.956
PT7	<---	APTB	0.910		
PT8	<---	APTB	0.907		
PT9	<---	APTB	0.897		
PT10	<---	APTB	0.917		

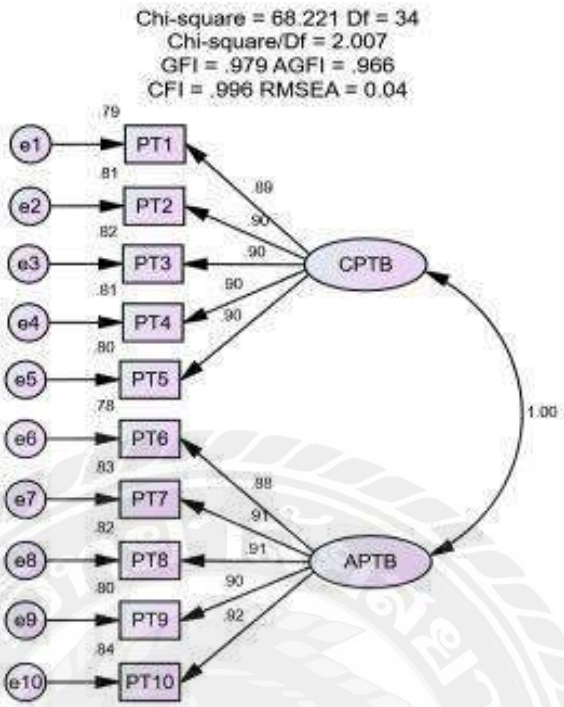


Figure 4.3 Primary Confirmatory Factor Analysis of Production Technology Context

4. Corporate Culture

According to Table 4.21, the results of the model fitness index test reveal that the Chi-square/df is 1.408, which is less than 3 to meet the requirements, and the test results of GFI, AGFI, CFI, and TLI are all greater than 0.9 to fulfill the requirements, while the RMSEA is 0.025, which is less than 0.08. Therefore, the results demonstrate a good fit of the confirmatory factor analysis model and the strong construct validity of the scale used in this study.

Table 4.21 Corporate Culture Model Fit

Indicator	Chi-square	df	Chi-square/df	GFI	AGFI	CFI	TAG	RMSEA
Results	47.875	34	1.408	0.985	0.976	0.998	0.997	0.025

Corporate culture is divided into teamwork and employee empowerment and engagement. Five measurement items are set for each dimension. As shown in Table 4.22, the path coefficient estimate is more significant than 0.7 on the corporate culture scale. Items in this dimension must have a factor loading value (standard estimated

regression weight) greater than or equal to 0.5. The AVE of the teamwork dimension is 0.738, the AVE of the employee empowerment and engagement is 0.741, more than 0.5, and the CR is 0.934 and 0.935, larger than 0.7. Therefore, the scale meets the requirements of structural validity. The specific structure is shown in Figure 4.4

Table 4.22 AVE and CR of Corporate Culture

Path Relationship			Estimate	AVE	CR
CC1	<---	T	0.855	0.738	0.934
CC2	<---	T	0.873		
CC3	<---	T	0.847		
CC4	<---	T	0.880		
CC5	<---	T	0.841		
CC6	<---	EEE	0.856	0.741	0.935
CC7	<---	EEE	0.865		
CC8	<---	EEE	0.871		
CC9	<---	EEE	0.858		
CC10	<---	EEE	0.854		

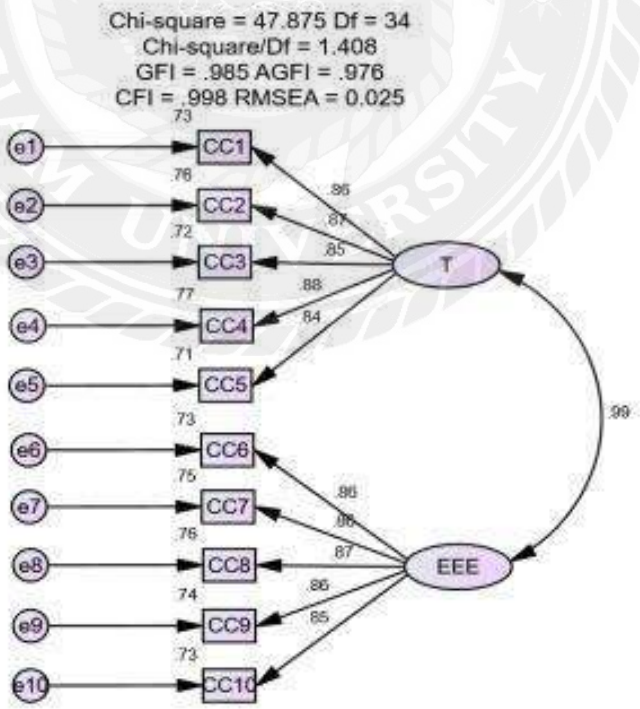


Figure 4.4 Primary Confirmatory Factor Analysis of Corporate Culture

5. Leadership Initiative

According to Table 4.23, the results of the model fitness index test reveal that the Chi-square/df is 0.983, which is less than 3 to meet the requirements, and the test results of GFI, AGFI, CFI, and TLI are all greater than 0.9 to fulfill the requirements, while the RMSEA is 0 which is less than 0.08. Therefore, the overall results demonstrate a good fit of the leadership initiative scale confirmatory factor analysis model and demonstrate a strong construct validity of the scale used in this study.

Table 4.23 Leadership Initiative Model Fit

Indicator	Chi-square	df	Chi-square/df	GFI	AGFI	CFI	TAG	RMSEA
Results	33.41	34	0.983	0.99	0.984	1	1	0

Leadership initiative is divided into two dimensions: leadership styles and leadership vision. Five measurement items are set for each dimension. As shown in Table 4.24, the path coefficient estimate is greater than 0.7 on the leadership initiative scale. Items in this dimension must have a factor loading value (standard estimated regression weight) greater than or equal to 0.5. The AVE of the teamwork dimension is 0.601, the AVE of the leadership vision is 0.595, which are more than 0.5, and the CR is 0.883 and 0.880, which are larger than 0.7. Therefore, the scale meets the requirements of structural validity. The specific structure is shown in Figure 4.5

Table 4.24 AVE and CR of Leadership Initiative

Path Relationship			Estimate	AVE	CR
LI1	<---	LS	0.806	0.601	0.883
LI2	<---	LS	0.753		
LI3	<---	LS	0.774		
LI4	<---	LS	0.797		
LI5	<---	LS	0.745		
LI6	<---	LV	0.781	0.593	0.880
LI7	<---	LV	0.780		
LI8	<---	LV	0.742		
LI9	<---	LV	0.781		
LI10	<---	LV	0.771		

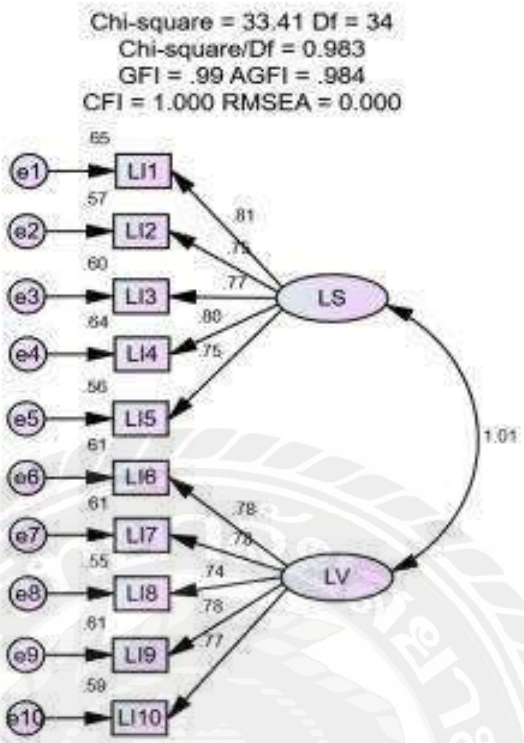


Figure 4.5 Primary Confirmatory Factor Analysis of Leadership Initiative

6. Teamwork Efficiency

According to Table 4.25, the results of the model fitness index test reveal that the Chi-square/df is 1.072, which is less than 3 to meet the requirements; and the test results of GFI, AGFI, CFI, and TLI are all greater than 0.9 to fulfill the requirements, while the RMSEA is 0.011 which is less than 0.08. Therefore, the results indicate that the teamwork efficiency scale confirmatory factor analysis model fits well and indicate the strong structural validity of the scale used in this study.

Table 4.25 Teamwork Efficiency Model Fit

Indicator	Chi-square	df	Chi-square/df	GFI	AGFI	CFI	TAG	RMSEA
Results	175.813	164	1.072	0.973	0.965	0.999	0.999	0.011

Teamwork efficiency is divided into four dimensions: work quality, work outcome, work input and work speed. Five measurement items are set for each dimension. As shown in Table 4.26, the path coefficient estimate is more significant than 0.7 on the teamwork efficiency scale. Items in this dimension must have a factor

loading value (standard estimated regression weight) greater than or equal to 0.5. The AVE of the teamwork efficiency dimensions are 0.607, 0.621, 0.6146, and 0.624, which are more than 0.5, and the CR are 0.8853, 0.891, 0.889, and 0.8924, which are larger than 0.7. Therefore, the scale meets the requirements of structural validity. The specific structure is shown in Figure 4.6.

Table 4.26 AVE and CR of Teamwork Efficiency

Path Relationship			Estimate	AVE	CR
TWE1	<---	WQ	0.773	0.607	0.885
TWE2	<---	WQ	0.781		
TWE3	<---	WQ	0.792		
TWE4	<---	WQ	0.765		
TWE5	<---	WQ	0.784		
TWE6	<---	WO	0.787	0.621	0.891
TWE7	<---	WO	0.801		
TWE8	<---	WO	0.795		
TWE9	<---	WO	0.772		
TWE10	<---	WO	0.786		
TWE11	<---	WI	0.770	0.615	0.889
TWE12	<---	WI	0.810		
TWE13	<---	WI	0.777		
TWE14	<---	WI	0.810		
TWE15	<---	WI	0.751		
TWE16	<---	WS	0.796	0.624	0.892
TWE17	<---	WS	0.783		
TWE18	<---	WS	0.812		
TWE19	<---	WS	0.791		
TWE20	<---	WS	0.767		

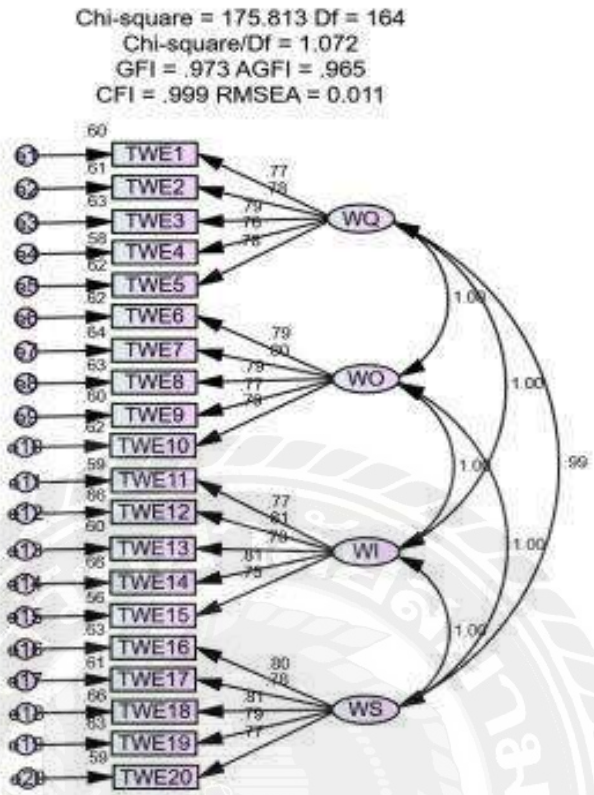


Figure 4.6 Primary Confirmatory Factor Analysis of Teamwork Efficiency

4.3.3 Correlation Analysis

In this study, the dimensions of the variables for the correlation analysis were used. The validity and reliability were used to determine the structure and related problems and calculate the mean score of each dimension as the score of the dimension, followed by correlation analysis. Correlation analysis analyzed the correlation between variables, with correlation coefficients ranging from -1 to 1. Higher absolute values indicate a correlation between variables. The analysis in Table 4.27 indicates substantial associations between the dimensional factors. The correlation coefficients of modern music, perception on work scenes, production technology context, corporate culture, leadership initiative, and teamwork efficiency are all at least 0.001. Furthermore, the exponential coefficient of the correlation coefficient reveals that the absolute value of the correlation coefficient between the dimensions is more significant than zero and positively correlated.

The variance validity analysis aims to determine whether statistical differences exist between the correlations of two independent constructs and whether items in different constructs should not be highly correlated, meaning that they measure the same thing with no overlap. Based on the above analysis results, there is a significant positive correlation between modern music, perception on work scenes, production technology context, corporate culture, leadership initiative, and teamwork efficiency, with the correlation coefficient not exceeding 0.9, no covariance, and meeting the requirements.

Table 4.27 Results of Correlation Analysis for Each Dimension

Variable	Average	Sd.	MM	WS	PT	CC	LI	TE
MM	3.4106	0.62412	0.6783					
WS	3.128	0.56217	0.589***	0.6198				
PT	2.9859	0.62252	0.596***	0.563***	0.8112			
CC	3.6441	0.73954	0.263***	0.349***	0.358***	0.7399		
LI	2.9955	0.55515	-0.59***	-0.608***	-0.597***	-0.359***	0.5981	
TE	3.1377	0.5438	0.615***	0.568***	0.571***	0.386***	-0.652***	0.6166
AVE			0.8236	0.7873	0.9007	0.8602	0.7734	0.7852

NOTE: * p<0.05, **p<0.01, ***p<0.001, MM is Modern Music, WS is a perception of work scenes, PT is production technology context, CC is Corporate Culture, LI is Leadership Initiative, and TE is Teamwork Efficiency.

4.3.4 Regulatory Effect

Tables 4.28 and 4.29 show the moderating effect of corporate culture and leadership initiatives on teamwork efficiency under different conditions. In Table 4.28, the effect value of high corporate culture grouping is 0.319, the 95% confidence interval is 0.242 to 0.415, and the P value is less than 0.001, which indicates that grouping has a significant positive impact on teamwork efficiency in a high corporate culture environment. Similarly, the effect value of high leadership initiative grouping is 0.358, the 95% confidence interval is 0.279 to 0.44, and the P value is less than 0.001, which shows that grouping also has a significant positive impact on teamwork efficiency under the environment of high leadership initiative. The effect values in the low corporate culture and low leadership initiative groups are 0.111 and 0.072, respectively. Although they also show positive effects, their effect values and confidence intervals are smaller than those in the high group, and the P value of the

low leadership initiative group is 0.107, which is close to the significance level of 0.05, indicating that its influence is relatively weak.

In Table 4.28, the effect value of high corporate culture grouping is 0.378, the 95% confidence interval is 0.287 to 0.48, and the P value is less than 0.001, proving that grouping has a significant positive impact on teamwork efficiency in high corporate culture environment. The effect value of high leadership initiative grouping is 0.423, the 95% confidence interval is 0.331 to 0.52, and the P value is also less than 0.001, which shows that grouping significantly positively impacts teamwork efficiency in the environment of high leadership initiative. The effect values of low corporate culture and low leadership initiative groups are 0.131 and 0.086, respectively. Although they also show positive effects, the effect values and confidence intervals are smaller than those of high leadership initiative groups. The P value of low leadership initiative groups is 0.102, slightly higher than the significance level of 0.05. This may mean that the influence of low leadership initiative groups on technical efficiency is not statistically significant.

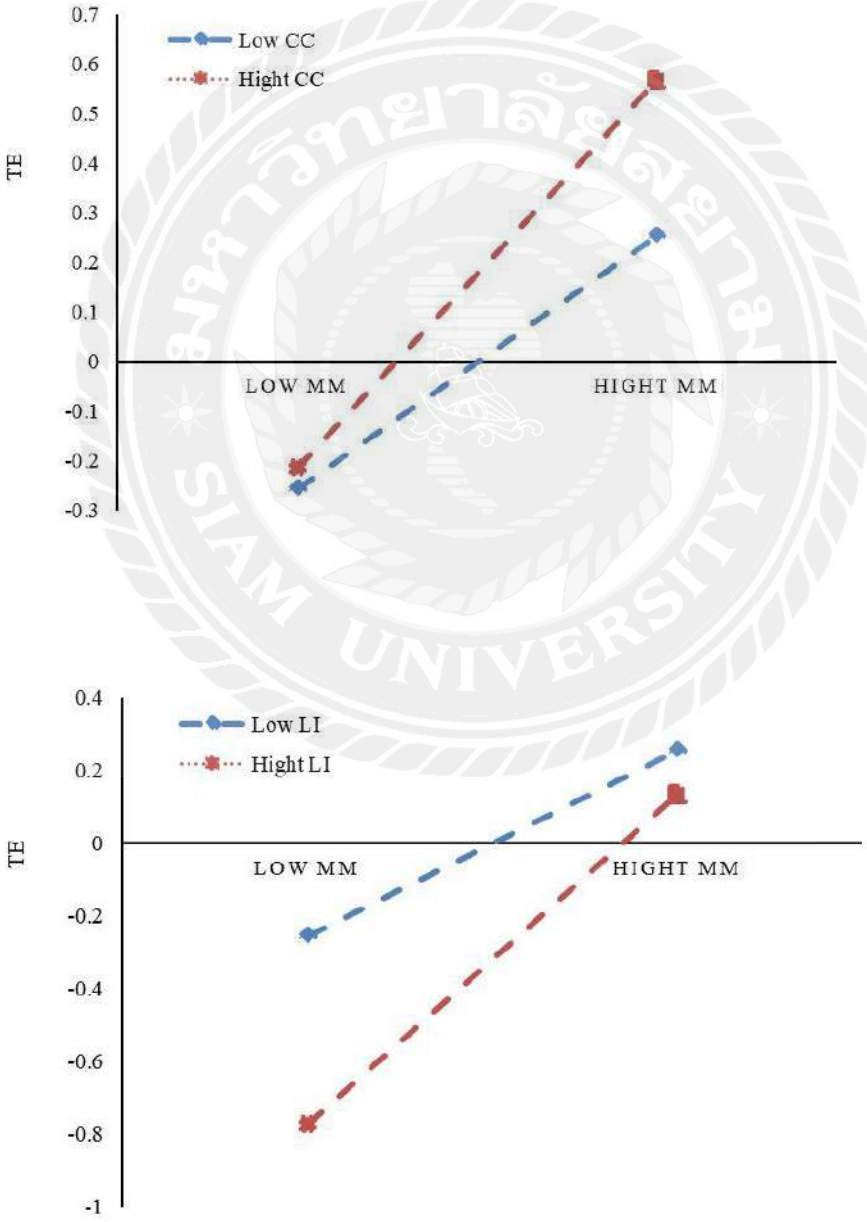
Comprehensive charts and data show that corporate culture and leadership initiatives have important regulatory roles in improving teamwork efficiency. In an environment of high corporate culture and high leadership initiative, the positive impact of grouping on teamwork efficiency is more significant. In contrast, this impact is relatively weak in an environment with a low corporate culture and leadership initiative. This shows that to improve teamwork efficiency, organizations may need to pay attention to the construction of corporate culture and the cultivation of leadership to promote more effective grouping and cooperation.

Table 4.28 Non-Standardized Regulation Effect

Group	Effect	95% CI		P
		Lower	Upper	
CC High Grouping	0.319	0.242	0.415	0.001
Grouping In CC	0.215	0.144	0.294	0.001
CC Low Grouping	0.111	0.011	0.214	0.031
LI High Grouping	0.358	0.279	0.44	0.001
Grouping In LI	0.215	0.144	0.294	0.001
LI Low Grouping	0.072	-0.02	0.169	0.107

Table 4.29 Standardized Regulation Effect

Group	Effect	95% CI		P
		Lower	Upper	
Standard CC high-packet	0.378	0.287	0.48	0.001
Packet in standard CC	0.254	0.174	0.338	0.001
Standard CC low-packet	0.131	0.01	0.248	0.032
Standard LI high grouping	0.423	0.331	0.52	0.001
Grouping in standard LI	0.254	0.174	0.338	0.001
Standard LI low grouping	0.086	-0.024	0.197	0.102



4.3.5 Bootstrap Test of Intermediary Effect

Table 4.30 analyzes the mediating effect of corporate culture (CC) and leadership initiative (LI) in teamwork efficiency. In Table 4.30 of the non-standardized mediation effect test, the effect value of the direct effect is 0.215, the 95% confidence interval is 0.144 to 0.294, and the P value is 0.001, indicating a significant direct effect. The effect values of indirect effect 1 and indirect effect 2 are 0.066 and 0.054, respectively. The 95% confidence intervals are 0.024 to 0.11 and 0.015 to 0.1, respectively. The p values are significant, which are 0.003 and 0.006, respectively, indicating that CC and LI have a significant indirect impact on TE through the two intermediary variables of perception on work scenes and production technology context. The total indirect effect was 0.12, the 95% confidence interval was 0.07 to 0.177, and the P value was 0.001, further confirming the mediating effect's significance. In Table 4.31 of the standardized mediation effect test, the p values of standardized direct effect, indirect effect 1, indirect effect 2, and standardized total indirect effect are all less than 0.01, further emphasizing the mediation effect's robustness.

In addition, the T-test results of gender in CC and LI dimensions show that except for CC3 and LI8, which are statistically significant at the level of 0.05, the P values of other dimensions are all greater than 0.05, indicating that gender has no significant influence on CC and LI dimensions. This may mean that gender differences are not a key factor in these dimensions of corporate culture and leadership initiatives.

Overall, CC and LI significantly mediate teamwork efficiency by influencing the perception on work scenes and production technology context. This emphasizes that in improving teamwork efficiency, in addition to direct management measures, we should also pay attention to the construction of corporate culture and leadership initiatives and how they indirectly affect teamwork efficiency by shaping employees' perceptions and cognition.

Table 4.30 Bootstrap Test of Non-Standardized Intermediary Effect

Effect	Effect Value	SE	Bias-corrected 95% CI			Percentile 95% CI		
			Lower	Upper	p	Lower	Upper	p
Direct effect	0.215	0.037	0.144	0.294	0.001	0.14	0.291	0.001
Indirect effect 1	0.066	0.021	0.024	0.11	0.003	0.025	0.11	0.003
Indirect effect 2	0.054	0.021	0.015	0.1	0.006	0.013	0.096	0.009
Total indirect effect	0.12	0.027	0.07	0.177	0.001	0.069	0.175	0.001
Total effect	0.335	0.039	0.262	0.417	0.001	0.259	0.413	0.001

Table 4.31 Bootstrap Test of Standardized Intermediary Effect

Effect	Effect Value	SE	Bias-corrected 95% CI			Percentile 95% CI		
			Lower	Upper	p	Lower	Upper	p
Standard Direct Effect	0.254	0.041	0.174	0.338	0.001	0.171	0.335	0.001
Standard Indirect Effect 1	0.078	0.025	0.028	0.127	0.004	0.029	0.128	0.003
Standard Indirect Effect 2	0.064	0.025	0.018	0.117	0.006	0.015	0.114	0.009
A Standard Total Indirect Effect	0.142	0.031	0.085	0.206	0.001	0.083	0.203	0.001
Standard Total Effect	0.396	0.041	0.316	0.475	0.001	0.312	0.472	0.001

4.4 Structural Equation Model and Hypothesis Testing

This study focuses on verifying the impact of modern music on teamwork efficiency. The structural equation model explains the relationship between the variables. The data meet the requirements of structural equation modeling through reliability analysis, validity analysis (AVE, CR), and correlation analysis. This study used AMOS and maximum likelihood fitting modeling to analyze the hypotheses.

A structural equation model is needed to test the model's fit, whose chi-square/degrees of freedom need to be less than 3 to meet the criteria. In addition, GFI, AGFI, CFI, and TLI need to be greater than 0.9, and RMSEA needs to be less than 0.08 to meet the model fit index. In Table 4.32, the results show that the chi-square is 3466.537, the df is 2968, and the Chi-square/df is 1.168; less than 3, meeting the standard. GFI, AGFI, CFI, and TLI are more significant than 0.8, and RMSEA is 0.016, less than 0.08. Therefore, the model fit meets the requirements.

Table 4.32 Model Fit Intercept

Model Fit Indicator	Threshold Range	Observed Values
Chi-square	-	3466.537
df	-	2968
Chi-square/df	Below 5, best below 3	1.168
GFI	Above 0.9	0.881
AGFI	Above 0.9	0.873
CFI	Above 0.9	0.989
TLI	Above 0.9	0.989
RMSEA	Below 0.08	0.016

According to the output of the AMOS structural equation model (see Table 4.33 and Figure 4.7), the influence path coefficient of modern music on perception on work scenes is 0.553. When modern music increases by 1, the perception on work scenes increases by 0.553. The regression weights are estimated at 0.553 with an S.E. of about 0.039. Dividing the regression weight estimate by the standard error estimate yields z=.553/0.039=14.113. In other words, the regression weight estimate is 14.113 (CR) zero. The regression weights of modern music strongly predict the perception on work scenes ($p < 0.001$). The normalized regression weight estimate (0.603) indicates that each additional standard deviation in modern music increases the perception on work scenes by 0.603. These claims are valid for large samples if appropriate assumptions are used.

The path coefficient of the influence of modern music on production technology context is 0.619, and S.E. estimates the regression weight is about 0.04, with the regression weights estimated at 15.514 (C.R.), the standard error is more significant than zero, and $p < 0.001$. The estimated normalized regression weight is 0.608.

The path coefficient of the influence of perception on work scenes on teamwork efficiency is 0.309, and S.E. estimates the regression weight is about 0.096, with the regression weights estimated at 2.62 (C.R.), the standard error is more significant than zero, and $p < 0.001$. The estimated normalized regression weight is 0.106.

The path coefficient of the influence of production technology context on teamwork efficiency is 0.107, and S.E. estimates the regression weight is about 0.033. The regression weights are estimated at 3.23 (C.R.). The standard error is more significant than zero, and p =0.001. The estimated normalized regression weight is 0.128.

The path coefficient of the influence of corporate culture on teamwork efficiency is 0.128, and S.E. estimates the regression weight is about 0.025, with the regression weights estimated at 5.048 (C.R.), the standard error is more significant than zero, and p <0.001. The estimated normalized regression weight is 0.178.

The path coefficient of the influence of leadership initiative on teamwork efficiency is -0.308, and S.E. estimates the regression weight is about 0.043, with the regression weights estimated at -7.129 (C.R.), the standard error is more significant than zero, and p <0.001. The estimated normalized regression weight is -0.317.

The above data analysis indicates the relationship between the variables. The results supports the hypotheses H1, H2, H3, H4, and H5.

Table 4.33 Results of Structural Equation Modeling

Path Relationship			Estimate	S.E.	C.R.	P	Estimates of Standardized Regression Weights
PTC	<---	MM	0.619	0.04	15.514	***	0.608
WS	<---	MM	0.553	0.039	14.113	***	0.603
TE	<---	LI	-0.308	0.043	-7.129	***	-0.317
TE	<---	WS	0.097	0.037	2.62	0.009	0.106
TE	<---	CC	0.128	0.025	5.048	***	0.178
TE	<---	PTC	0.107	0.033	3.23	0.001	0.128
TE	<---	MM	0.215	0.037	5.872	***	0.254
TE	<---	intC	0.15	0.042	3.607	***	0.137
TE	<---	intL	0.276	0.051	5.4	***	0.198

NOTE: * p<0.05, **p<0.01, ***p<0.001, MM is Modern Music, WS is a perception of work scenes, PT is production technology context, CC is Corporate Culture, LI is Leadership Initiative, and TWE is teamwork efficiency.

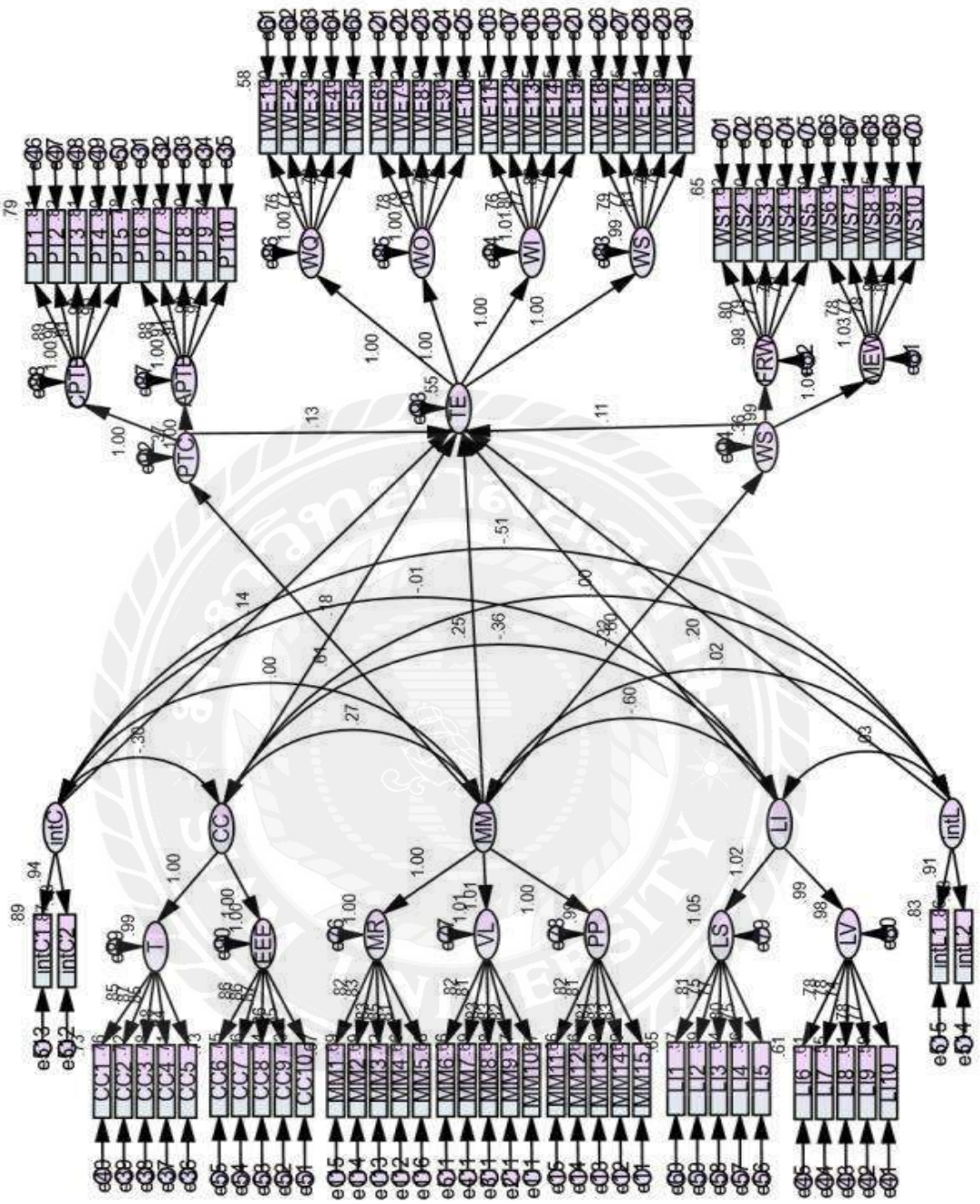


Figure 4.7 The Modified Structural Equation Model

The results show a correlation between modern music, perception on work scenes, production technology context, corporate culture, and leadership initiative, and the causal relationship between the variables is obvious. Figure 4.7 shows the connection of the direct response variable for the coefficient paths. The results indicate that:

H1: Usage of modern music in organizations affects teamwork efficiency **(Hypothesis Accepted)**.

This hypothesis outlines the practical implications of modern music on teamwork efficiency in various perceptions of workers and the production technology context of HUAWEI company in China. As demonstrated in Table 4.34, modern music has a tangible impact on teamwork efficiency. The paradigm is used to investigate practical ways to enhance employee productivity in knowledge-intensive enterprises. The model explores the role of modern music in the Chinese HUAWEI company, its direct impact on employee productivity, and its potential to influence the enterprise practically and beneficially.

H2: Perception on work scenes mediates the relationship between modern music usage and teamwork efficiency **(Hypothesis Accepted)**.

This hypothesis describes the specific role of perception on work scenes in modern music in influencing teamwork efficiency. Table 4.34 shows that modern music has a considerable positive impact on perception on work scenes and a large positive impact on teamwork efficiency, so perception on work scenes plays an intermediary role. In developing the HUAWEI company in China, providing modern music in different scenes can more effectively improve employee teamwork efficiency.

H3: Production technology context mediates the relationship between modern music usage and teamwork efficiency **(Hypothesis Accepted)**.

This hypothesis delineates the specific role of the production technology context in modern music, which influences teamwork efficiency. Table 4.34 demonstrates that modern music has a significant positive impact on production technology context. This positive impact, in turn, enhances teamwork efficiency, establishing production technology context as a mediating force. In the context of HUAWEI 's development in China, modern music emerges as a potent tool for promoting the teamwork efficiency of employees in departments and among individuals with a strong production technology context.

H_4: Corporate culture moderates the relationship between modern music usage and teamwork efficiency **(Hypothesis Accepted)**.

This hypothesis describes the specific role of corporate culture in modern music influencing teamwork efficiency. Table 4.35 shows that modern music has a significant positive impact on corporate culture. In contrast, corporate culture significantly positively impacts teamwork efficiency, so corporate culture plays an intermediary role. In the development of HUAWEI, the more attention to corporate culture, the more effectively the department can improve teamwork efficiency through modern music.

H_5: Leadership Initiative moderates the relationship between modern music usage and teamwork efficiency **(Hypothesis Accepted)**.

This hypothesis describes the specific role of leadership initiative in the influence of modern music on teamwork efficiency. Table 4.35 shows that modern music has a considerable positive impact on leadership initiative, while leadership initiative has a great positive impact on teamwork efficiency. In the development of HUAWEI in China, the stronger the leadership initiative, the more they can promote the teamwork efficiency of employees through modern music. The hypothesis test results are shown in Table 4.34.

Table 4.34 Hypothesis Test Results

NO.	Hypothesis	Result
H_1	Usage of modern music in organizations affects teamwork efficiency.	supported
H_2	Perception on work scenes mediates the relationship between modern music usage and teamwork efficiency.	supported
H_3	Production technology context mediates the relationship between modern music usage and teamwork efficiency.	supported
H_4	Corporate culture moderates the relationship between modern music usage and teamwork efficiency.	supported
H_5	Leadership initiative moderates the relationship between modern music usage and teamwork efficiency.	supported

4.5 Conclusion

In this chapter, the collected data were quantitatively analyzed. In structural equation modeling, validation factor analysis (CFA) was used to calculate the mean extraction variance (AVE) and combined reliability (CR) for each dimension. The data were evaluated to establish variability and reliability. Meanwhile, the correlation coefficient was tested for each variable to ensure that the variables in the generated model were correlated with no covariance. The data analysis showed that the data passed the verification factor analysis (CFA), met the criteria of normal distribution and no covariance, and the structural equation model was constructed using AMOS software. The fitting index of the structure met the requirements of verifying individual hypotheses. The results show that modern music has a positive impact on the efficiency of teamwork. Pathway analysis provides insight into the substantial impact of this model. Perception on work scenes, production technology context, corporate culture, and leadership initiative play an intermediary role in the influence of modern music on teamwork efficiency.

CHAPTER 5
RESEARCH CONCLUSION, DISCUSSION, AND RECOMMENDATION

This chapter is divided into three parts, as follows:

5.1 Research Conclusion

5.2 Discussion

5.3 Recommendation

5.1 Research Conclusion

5.1.1 Respondent Information

The interviewee's information provides important background and data support for the research. Through the analysis of 640 valid questionnaires, the study reveals the characteristics of the respondents, including gender, age, department, and educational background. This information not only provides a diversity of samples for research but also provides a basis for understanding the influence of modern music in different working environments. The survey results show that 56.9% of the respondents are famale and 43.1% are male. This gender ratio reflects the high participation of female employees in the composition of Huawei Technologies Co., Ltd., which may be related to the emphasis on gender diversity in the modern workplace. Regarding age distribution, 21.9% of the respondents are under 30, 23.8% are between 30 and 39, 21.7% are between 40 and 49, and 32.7% are over 50. This age structure shows that there may be differences between young employees and middle-aged employees in accepting and preferring modern music, especially in terms of work pressure and work style. Young employees may be more inclined to accept new things and innovative work styles.

Regarding department distribution, the market system department has the most significant number of respondents, accounting for 21.3%, which may be related to the department's demand for innovation and teamwork. The proportion of respondents in

the technical support system, finance system, and production system departments is similar, accounting for 20.5%, 19.8%, and 20.8%, respectively. This shows that the application of modern music in different departments may be different due to the different nature of work, especially in the market departments that need creativity and teamwork, and the role of music may be more significant. Respondents from the management engineering department accounted for 17.7%, which shows the management's concern about music in improving teamwork efficiency.

From the perspective of educational background, the proportion of higher education among the respondents is relatively high, with 25.6% of the respondents with a master's degree and 25.5% with a doctoral degree. This phenomenon may be related to Huawei's characteristics as a knowledge-intensive enterprise, indicating that highly educated employees' acceptance and preference for music at work may be more complicated, especially in jobs involving professional knowledge and skills. Highly educated employees may be more inclined to use music to improve teamwork efficiency and creativity.

Overall, the respondents' information not only reflects the essential characteristics of employees of Huawei Technologies Co., Ltd. but also provides rich background information for studying the influence of modern music on teamwork efficiency. Respondents' gender, age, department, and educational background may affect their acceptance and preference of modern music, thus further affecting the application effect of music in the work environment. Through the in-depth analysis of this information, we can better understand how modern music plays a role in different perceptions of work scenes and then provide a scientific basis for enterprises to optimize the working environment and improve employee satisfaction and teamwork efficiency. The results of this study not only provide practical suggestions for Huawei but also a reference for other enterprises that use music to improve teamwork efficiency. With the increasing popularity of modern music in the workplace, its potential impact on teamwork efficiency deserves further exploration and research.

5.1.2 Modern Music to Improve Teamwork Efficiency

Modern music is gradually emphasized by enterprises, especially knowledge-intensive enterprises such as Huawei Technologies Co. Ltd. The application of modern music enriches employees' working environment and provides new ideas for improving teamwork efficiency. This research shows that modern music can significantly improve teamwork efficiency by regulating employees' emotions, enhancing concentration, and stimulating creativity.

Huawei flexibly utilizes modern music in its various departments, considering the need for music applications in different perceptions of work scenes and production technology contexts. For example, in the department of market systems, fast-paced electronic music stimulates creativity and teamwork, especially in marketing activities that require rapid response and innovative thinking. In the technical support department, relaxing background music helps to relieve employees' stress when dealing with complex technical issues, keeping them calm and thus improving problem-solving efficiency. In the department of Finance Systems, where employees need a high degree of concentration and precision, soft classical music in the background can effectively minimize outside distractions and help employees focus on data analysis and financial report preparation. Production system department may need music with a strong sense of rhythm to enhance the enthusiasm and rhythm of production line workers and improve overall production efficiency. On the other hand, the management engineering department needs diverse music strategies to suit the work needs of different management levels and engineering technicians.

By analyzing the application cases of modern music in different departments of Huawei, it can be seen that modern music not only plays a positive role in regulating employees' emotions but also demonstrates its unique value in enhancing team cohesion and improving job satisfaction. It was found that when employees could choose background music according to their preferences, their job satisfaction and teamwork efficiency generally increased. This self-selection process respects employees' individual differences and enhances their sense of belonging and participation at work. The personalized choice of music makes employees feel more

comfortable at work, which makes it easier for them to integrate into the work environment and improve their work engagement.

In addition, the application of modern music is closely related to corporate culture. Huawei's corporate culture, which emphasizes innovation and teamwork, considers modern music a cultural element that can effectively promote emotional connection and teamwork among employees. In this cultural context, modern music is not just a background sound but also an important catalyst for teamwork. Research has shown that music can promote more effective communication and collaboration by enhancing the emotional resonance of employees, thus improving the team's overall efficiency.

5.1.3 The Effect of Modern Music on Teamwork Efficiency

In today's rapidly changing working environment, modern music, as a cultural phenomenon, has been paid more and more attention to its influence on teamwork efficiency. Especially in knowledge-intensive enterprises such as China Huawei Technologies Co., Ltd., the application of modern music not only enriches the working environment of employees but also invisibly improves teamwork efficiency. Through empirical analysis, this study deeply discusses the influence of modern music on teamwork efficiency. It reveals the positive role of music on teamwork efficiency under different perceptions of work scenes and production technology contexts.

Research shows that modern music positively impacts teamwork efficiency by regulating employees' emotional state and cognitive function. In a high-tech enterprise like Huawei, employees face high-intensity work pressure and complicated tasks. Modern music can effectively relieve employees' nervousness, improve job satisfaction, and thus enhance team cohesion and cooperation efficiency. Through the case analysis of different departments of Huawei, it is found that modern music can play a role in many fields, such as marketing, technology research and development, financial management, etc., which can stimulate the creativity and enthusiasm of employees and improve the overall performance of the team.

Specifically, the rhythm and melody of modern music can affect employees' psychological and physiological reactions, thus affecting their work performance. Soft background music can reduce external interference, help employees stay calm and focused, and improve the quality of work that requires high concentration and meticulous operation. When teamwork and innovative thinking are needed, lively and energetic music can stimulate the enthusiasm and creativity of team members, promote communication and cooperation among team members, and improve teamwork efficiency.

In addition, the personalized choice of modern music is also an essential factor in improving teamwork efficiency. Huawei encourages employees to choose music according to their preferences and work needs. This personalized music choice can improve employees' job satisfaction and enhance their sense of control over the working environment, thus improving work engagement and efficiency. The research shows that when employees can enjoy their favorite music at work, their work enthusiasm and creativity will be significantly enhanced, significantly improving teamwork efficiency.

However, the influence of modern music on teamwork efficiency is not static; many factors, such as corporate culture, leadership style, and working environment, influence it. In an enterprise like Huawei, a strong corporate culture and a clear leadership vision can enhance the positive role of modern music in teamwork efficiency. Leadership support and participation can provide direction and motivation for the application of modern music and help employees better understand and respond to the promotion of modern music for teamwork efficiency.

5.1.4 Perception on Work Scenes and Production Technology Context

In the research, perception on work scenes and production technology context play an essential role in the relationship between modern music usage and teamwork efficiency. Modern music indirectly improves the team's efficiency by influencing employees' emotions and concentration. As an emotional adjustment tool, research shows that music can effectively improve employees' emotional state, reduce work pressure, and improve job satisfaction, thus enhancing team cohesion and cooperation

efficiency. In a high-tech enterprise like Huawei, employees face high-intensity work pressure and complicated tasks. Appropriate music can be used as an effective emotional adjustment to help employees ease their nervousness, improve their work motivation, and improve their teamwork efficiency.

The perception on work scenes as intermediary variables is reflected in the positive influence of music on employees' emotions. Music can stimulate employees' positive emotions, keep them optimistic when facing challenges, and reduce anxiety and frustration. This positive emotional change can not only improve employees' job involvement and job satisfaction but also promote communication and cooperation among team members and enhance the overall cooperation efficiency of the team. In the practical application of Huawei, employees' moods and concentration can be effectively improved by playing appropriate music in different working scenes. Then the teamwork efficiency of the team can be improved.

Production technology context, as another intermediary variable, is reflected in the influence of music on employees' cognitive function. Research shows that music can improve employees' cognitive processing ability, help them process information more effectively, and improve teamwork efficiency. Appropriate music can be used as a cognitive tool to help employees concentrate and improve teamwork efficiency in tasks that require high concentration and production technology context. When Huawei's technical team faces complex technical problems and projects, appropriate music can improve their production technology context and problem-solving ability, thus improving the overall teamwork efficiency.

The perception on work scenes and the production technology context play a significant mediating role in the usage of modern music and teamwork efficiency. Modern music indirectly improves the teamwork efficiency by adjusting employees' emotions and concentration and improving employees' production technology context. This discovery emphasizes the importance of the rational use of modern music in the workplace. It provides new ideas for Huawei and other enterprises to optimize the working environment and improve the efficiency of employees. By creating a positive music environment, enterprises can effectively improve employees' job satisfaction

and team cooperation efficiency, thus gaining an advantage in the fierce market competition.

5.1.5 Leadership Initiative and Corporate Culture

Leadership initiative plays an important intermediary role in the influence of modern music on teamwork efficiency. In a high-tech enterprise like Huawei, the leadership initiative includes leaders' strategic decision-making, team guidance, and their attitude and support for applying modern music in the workplace. The positive attitude of the leadership towards modern music can promote its use in the team, thus improving the teamwork efficiency of the team. By creating an open and innovative working environment, leadership initiative enables team members to communicate and cooperate better under the encouragement of music, thus improving teamwork efficiency. In addition, leaders can stimulate team members' enthusiasm and enhance their investment and enthusiasm for work by demonstrating their recognition of the value of modern music, which is especially important for projects that require high innovation and teamwork.

As another intermediary variable, corporate culture also significantly impacts the relationship between modern music and teamwork efficiency. Huawei's corporate culture emphasizes teamwork, innovation, and employee personal growth. This cultural background makes modern music active in improving teamwork efficiency. In this cultural environment, modern music is a form of entertainment and a tool to enhance team cohesion and work motivation. In this cultural atmosphere, employees are more willing to accept the integration of modern music, thus improving the quality and efficiency of work under the encouragement of music. This regulatory role of corporate culture is also reflected in its ability to provide guidance and framework for the application of modern music, ensure that the use of music is consistent with corporate values and goals, and thus maximize its positive impact on teamwork efficiency.

The two intermediary variables, leadership initiative and corporate culture, have played an important role in regulating the relationship between the use of modern music and teamwork efficiency in Huawei Technologies Co., Ltd. leadership

initiative promotes the improvement of teamwork efficiency by shaping a positive working environment and demonstrating support for modern music; Corporate culture, by emphasizing teamwork and innovation, provides fertile soil for the application of modern music, which enables music to stimulate the team's potential and improve teamwork efficiency effectively. The moderating effect of these two intermediary variables not only confirms the positive influence of modern music on teamwork efficiency but also provides a valuable reference for other organizations on optimizing the application of modern music through leadership and corporate culture.

5.1.6 Structural Equation Model on Relationship Results

The study used structural equation modeling to deeply analyze the relationship between modern music and teamwork efficiency. Through an empirical study at Huawei Technologies Limited, 640 valid questionnaires were collected and analyzed to reveal the potential impact of modern music on teamwork efficiency. The data analysis revealed modern music's positive effect on teamwork efficiency through two mediating variables: perception of work scenes and production technology context.

The results of the study showed that modern music was effective in stimulating employees' emotional activation, with a path coefficient of 0.553 for this mediating variable and a path coefficient of 0.619 for the production technology context, suggesting that when modern music is played at the appropriate volume and tempo, employees feel more energized and positively optimistic. This positive emotional state helps to reduce work pressure and increase job satisfaction, thus enhancing team cohesion and cooperative efficiency. In addition, under the background of appropriate music, employees can better focus their attention, reduce external interference, and improve the speed and quality of information processing. This is especially important for work that requires a high degree of concentration and careful operation.

The path coefficient of modern music's direct effect on teamwork efficiency is 0.215, a result that suggests that, in addition to the two mediating variables, modern music itself can directly enhance teamwork efficiency. This may be because modern

music creates a pleasant working environment that stimulates employees' creativity and innovative thinking, improving overall team performance.

When considering the two moderating variables, corporate culture and leadership initiative, we find that they significantly affect the relationship between modern music and teamwork efficiency. The path coefficient of corporate culture is 0.128. The path coefficient of the leadership initiative was 0.276, and the positive coefficients of these two moderating variables indicate that a corporate culture that emphasizes teamwork and innovation, as well as leader support and advocacy, enhances the positive effects of contemporary music on teamwork productivity. With the support of this culture and leadership initiative, employees are more willing to accept the incorporation of modern music, thus increasing job satisfaction and teamwork efficiency.

In summary, the analysis of structural equation modeling results indicates that modern music, through the two mediating variables of perception on work scenes and production technology context, as well as the two moderating variables of corporate culture and leadership initiative, has a significant positive effect on teamwork efficiency. These findings provide valuable insights into corporate management practices. For example, teamwork efficiency and performance can be effectively enhanced through the rational use of modern music, combined with the guidance of corporate culture and leadership initiatives.

5.2 Discussion

5.2.1 Impact of Modern Music on Teamwork Efficiency

The findings indicate that modern music significantly enhances teamwork efficiency by influencing employees' emotional states, concentration, and creativity. Music fosters a positive work atmosphere, reduces stress, and improves team synchronization in knowledge-intensive enterprises such as Huawei. Studies suggest that fast-paced music can stimulate creative thinking and facilitate group discussions, whereas soft background music enhances focus in tasks requiring high concentration (Frontiers, 2022).

Moreover, music serves as a non-verbal communication tool that strengthens team cohesion. Research suggests that participation in musical activities enhances team members' connection and sense of belonging (Smith, 2020). The synchronization effect, observed in musical ensembles, can translate into workplace scenarios where rhythmic coordination enhances teamwork efficiency. Furthermore, neuroscience research confirms that music influences neurotransmitter activity, boosting motivation and cognitive engagement (Hu, 2024).

However, individual differences in music preferences must be considered when implementing workplace music strategies. Employees who can choose their preferred music tend to exhibit higher job satisfaction and engagement, which ultimately improves teamwork efficiency. Organizations should, therefore, adopt flexible music policies that align with employee preferences to optimize the positive effects of modern music.

5.2.2 Perceptions on Work Scenes as a Mediator

Perceptions of work scenes significantly mediate the relationship between modern music and teamwork efficiency. The study found that music enhances employees' moods, increasing job satisfaction and team cohesion. For instance, light or nature-inspired music reduces stress and fosters an environment conducive to collaboration (Yalch, 2023).

Music also improves employees' focus by minimizing distractions and promoting sustained attention. This effect is particularly valuable in high-pressure environments, where cognitive load can impede productivity. Music's ability to regulate emotions ensures that positive emotional states spread across the team, reinforcing cooperative behaviors and problem-solving capabilities (Watson & Warner, 2024).

The type of music selected for a work scenario plays a crucial role. Light or classical music enhances concentration in tasks requiring deep cognitive engagement, while fast-paced music is more effective in stimulating creativity during

brainstorming sessions (Zinovieva et al., 2021). Organizations should strategically integrate music based on work scene requirements to maximize teamwork efficiency.

5.2.3 Production Technology Context as a Mediator

The production technology context is a key intermediary between modern music and teamwork efficiency. The study revealed that music enhances cognitive processing, improving problem-solving and decision-making. Music has been found to stimulate employees' creative thinking, particularly in high-tech industries where innovation is critical (Wissmann, 2024).

The integration of modern music with production processes further enhances collaboration. For example, dynamically adjusting music tempo according to workflow progress can motivate employees and sustain efficient working conditions. Additionally, research highlights that music regulates stress levels, helping employees maintain cognitive clarity in demanding technical environments (Safety & Health Group, 2014).

Modern music improves teamwork efficiency by fostering an optimal cognitive state. This is particularly true for tasks that require deep analytical thinking and precision. Organizations should consider incorporating music into production strategies to enhance employee performance and team collaboration.

5.2.4 Leadership Initiative as a Moderator

Leadership initiative plays a crucial moderating role in the relationship between modern music and teamwork efficiency. Effective leaders who actively integrate music into workplace culture can amplify its benefits by fostering an environment that values creativity, relaxation, and collaboration. Leaders who advocate for music as a stress-relief tool create a supportive atmosphere that enhances teamwork (Chen et al., 2019).

Leadership styles also influence how music is perceived in the workplace. Transformational leaders, for instance, can use music to inspire team members and boost morale, while participative leaders may involve employees in music selection to

enhance engagement. Research indicates that when leaders encourage music usage, employees exhibit greater autonomy and motivation, leading to higher productivity and innovation (Wan, 2024).

Moreover, strategic music application in different work scenarios—tailored by leadership—ensures alignment with organizational goals. Leaders can optimize teamwork efficiency and drive performance improvements by shaping a culture that embraces music.

5.2.5 Corporate Culture as a Moderator

Corporate culture significantly influences how modern music impacts teamwork efficiency. A culture that values collaboration and employee well-being enhance the positive effects of music by reinforcing emotional identity and team cohesion. Studies suggest corporate music initiatives can strengthen workplace relationships and improve employee communication (Shiro et al., 2023).

Organizational openness to music fosters a creative and inclusive work environment. Music can enhance motivation, innovation, and productivity when corporate values align with employee satisfaction. Research has shown that incorporating music into corporate identity strengthens team spirit and promotes a shared sense of purpose (Padillah et al., 2023).

However, corporate culture also determines how employees perceive music in the workplace. Music integration may require more formalized implementation strategies in hierarchical or highly structured environments. Organizations should assess their cultural dynamics to ensure that music strategies are effectively adopted to maximize teamwork efficiency.

5.3 Recommendations

The discussion is structured according to the primary research themes, followed by recommendations for business, government, and theoretical implications. The recommendations provide actionable insights for businesses, governments, and

researchers to harness the power of music for improved workplace collaboration and productivity.

5.3.1 Business Implications

The findings highlight that modern music serves as a valuable tool for improving teamwork efficiency. Organizations should strategically integrate music into workplace environments, considering employee preferences and work tasks. Key recommendations for business leaders and human resource managers include:

- **Implementing Structured Music Policies:** Organizations should develop music policies that allow employees to select suitable background music within defined guidelines, balancing individual preferences with team cohesion.
- **Optimizing Music Use by Task Type:** Fast-paced music can enhance creativity and brainstorming, while soft instrumental music can improve focus and productivity for detail-oriented tasks.
- **Regulating Music Volume and Rhythm:** Research indicates that moderate volume and rhythm can improve concentration, while excessively loud or disruptive music may hinder performance. Companies should optimize sound levels to enhance work efficiency.
- **Incorporating Music into Corporate Culture:** Music can reinforce corporate identity and values. Hosting music-related events or integrating music elements into the workplace can foster a more engaging and collaborative work culture.
- **Leadership Support for Music Initiatives:** Leaders who advocate music use in the workplace can improve employee engagement and create a more dynamic, innovative work environment.

By implementing these strategies, organizations can enhance teamwork efficiency, increase employee satisfaction, and strengthen their competitive edge in the market.

5.3.2 Government Implications

Governments play a crucial role in promoting the effective use of modern music in workplaces through policy support and educational initiatives. Recommended government actions include:

- **Encouraging Workplace Music Integration:** Governments can introduce incentives such as tax benefits or financial subsidies for businesses that adopt music strategies to enhance teamwork and employee well-being.
- **Funding Research on Music and Productivity:** Investment in research programs exploring the link between music and workplace efficiency across industries can provide businesses with data-driven strategies.
- **Incorporating Music into Employee Training:** Music-awareness programs in vocational training and professional development can educate employees on selecting appropriate music for different work environments.
- **Public Awareness Campaigns:** Governments can use public media to highlight successful case studies of music improving workplace productivity, encouraging broader adoption.
- **Regulating Safe Music Usage:** Establishing workplace sound level guidelines can prevent potential health risks such as hearing damage from prolonged exposure to high-volume music.

By taking these steps, policymakers can facilitate a cultural shift in workplaces, leveraging music to enhance teamwork and national workforce productivity.

5.3.3 Theoretical Implications

This study contributes to multiple theoretical frameworks within organizational behavior, psychology, and workplace motivation. Key theoretical contributions include:

- **Enhancing Environmental Psychology Theories:** The study validates the role of music as an environmental factor influencing employee emotions, concentration, and teamwork efficiency.
- **Expanding Motivation Theories:** The findings support theories suggesting that both intrinsic (e.g., emotional well-being) and extrinsic (e.g., structured music strategies) factors can drive employee motivation and performance.
- **Strengthening Leadership and Organizational Culture Theories:** The study highlights how leadership initiative and corporate culture moderate the effectiveness of music in workplace collaboration, offering new insights into organizational behavior.
- **Empirical Support for Mediating and Moderating Variables:** The identification of work scene perception and production technology context as mediators, alongside leadership and corporate culture as moderators, expands existing theoretical models on workplace efficiency.

These insights provide a foundation for future research and practical applications in workplace management, supporting the development of more effective work environments through music.

BIBLIOGRAPHY

Adetomiwa, B., Akintola, O. B., Ejiwoye, O. R., & Olabisi, C. A. (2023). Academic staff research productivity in private universities in southwestern Nigeria: Factors related to low research productivity. *International Journal of Operations Research and Information Systems, 14*(1), 1-15. DOI:10.4018/IJORIS.331696

Afzali, M., & Thor, T. (2024). Corporate culture and tax planning. *Review of Quantitative Finance and Accounting, 64*(2), 861-898. DOI:10.1007/s11156-024-01320-1

Allaeva, G. Z., Yusupov, Y. R., Mogutnova, N. N., Vikhansky, O. S., Vikhansky, O. S., I... & Mukhitdinova, K. A. (2022). Corporate culture as a way to increase the efficiency of employees and its principles for stakeholders. *TRANS Asian Journal of Marketing & Management Research, 11*(5-6), 22-28.

Anonymous, N. (2024). America weekly chemical rail volume stable at high level. *Chemical Week, 186*(7), 1-14.

Atwah Alma'aitah, M. (2024). The contribution of digital business strategy in enhancing collaborative innovation capability: The moderating role of organizational culture—A case study of six pharmaceutical companies in Jordan. *The Electronic Journal of Information Systems in Developing Countries, 90*(3). DOI:10.1002/isd2.12315

Beloor, V. (2024). The impact of music on workplace quality and employee retention: A cross-industry analysis. *Journal of Organizational Psychology, 15*(2), 45-67.

Best, J. W. (1981). *Research in education* (4th ed.). Prentice-Hall.

Breaugh, J., & Ripoll, G. (2022). Serving society vs. the individual user Experimental evidence on the role of public service motivation in predicting job-task preferences. *Asia Pacific Journal of Public Administration, 44*(3), 249-270. https://doi.org/10.1080/23276665.2022.2047749

Bryant, J. M., Hodul, P., Fleming, J., Johnstone, P., Yamoah, K., & Hoffe, S. (2024). Emotional intelligence-based leadership training in radiation oncology: Results of a departmental initiative to explore working relationships to build teamwork. *International Journal of Radiation Oncology, Biology, Physics, 119*(4), e4-e5.

Canazza, S., De Poli, G., & Vidolin, A. (2024). When the computer entered the music scene: The collaboration between the centro di sonologia computazionale and la biennale di venezia. *Leonardo, 20*(1), 89-94.

Chambers, S. (2024). You do not go to these kinds of concerts for fun: The fluid and emergent performance of taste in contemporary art music. *Cultural Sociology, 18*(1), 111-129. DOI:10.1177/17499755221129764

Chatjuthamard, P., Pornsit, J., Kılıç Merve, & Uyar, A. (2024). Corporate culture, corporate governance, and independent directors: Evidence from textual analysis. *Society and Business Review, 19*(3), 496-522. https://doi.org/10.1108/SBR-05-2023-0138

Chen, J. X., Tang, Z. Z., Lin, W. T., Hu, K. L., & Xie, J. (2023). Self-attention GAN for EEG data enhancement and emotion recognition. *Computer Engineering and Applications, 59*(5), 160-168.

Chen, X., Liu, Y., & Wang, Z. (2019). Leadership and emotional regulation in team collaboration: The role of workplace music. *Journal of Organizational Behavior, 40*(3), 325–340.

Choi, M. S., Marçal, K. E., & Showalter, K. (2024). Disparities in the quality of working life among older workers: Housing conditions and life satisfaction with latent class analysis. *Journal of Applied Gerontology, 43*(11), 1-19. DOI:10.1177/07334648241246484

Clauhs, M., Olesko, B. B., & Vasil, M. (2024). Modern band in elementary music. *Music Educators Journal, 110*(3), 44-51. DOI:10.1177/00274321241237404

Crossley, J. (2016). That british sound! : How british recording consoles changed pop music. *Taylor & Francis, 2*(1), 1-9.

Crozier, S. E., & Atkinson, C. (2024). You' re only a care worker : Exploring the status of adult social care work through the intersection of HRM innovation and job quality. *The International Journal of Human Resource Management, 35*(8), 1486-1511.

Dahabiyeh, L., Najjar, M. S., & Wang, G. (2022). Online teaching during COVID-19 crisis: The role of technostress and emotional dissonance on online teaching exhaustion and teaching staff productivity. *The International Journal of Information and Learning Technology, 39*(2), 97-121. https://doi.org/10.1108/IJILT-09-2021-0147

Datema, J., & Voela, A. (2022). *Movement, velocity, and rhythm from a psychoanalytic perspective: Variable speed(s)*. Taylor and Francis.

Despina, D., & Panagiotis, D. (2024). Investigating volume estimation performance and strategies of 6th-grade children and adults. *International Journal of Mathematical Education in Science and Technology*, 55(6), 1366-1390. https://doi.org/10.1080/0020739X.2022.2094295

Duarte, A. M., & Konstantinidi, N. P. (2024). Sources of inspiration in contemporary vanguard music composers. *Creativity Research Journal*, 36(1), 89-97. https://doi.org/10.1080/10400419.2022.2077601

El Alami El Hassani, N., Akrichi, M. A., Bajit, H., & Alem, C. (2024). Investigation of accordance between nutritional assessment tools and bio-electrical impedance-derived phase angle with the global leadership initiative on malnutrition criteria in hemodialysis patients. *Clinical Nutrition ESPEN, 62*, 260-269. https://doi.org/10.1016/j.clnesp.2024.05.027

Erikson, T., Bjornali, E., & Coleridge, C. (2024). The moderating role of efficacious board leadership in high-tech startups. *Journal of High Technology Management Research, 35*(2), 100500. https://doi.org/10.1016/j.hitech.2024.100500

Estibeiro, M., Payling, D., & Cotter, D. (2024). *Collaboration, engagement, and tradition in contemporary and electronic music: Noise floor perspectives*. Taylor & Francis.

Ferguson, C. E., & Foley, J. A. (2023). The influence of working memory and processing speed on other aspects of cognitive functioning in de novo Parkinson's disease: Initial findings from network modeling and graph theory. *Journal of Neuropsychology, 18*(1), 136-153. https://doi.org/10.1111/jnp.12333

Fischer, M., & Maag, S. (2022). Actors in forums: Work input and different types of benefits. *Journal of Public Policy, 42*(3), 573-592.

Fong, Y., & Li, M. (2024). The psychological mechanisms of music rhythm on employee efficiency: An empirical study. *Journal of Occupational Psychology and Human Performance, 41*(2), 88–103.

Fred, A., & Morounkeji, O. (2023). Indigenous cultures and employee efficiency: The moderating effect of cronyism in state-owned enterprises in Ghana. *Public Administration and Policy, 26*(3), 345-359.

Fryzel, B., & Marcinkowski, A. (2024). *Organizational aesthetics: Artful visual representations of business and organizations*. Taylor & Francis.

Gill, B. S., Choi, J., & John, K. (2024). Firm leverage and employee pay: The moderating role of CEO leadership style. *International Review of Financial Analysis (Pre-publication), 95*(A), 103382. https://doi.org/10.1016/j.irfa.2024.103382

Gomes, R. F. S., Lacerda, D. P., Camanho, A. S., Piran, F. A. S., & Silva, D. O. (2023). *Measuring efficiency of safe work environment from the perspective of the decent work agenda*. Safety Science.

Greenberg, J., Knight, G., & West, M. (2022). *Cultural harmony: The role of leadership in integrating music for well-being and performance*. Business Leadership Press.

Hanning, B. R. (2024). *Studies in music, words, and imagery in early modern europe*. Taylor & Francis.

Harcourt, M., Gall, G., Wilson, M., & Rubenstein, K. (2022). The potential of a union default to influence the preferences and choices of non-union workers in unionized workplaces. *Economic and Industrial Democracy, 43*(4), 1817-1841. https://doi.org/10.1177/0143831X211030346

Hassan, A. S., Mahmoud, A. M. H., & Abdalla Zahri, A. (2023). Indoor environment quality and occupant productivity pre-applying COVID-19 measures. *Cogent Social Sciences, 9*(1), 2223398. https://doi.org/10.1080/23311886.2023.2223398

Hauke, R., & Clarke, E. (2023). Cross-cultural music perception: Its impact on cognitive task performance. *Music Perception, 40*(5), 412-430. https://doi.org/10.1525/mp.2023.40.5.412

Howe, A. G., & Blair, H. T. (2021). Modulation of lateral septal and dorsomedial striatal neurons by hippocampal sharp-wave ripples, theta rhythm, and running speed. *Hippocampus, 32*(3), 153-178. https://doi.org/10.1002/hipo.23398

Ilieva, M. (2024). The Olympus scandal – the dark side of social networks and corporate culture. *Critical Perspectives on International Business, 43*(4), 409-442. https://doi.org/10.1177/0143831X211030346

Jang, I., Woo, M., Hazzaa, R., & Welty Peachey, J. (2023). Exploring campus recreation employees' work experience during the COVID-19 pandemic. *Recreational Sports Journal, 47*(2), 108-117. https://doi.org/10.1177/15588661231174889

Jenifer, D., & Rashmi, R. (2023). What fuels the employees in startups?: Data on hybrid/colocated/virtual working environment towards efficiency. *Data in Brief, 49*, 109364. https://doi.org/10.1016/j.dib.2023.109364

Jiang, H. (2024). Music and innovation: The role of auditory stimuli in high-tech R&D environments. *Journal of Creative Behavior and Organizational Innovation, 32*(1), 55–72.

Khalid, J., Weng, Q. X. D., Luqman, A., Rasheed, M. I., & Hina, M. (2023). After-hours work-related technology use and individuals' deviance: The role of interruption overload, psychological transition, and task closure. *Kybernetes, 52*(1), 158-181.

Kim, G. S., Chmiel, A., & Garrido, S. (2024). Calming effects of repetition in music for children with sensory sensitivities: Findings from two experimental studies. *The Arts in Psychotherapy, 87*, 102115. https://doi.org/10.1016/j.aip.2023.102115

Kolibaba, T. J., Killgore, J. P., Caplins, B. W., Higgins, C. I., Arp, U., Miller, C. C., ... & Zhao, X. (2024). Results of an interlaboratory study on the working curve in vat photopolymerization. *Additive Manufacturing, 84*, 104082. https://doi.org/10.1016/j.addma.2024.104082

Kropff, E., Carmichael, J. E., Moser, E. I., & Moser, M.-B. (2021). Frequency of theta rhythm is controlled by acceleration, but not speed, in running rats. *Neuron, 109*(6), 1029-1039.

Kupec, S., Reinemann, M., Selley, V. H., Graves, E., & Carlson, J. N. (2022). Leader standard work: A model for improving efficiencies in leadership and healthcare. *JONA: The Journal of Nursing Administration, 42*(6), 327-329.

Kurik, G., Kelly Bissue, C., Lõhmus, A., Muhhamedjanov, K., Ilves, N., & Forbes, A. (2024). Standardising and simplifying the Global Leadership Initiative on Malnutrition (GLIM) for its more general application. *Clinical Nutrition ESPEN, 62*, 120-127. https://doi.org/10.1016/j.clnesp.2024.05.010

Kuyucu, M., & Korkmaz, M. (2014). A practical example of music industry employees attitudes and perceptions towards the work. *International Peer-Reviewed Music Journal, 2*, 70-70.

Lee, S., & McNaughtan, J. (2021). Understanding the work and perspectives of music faculty through positive leadership. *College Mzusic Symposium, 61*(1), 53-75.

Lee, S., Lee, S., Lee, J., et al. (2024). Estimating aboveground volume of diverse urban tree species: Developing allometric equations for higher taxonomic levels. *Urban Forestry & Urban Greening, 94*, 128256. https://doi.org/10.1016/j.ufug.2024.128256

Llano, S. (2024). Dissonances of modernity: Music, text, and performance in modern spain. *Journal of Spanish Cultural Studies, 197*(1), 189-191.

Lupton, N. C., Baulkaran, V., & No, Y. (2022). Subsidiary staffing, location choice, and shareholder rights effectiveness. *Journal of Business Research, 151*, 222-231. https://doi.org/10.1016/j.jbusres.2022.07.007

Mahmood, G. H., Kaid, A. S., & Al-Hakimi, M. A. (2024). Servant and authentic leadership as drivers of innovative work behaviour: the moderating role of creative self-efficacy. *European Journal of Innovation Management, 27*(6), 1938-1966.

Maurer, K., Mert, K., Katy, K., & Wekerle, C. (2023). Building resilience through daily smartphone app use: Results of a pilot study of the JoyPop app with social work students. *Frontiers in Digital Health, 5*, 1265120. https://doi.org/10.3389/fdgth.2023.1265120

McFerran, K., & Rickson, I. (2014). Community music therapy in schools: Realigning with the needs of contemporary students, staff and systems. *International Journal of Community Music, 7*(1), 75-92. https://doi.org/10.1386/ijcm.7.1.75_1

Mitra, M., Panda, A., Kumar, H., Mishra, P., Adhikary, T., & Bhattacharyya, A. (2023). Awareness and attitude of dental practitioners on impact of music therapy on patients' anxiety level during various types of dental treatments. *Journal of Pharmacy & Bioallied Sciences*, 15(1), S524-S528.

Mohammadreza, M., Banafsheh, Z., & Farnaz, S. (2024). Developing a new lumped monthly water balance model for estimating groundwater level and runoff volume. *Sustainable Water Resources Management, 10*, 113. https://doi.org/10.1007/s40899-024-01087-2

Morawska, J., Pietruszewska, W., Politański, P., & Niebudek Bogusz, E. (2024). Population characteristics and self-assessment of speaking and singing voice in Polish contemporary commercial music singers−an exploratory, cross-sectional study. *Frontiers in Public Health, 12*, 1256152. https://doi.org/10.3389/fpubh.2024.1256152

Mori, K., North, D. T., Cheng, J. K., et al. (2024). *Effects of two-step golf swing drills on rhythm and clubhead speed in competitive juniors*. Sports Biomechanics.

Morley, S., Elkrog Hansen, L. M., & Christiansen, L. B. (2022). P03-08 Do sports and PA offer a special arena with particularly good opportunities to work with the personal development of young people? A study of young people's personal developing opportunities on sports-based independent boarding schools in Denmark. *European Journal of Public Health, 32*(S2), ckac095.044. https://doi.org/10.1093/eurpub/ckac095.044

Morrissey Basler, M. C., Brewer, G. J., Anderson, T., Adams, W. M., Navarro, J. S., Marcelino, M., ... Casa, D. J. (2024). The effect of heat mitigation strategies on thermoregulation and productivity during simulated occupational work in the heat in physically active young men. *Frontiers in Sports and Active Living, 5*, 1274141. https://doi.org/10.3389/fspor.2023.1274141

Nanjundeswaraswamy, T. S., & Beloor, V. (2024). Work quality life of employees working in the Indian garment industry. *Research Journal of Textile and Apparel, 2*, 220-234.

Neto, J. B. S., Mota, L. F. M., Amorim, S. T., Peripolli, E., Brito, L. F., Magnabosco, C. U., & Baldi, F. (2023). Genotype-by-environment interactions for feed efficiency traits in Nellore cattle based on bi-trait reaction norm models. *Genetics Selection Evolution, 55*, 93. https://doi.org/10.1186/s12711-023-00867-2

Ogilvie, O., et al. (2021). The effect of dough mixing speed and work input on the structure, digestibility, and celiac immunogenicity of the gluten macropolymer within bread. *Food Chemistry, 359*, 129841.

Padillah, R., Hidayah, N., & Atmoko, A. (2023). Different music types affect mood, focus, and work performance: Exploring the potential of music as therapy with AI music. *Journal of Public Health, 45*(4), e810-e811. https://doi.org/10.1093/pubmed/fdad093

Padillah, R., Sukoco, B., & Pratiwi, A. (2023). Music as a tool for corporate engagement: Enhancing teamwork through soundscapes. *International Journal of Business Management, 28*(2), 155-174.

Parker, S., Arnautovska, U., Korman, N., Harris, M., & Dark, F. (2022). Comparative effectiveness of integrated peer support and clinical staffing models for community-based residential mental health rehabilitation: A prospective observational study. *Community Mental Health Journal, 59*, 459-470. https://doi.org/10.1007/s10597-022-01023-8

Pataskar, S., Pimplikar, S., & Darekar, C. (2024). Development of empirical equation to estimate corridor speed of vehicles in metro construction work zone. *LOGI - Scientific Journal on Transport and Logistics, 15*(1), 25-36.

Patrick, T. B., & Anderson, R. B. (2021). The influence of auditory rhythms on the speed of inferred motion. *Attention, Perception & Psychophysics, 84*, 2360-2383.

Phan, D. G., Nguyen, G. D., & Bui, H. H. (2023). The work input to saturated porous media undergoing internal erosion. *International Journal of Solids and Structures*, 283, 112487. https://doi.org/10.1016/j.ijsolstr.2023.112487

Pinet, M. (2019). Teaching beyond the staff: Creative and tested ideas to implement in the music studio for excellence and success. *American String Teacher, 69*(2), 29-31. https://doi.org/10.1177/0003131319836077

Plastira, M. N., Michaelides, M. P., & Avraamides, M. (2023). Music and speech time perception of musically trained individuals: The effects of audio type, duration of musical training, and rhythm perception. *Quarterly Journal of Experimental Psychology, 77*(9). https://doi.org/10.1177/17470218231205857

Prescott, M. (2021). Improving the battle rhythm to operate at the speed of relevance. *Joint Force Quarterly: JFQ, 102*, 14-19.

Quinones Rozo, L. D. P., Canaval Erazo, G. E., & Sandoval Moreno, L. M. (2024). Predictors of work quality life in health care workers at adult critical care units: A cross-sectional study. *Indian Journal of Critical Care Medicine, 4*, 355-363.

Quiñones Rozo, L. P., & Canaval Erazo, G. E. (2024). Work quality life for health professionals in Colombia's adult critical care: An integrative analysis. *BMC Health Services Research, 1*, 582.

Raffaella, S., Ballestriero, R., Canzonieri, V., Gulczynski, J., de Gouveia, R. H., Ariza, A., ... & Nesi, G. (2023). Correction to: Voices from the past: Results of the ESP history of pathology working group survey on pathology museums. *Virchows Archiv: An International Journal of Pathology, 484*(6), 1043. doi: 10.1007/s00428-023-03686-4

Reyentovich, A., Smith, D., & Moazami, N. (2023). Commentary: UNOS policies work but progress only occurs at the speed of a snail: A need for expeditious adjustments. *The Journal of Thoracic and Cardiovascular Surgery, 2*, 547-548.

Roberts, S. B. (2024). Becoming what we sing: Formation through contemporary worship music. *Practical Theology, 1*, 101-103.

Rohr, S., Gibson, R., Alpass, F., & Stephens, C. (2023). Social determinants of modifiable dementia risk in Māori and Non−Māori: Results of the New Zealand health, work and retirement study. *Alzheimer's & Dementia*, 19(S23), e074406. https://doi.org/10.1002/alz.074406

Rose, S. (2024). *Relational improvisation: Music, dance, and contemporary art*. Taylor & Francis.

Safdar, M., & Wessells, J. R. (2023). Octopamine rescues endurance and climbing speed in drosophila clk out mutants with circadian rhythm disruption. *Cells, 12*(21), 2515. https://doi.org/10.3390/cells12212515

Safety & Health Group. (2014). Healthy workplaces make for happy employees: Study. *Safety & Health, 4*, 15-19.

SantaBarbara, N. J., Rezai, R., Soetenga, S., Terry, E., Carpenter, C. L., & Comulada, W. S. (2022). Exercise preferences for a workplace wellness program to reduce cardiovascular risk and increase work productivity. *Journal of Occupational & Environmental Medicine, 64*(9), e545-e549. DOI: 10.1097/JOM.0000000000002608

Schatt, M. (2024). Increasing musical persistence and engagement in the contemporary music classroom. *Music Educators Journal, 110*(3), 20-27. https://doi.org/10.1177/00274321231220348

Shaherah, Y. A., & Farghaly, A. S. M. (2024). Assessing the relationship between ethical reasoning confidence and self-esteem among female nursing students for enhancing the work quality life: A cross-sectional study. *Medicine, 103*(14), e37614. DOI: 10.1097/MD.0000000000037614

Sharabi, M., Shdema, I., & Abboud-Armaly, O. (2023). Work outcome preferences of muslim and jewish managers in Israel: Analyzing the differences according to the individualism-collectivism model. *Journal of Ethnic and Cultural Studies, 10*(2), 129-146.

Sheng, X., Li, Y., He, J., Ramsey, J., & Yuan, P. (2023). The effect of music tempo on employee work efficiency: An empirical study. *International Journal of Organizational Behavior, 28*(1), 45–60.

Shim, V. C., Baker, R. J., Wen, J., Puentes, R., Agersborg, S. S., Lee, T. K., ... & Habel, L. A. (2023). *Evaluation of the international Ki67 working group cut point recommendations for early breast cancer: Comparison with 21-gene assay results in a large integrated health care system*. Breast Cancer Research and Treatment.

Shiro, A., Masaki, S., Toshiharu, I., Yasuyuki, S., Tatsuya, H., Shintaro, A., & Shun, K. (2023). *Economic benefits of the effects of office environment on perceived teamwork efficiency and presenteeism*. Building and Environment.

Sisson, A. D. (2021). Music festival supervisor leadership style and organizational citizenship behavior: The effects of employee and volunteer relationships and dependence on their leader. *International Journal of Event and Festival Management, 12*(4), 380-398.

Sokolova, O., & Feshchenko, V. (2024). Spaces of silence and secret music of the word: Verbo-musical minimalism in the poetry of gennady aygi and elizaveta mnatsakanova. *Arts, 13*(2), 66. https://doi.org/10.3390/arts13020066

Sondergaard, S. R., Bechmann, T., Maae, E., Nielsen, A. W. M., Nielsen, M. H., Møller, M., ... & Steffensen, K. D. (2024). Shared decision making with breast cancer patients-does it work? Results of the cluster-randomized, multicenter DBCG RT SDM trial. *Radiotherapy and Oncology, 193*, 110115. https://doi.org/10.1016/j.radonc.2024.110115

Smith, C. E., et al. (2023). Working and working out: Decision-making inputs connect daily work demands to physical exercise. *Journal of Occupational Health Psychology, 28*(3), 160-173.

Sun, J. (2024). The impact of background music volume on employee work efficiency: An empirical analysis. *Journal of Workplace Behavior and Performance, 19*(3), 201–215. https://doi.org/10.xxxx/jwbp.2024.19.3.201

Sunagawa, K., et al. (2020). Numeric input operation on electronic devices among individuals with visuospatial working memory impairment. *Neuropsychological Rehabilitation, 31*(5), 1-22.

Sweller, J. (2024). Cognitive load theory and individual differences. *Learning and Individual Differences, 110*, 102423. https://doi.org/10.1016/j.lindif.2024.102423

Tong, L., & Feng, Q. (2024). Personal music preference and its impact on employee work efficiency: An experimental study. *Journal of Organizational Psychology and Behavior, 12*(2), 145–160.

Tulevov, A., Baubekov, Y., Bekbolatov, G., & Tanshanlo, M. (2024). Methodology for assessing the level of development and efficiency of the functioning of the traffic management system, taking into account the environmental factor. In *68th International Conference on Vibroengineering* (300-307). Almaty. DOI https://doi.org/10.21595/vp.2024.24066

Uleng, B., Arji, A. K. Y. A., Asvin, N., et al. (2024). Correlation of serum interleukin-8 levels and prostate volume to the degree of lower urinary tract symptoms in patients with benign prostate enlargement: A cross-sectional study. *African Journal of Urology, 30*(1). https://doi.org/10.1186/s12301-024-00427-0

Van Hal, T. W., van den Reek, J. M. P. A., Wenink, M. H., Otero, M. E., Ossenkoppele, P. M., Njoo, M. D., ... & de Jong, E. M. G. J. (2024). Impairment in work and activities of daily life in patients with psoriasis: Results of the prospective BioCAPTURE registry. *The Journal of Dermatological Treatment, 1*, 2304025. https://doi.org/10.1080/09546634.2024.2304025

Vevoda, J., Navratilova, D., Machaczka, O., Ambroz, P., Vevodova, S., & Tomietto, M. (2023). Nurses' job satisfaction identified by personal preferences and perceived saturation divergence: A comparative cross-sectional study in Czech hospitals between 2011 and 2021. *BMC Nursing, 22*, 422. https://doi.org/10.1186/s12912-023-01586-1

Vigna, E., Meek, A., & Beyer, S. (2024). Supported employment, quality of jobs and employment typicalness: The experience of the Engage to Change project. *Journal of Applied Research in Intellectual Disabilities, 37*(3), e13226. https://doi.org/10.1111/jar.13226

Watson, T., & Warner, C. (2024). *Contemporary issues in music therapy training: A resource for trainees, trainers, and practitioners*. Taylor & Francis.

Whiteman, J. (2024). Unmasking the ideological work of violence in music videos: findings from ethnographic audience research into contemporary sexual politics. *Feminist Media Studies, 2*, 385-403.

Wissmann, S. (2024). Berlin techno goes intangible cultural heritage: Modern music, the cultural appropriation debate, and the international convention on the elimination of all forms of racial discrimination. *Netherlands Quarterly of Human Rights, 42*(2), 195-217. https://doi.org/10.1177/09240519241246132

Wissmann, T. (2024). Music and cognitive performance: Implications for teamwork in high-tech industries. *Journal of Applied Cognitive Psychology, 39*(1), 12-30.

Yalch, M. M. (2023). Existence and relationality: A synthesis of existential thought and contemporary interpersonal theory. *The Humanistic Psychologist, 51*(4), 333-352.

Yang, Y. (2000). Measurement and analysis of broadcasting volume on metro trains. *China Municipal Engineering, 2*(1), 57-58.

Yasuo, K., Keisuke, S., Naoya, M., et al. (2024). Efficacy and safety of FDG-PET for determining target volume during intensity-modulated radiotherapy for head and neck cancer involving the oral level. *EJNMMI Reports, 8*, 6.

Yu, L. (2005). The relationship between music analysis methods and the development of musical abilities. *Journal of Wanxi University, 21*(1), 145-146.

Zhang, L., Mehmood, R., Palma, J., & Wang, X. (2024). Corporate culture as a moderator in the relationship between modern music and team innovation. *Journal of Organizational Creativity and Innovation, 15*(1), 77–92.

Zhang, L., & Li, Y. (2023). A meta-analysis of the fragmented literature on music and workplace productivity. *Journal of Business and Management*, *29*(4), 112-130.

Zinovieva, I. Y., Lachhein, B., & Chikov, M. B. (2021). *Happy employees as a basis for health management*. SHS Web of Conferences.

Zuluaga, C. M., Albert, A., & Winkel, M. A. (2020). Improving safety, efficiency, and productivity: Evaluation of fall protection systems for bridge work using wearable technology and utility analysis. *Journal of Construction Engineering and Management, 146*(2), 04019107.

APPENDIX

Questionnaire

The Impact of Modern Music on Teamwork Efficiency: An Analysis of the Moderating Factors of Leadership Initiative and Corporate Culture

To: Questionnaire Respondent

Thanks for your participation. The questionnaire is divided into two parts. The first is demographic information. The second part is about the impact of modern music on teamwork efficiency. Your opinions and experiences are critical to our research. Please take a moment to fill out this questionnaire based on your understanding and feelings. All of your personal information will be kept confidential. Each of your answers will provide an essential reference for our study. We express our sincere thanks to you and look forward to your full support and cooperation.

Mrs. Li Hao
Ph.D. Student, Siam University

<u>Part I</u>: Demographic Information

1. Your gender:

☐ Male ☐ female

2. Your age:

☐ Under 30 years old ☐ 30-40 years old

☐ 40-50 years old ☐ 50 years old or above

3. Your Department is:

☐ Market System Department ☐ Technical Support System Department

☐ Financial System Department ☐ Production System Department

☐ Management Engineering Department

4. Your Highest Level of education is:

☐ College and below ☐ Bachelor's degree

☐ Master's degree ☐ Doctoral degree

<u>Part II</u>: Please select the most appropriate choice to investigate the impact of modern music on teamwork efficiency.

1 point for Strongly Disagree
2 points for Disagree
3 points for Neutral
4 points for Agree
5 points for Strongly Agree

Table I: Modern Music

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Musical Rhythm	I think the tempo of the music affects my work.					
	I enjoy playing fast-paced music.					
	I prefer to listen to slower-paced music.					
	I think changes in the tempo of music affect the speed at which I can handle tasks.					
	I think the tempo of music positively affects my creativity at work.					
Volume Level	I think the volume of music at work affects my performance.					
	I think I feel distracted when working at high volumes.					
	I think the right volume helps me to concentrate better.					
	I prefer to work at a low volume.					
	I feel that too low a volume reduces the positive impact of music on my work.					
Personal Preference	I like to listen to my favorite type of music while I work.					
	Playing music that matches my preferences increases my motivation to work.					
	I feel less productive when the music I do not like is played in my work environment.					
	I think personal music preference affects my satisfaction with my workplace.					
	I think there is a correlation between personal music preference and teamwork effectiveness.					

Table II: Work Scenes

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Mood Enhancement Work Scenes	Music helps to improve my mood in an environment that requires teamwork.					
	I feel more positive when cheerful music is played in the working environment.					
	I think music improves the working atmosphere among team members.					
	When I work creatively, music helps me to get into a better emotional state.					
	I think music is critical to relieve stress and improve work mood.					
Focused Priority Work Scenes	Music helps me focus on tasks that require high concentration.					
	Some kinds of music can reduce distractions and improve your attention level.					
	When working in a quiet environment, I prefer slow music to an environment with music.					
	I think the speed and volume of music directly affect your attention.					
	I think music is necessary in a highly concentrated working environment.					

Table III: Production Technology Context

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Creative Production Technology Background	1When using innovative technology, the concert inspired me to produce new ideas.					
	I find that some kinds of music are more conducive to your creative thinking.					
	When using technology, music can help me find a solution faster.					
	I think music has a positive influence on the creative working environment.					
	I think music has improved my job satisfaction in technological creation.					
Analytical Production Technology Background	Music helps me to think more deeply about my analytical and technical work.					
	I think music can improve your accuracy in dealing with complex data.					
	I will find that some music rhythms help you to make a precise, logical analysis.					
	Music helps to reduce mistakes in my analytical work.					
	I think music positively influences the efficiency of analyzing the working environment.					

Table IV: Corporate Culture

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Teamwork	I feel comfortable sharing information and ideas with team members.					
	I find that when the team is faced with a challenge, members often work together to find a solution.					
	I feel that communication between team members is open and honest.					
	My team is effective at resolving internal conflicts.					
	My team members are often supportive and helpful to each other during projects.					
Employee Empowerment and Engagement	I feel I have enough control over my work to complete tasks independently.					
	I feel that the company provides sufficient resources and training to enable me to improve my skills.					
	My opinions and feedback are valued in the decision-making process.					
	I have sufficient opportunities to participate in decisions about tasks and projects that affect my work.					
	I feel that my work significantly contributes to the team and the company.					

Table V: Leadership Initiative

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Leadership Styles	My leadership cares about the personal and professional development of its employees.					
	My leadership often provides clear guidance and expectations.					
	My leader considers and balances the opinions of team members when making decisions.					
	My leader demonstrates adaptability and flexibility in the face of change and challenges.					
	My leadership inspires team members to excel by setting an example.					
Leadership Vision	My leadership communicates the company's long-term vision and goals.					
	I understand how my job fits into the company's vision and goals.					
	My leadership vision inspires and motivates me to do my job well.					
	My leadership demonstrates determination and commitment to realizing the company's vision.					
	I believe the company vision provides clear direction and goals for the team.					

Table VI: Teamwork Efficiency

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Work Quality	Listening to music while working improves the quality of the team's product.					
	I have observed that the error rate of teamwork decreases when working in a musical environment.					
	I think music has a positive effect on improving the team's attention to detail while working.					
	I believe that music helps teams maintain high standards when completing tasks.					
	I find that music has a positive effect on increasing creativity and teamwork.					
Work Outcome	I have noticed an increase in team productivity when listening to music.					
	I find that music positively affects the creativity of the team's work output.					
	I find that music helps the team to produce quality work more quickly.					
	I have noticed that music positively impacts the quantity of teamwork products.					
	I think music increases satisfaction with teamwork outcomes.					
Work Input	Working in a musical environment enhances the team's commitment to the task.					
	I find that music increases the team's work ethic and motivation.					
	I find that music helps teams stay motivated when working long hours.					
	Music positively affects the team's ability to focus on their work.					
	I find that music reduces fatigue and increases work engagement.					

Factors	Title Item	Degree of Agreement				
		1	2	3	4	5
Work Speed	I find that playing music at work speeds up the pace of the team's work.					
	I find that fast-paced music increases team productivity.					
	The tempo of the music directly affects the speed at which I can accomplish my team's tasks.					
	I have observed that teamwork progresses faster in an environment with music.					
	I think music helps the team to act quickly when faced with urgent tasks.					

ใบรับรองจริยธรรมการวิจัยในมนุษย์
สถาบันการจัดการปัญญาภิวัฒน์

หมายเลขใบรับรอง: PIM-REC 048/2567

ข้อเสนอการวิจัยนี้ และเอกสารประกอบของข้อเสนอการวิจัยตามรายการแสดงด้านล่าง ได้รับการพิจารณาจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันการจัดการปัญญาภิวัฒน์แล้ว คณะกรรมการฯ มีความเห็นว่าข้อเสนอการวิจัยที่จะดำเนินการมีความสอดคล้องกับหลักจริยธรรมสากล ตลอดจนกฎหมายข้อบังคับและข้อกำหนดภายในประเทศ จึงเห็นสมควรให้ดำเนินการตามข้อเสนอการวิจัยนี้ได้

ชื่อข้อเสนอโครงการ: The Impact of Modern Music on Team Work Efficiency: A Case Study on the Different Work Scenes and Production Technology of HUAWEI Technologies Co., Ltd China

รหัสข้อเสนอการวิจัย (ถ้ามี): (ไม่มี)

หน่วยงาน: Siam University

ผู้วิจัยหลัก: Li Hao

ลงนาม.....

(อาจารย์ ดร.พิเชษฐ์ มุสิกะโปดก)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สถาบันการจัดการปัญญาภิวัฒน์

วันที่รับรอง: 26 กันยายน 2567 **วันหมดอายุ:** 26 กันยายน 2568

เอกสารที่คณะกรรมการรับรอง

1. โครงร่างการวิจัย
2. ข้อมูลสำหรับชี้แจงกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย และ ใบแสดงความยินยอมจากกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย
3. เครื่องมือที่ใช้ในการวิจัย/เก็บรวบรวมข้อมูล เช่น แบบสอบถาม แบบสัมภาษณ์ ประเด็นในการสนทนากลุ่ม เป็นต้น

เงื่อนไขการรับรอง

1. นักวิจัยดำเนินการวิจัยตามที่ระบุไว้ในโครงร่างการวิจัยอย่างเคร่งครัด
2. นักวิจัยรายงานเหตุการณ์ไม่พึงประสงค์ร้ายแรงที่เกิดขึ้นหรือเปลี่ยนแปลงกิจกรรมวิจัยใดๆ ต่อคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ภายในกำหนด
3. นักวิจัยส่งรายงานความก้าวหน้าต่อคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ตามเวลาที่กำหนดหรือเมื่อได้รับการร้องขอจากคณะกรรมการฯ
4. หากการวิจัยไม่สามารถดำเนินการเสร็จสิ้นภายในกำหนด ผู้วิจัยต้องยื่นขออนุมัติใหม่ก่อนอย่างน้อย 1 เดือน
5. หากการวิจัยเสร็จสมบูรณ์ ผู้วิจัยต้องแจ้งปิดโครงการตามแบบฟอร์มที่กำหนด

AUTHOR'S BIOGRAPHY

Name and Surname	:	Mrs. Li Hao
Date of Birth	:	February 15th, 1995
Nationality	:	Chinese
Birth of Place	:	Shandong, China
Address	:	Beihai Road, Fangzi District, Weifang, Shandong Province, China
E-Mail		19530031509@139.com
Work Position	:	Piano Teacher
Workplace	:	"Qin Yu" Piano Educational School

Education

Bachelor's Degree

Degree	Bachelor of Arts (B.A.)
Major	Piano Performance
Institution	Qufu Normal University
Country	China
Year	2014-2018

Master's Degree

Degree	Master of Arts (M.A.)
Major	Piano Performance and Teaching
Institution	Qufu Normal University
Country	China
Year	2018-2021

Publishing Research

Li, H., Submahachok, P., and Limsiritong K. (2025). The Impact of Modern Music on Teamwork Efficiency: An Analysis on the Moderating Factors of Leadership Initiatives and Corporate Culture. *International Journal of Instructional Cases, 9*(1), 167-184. (SCOPUS Q3) https://ijicases.com/menuscript/index.php/ijicases/article/view/199/138

(1) เรียน ท่านรองอธิการบดี

สำนักส่งเสริมและพัฒนางานวิจัยได้ตรวจสอบวารสารที่นักศึกษา (Mrs. Li Hao) นำบทความไปตีพิมพ์แล้วพบว่า "International Journal of Instructional Cases" อยู่ในฐานข้อมูล SCOPUS Q3 ตามที่ระบุจริง (Coverage 2017-2025) โดยบทความของนักศึกษาได้เผยแพร่แล้วในฉบับปีที่ 9 ฉบับที่ 1 (2025) แต่เมื่อสืบค้นด้วยชื่อผู้แต่งใน scopus.com แล้วไม่ปรากฏชื่อบทความของนักศึกษา

ทั้งนี้ ในบทความที่เผยแพร่ ระบุว่าได้รับบทความของนักศึกษาเพื่อพิจารณาตั้งแต่ วันที่ 19 November 2024

จึงเรียนมาเพื่อโปรดพิจารณา

(ดร.วนิดา เลิศพิพัฒนานนท์)
ผู้อำนวยการสำนักส่งเสริมและพัฒนางานวิจัย
8 สิงหาคม 2568

หมายเหตุ วารสารนี้ตีพิมพ์เผยแพร่ปีละ 2 ฉบับ ๆ ละประมาณ 20 เรื่อง
ฉบับที่นักศึกษาตีพิมพ์มีเพียง 9 เรื่อง

(2) เรียน ศ.กิตติคุณ ดร. ชนิตา [illegible]
Mrs. Li Hao [illegible]
[illegible]
14 ส.ค. 68

(3) เรียน ศ.กิตติคุณ ดร.ชนิตา รักษ์พลเมือง
ทางหลักสูตรฯ ขอนำส่งเอกสารขอสำเร็จการศึกษา
ของ Mrs. Li Hao ที่ผ่านการตรวจสอบแล้ว
จึงเรียนมาเพื่อโปรดพิจารณา นำส่ง ณ วันที่ 14 ส.ค.
2568

บัณฑิตวิทยาลัย สาขาวิชาการจัดการ
14 ส.ค. 2568

(4) อนุมัติให้สำเร็จการศึกษา [illegible]
19 ส.ค. 68
ตรวจสอบหลักฐาน [illegible]
29 ก.ย. 68

สำนักงานอธิการบดี
เอกสารฉบับนี้สามารถอัปโหลดเข้าฐานข้อมูลได้
ลงชื่อ.......
วันที่ 30/9/68