Digital Soundscapes: Music Listening, Self-Awareness Across Demographic Contexts in Malaysian Universities

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Received: 19 August 2025
Received in revised form: 19 September 2025
Accepted: 24 November 2025
Published: 18 December 2025

ABSTRACT

This study investigates the influence of music on self-awareness, self-expression, and emotional attitudes toward academic tasks among Malaysian university students. Using a quantitative approach, data were collected from 334 students representing diverse ethnic and religious backgrounds. The findings indicate that music significantly enhances self-expression and emotional engagement, while perceptions of its impact on self-awareness vary. Religious background emerged as a key differentiator, with Muslim respondents reporting greater the development of self-awareness through music compared to their Buddhist and Hindu counterparts, reflecting the interplay of cultural and religious influences. Age also influenced self-expression preferences, with younger university students (aged 18-19) exhibiting distinct patterns compared to older peers (aged 24-25), while academic discipline showed no significant effect. Notably, prior musical knowledge was found to strengthen the perceived role of music in fostering self-awareness, suggesting that deeper engagement with music amplifies its psychological impact. The study underscores music's potential as a cultural and emotional resource that supports personal growth and academic engagement in higher education. These insights offer implications for integrating music-based learning technologies into educational practices and wellbeing initiatives in Malaysian universities.

Keywords:
Music listening; Self-awareness; Academic attitude; Malaysian university students; Emotional engagement

Introduction

Music profoundly influences our lives, shaping our emotions, memories, and even physical wellbeing. It serves as a universal language capable of evoking strong emotional responses and enhancing mood. From reducing stress (Vasylevska-Skupa et al., 2024) and improving memory to increasing pain tolerance and influencing shopping behaviour, music plays a multifaceted role in human experience. Music therapy (Wong, 2023), conducted by trained professionals, harnesses these effects to achieve therapeutic goals across physical, emotional, cognitive, and social domains, offering a holistic approach to health and wellbeing. The role of music in human life has become increasingly prominent in modern times (Stanborough, 2020; Hoffer, 2022). For example, Hernandez-Ruiz (2022) found that music-based experiences significantly reduced anxiety in college students affected by pandemic-related disruptions. Malaysia is a multi-ethnic and multi-religious society where people live in a pluralistic and inclusive social environment. Research on cross-cultural interactions and demographic factors is therefore essential. It is not only enhances mutual understanding among communities but also fosters social cohesion (Ismail, 2017; Ismail & Loo, 2023; Hidayatullah et al., 2024). Within this context, music emerges as a powerful medium capable of transcending barriers of culture, values, belief, and background. As a shared human experience, music can serve as a unifying force, strengthening bonds across diverse groups and contributing to the promotion of social harmony.

Purpose of Study

The purpose of this study is to explore the nuances in how music influences identity formation, self-expression, and emotional regulation. By examining these dimensions, the research aims to unravel the complex relationship between music and the self. Specifically, it investigates how individuals utilize music to shape their identities, express their emotions, and navigate personal challenges. Furthermore, the study explores how music fosters connections with others and serves as a tool for managing emotional states. Through this comprehensive inquiry, the research seeks to

provide deeper insights into the profound ways in which music influences individuals' understanding of themselves and their interactions with the world.

Objective of the Study

This study aims to dissect the multifaceted relationship between music and the self, focusing on its influence in three critical areas; self-awareness, self-expression and emotional attitudes toward academic tasks among university students in Malaysia. The objectives are as follows:-

1. To examine the extent to which music listening contributes to self-awareness among Malaysian university students, considering demographic factors such as race, religion, age, academic discipline, and prior musical knowledge.
2. To investigate how music is used as a medium for self-expression and identity communication among Malaysian university students, including its role in social and digital interactions.
3. To analyse the influence of music on emotional regulation and attitudes toward academic tasks and explore how these effects vary across different demographic and cultural backgrounds.

Significance of the study

There is a noticeable scarcity of empirical studies exploring how music affects university students across various aspects of their lives. This study aims to bridge this gap by examining the nuanced relationship between music and the self. Specifically, it investigates how engagement with music influences identity formation, self-expression (Bakshi, 2023) and emotional regulation among university students. By highlighting these dynamics, the study seeks to provide a deeper understanding of the multifaceted role music plays in shaping individuals' identities and emotional landscapes. Through comprehensive analysis, this research contributes valuable insights into how music profoundly impacts personal development and emotional wellbeing, enriching the broader discourse on the interplay between music and the self (Galindo, 2009; Epperson, 2024).

Literature Review

This section provides an extensive review of the literature relevant to the study, offering a comprehensive analysis of the psychological, emotional, social, and physiological impacts of music on individuals. Self-awareness as a socioemotional skills has been emphasized by Suarez Enciso et al. (2024) who described it as encompassing internal clarity and external understanding. They emphasized reflective practices, feedback, and personalized learning as essential for cultivating self-awareness, closely tied to well-being, empathy, and self-regulation. Krishnan (2023) echoed this perspective, defining self-awareness as an essential skill with both internal and external dimensions that influence personal and professional growth. Understanding one's internal states and recognizing how others perceive them is vital for leadership, self-regulation, and interpersonal relationship. Together, these insights underscore the transformative role of music and self-awareness in fostering emotional and social wellbeing.

The internet has become integral to the lives of late adolescents, offering a dynamic platform for communication, self-exploration, and the cultivation of social bonds. Digital devices and mobile applications have created virtual spaces where adolescents can explore their psychological landscapes, often using music as a tool for self-expressions and social connection. As Li et al. (2023) observed, music preferences play a significant role in shaping social impressions, discovering shared interests and forming perceptions of others' values. For example, fanfiction readers often prefer fan-related music, anime enthusiasts gravitate toward anime soundtracks, and TV drama fans lean toward original series soundtracks. Adolescents frequently choose niche over mainstream music to assert their individuality and nonconformity. As Hu et al. (2021) investigated the use of music for learning and wellbeing among university students in China, findings revel that students incorporate music into various aspects of life, impacting key components of wellbeing, such as physical health, social relationships, positive emotions, self-esteem, and the sense of life's meaning. The cultural dimension of music preferences plays a vital role, as music serves as a powerful medium for self-expression and connection, shaped by cultural contexts (Bakshi, 2023). Music preferences often reflect cultural rituals, ceremonies, and social events. For example, individuals raised in environments with traditional African music may develop a preference for that style due to its cultural resonance. Similarly, heavy metal, associated with vigour and nonconformity, appeals to extraverted and adventurous personalities, while classical music, often linked with

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

sophistication, attracts introverted and agreeable individuals. Sozbir (2023) explored the relationship between music preferences and attitudes toward diversity, revealing that university students who preferred pop music over Arabic music scored higher on the Respect for Diversity Scale (RfDS). In contrast, those who preferred Arabic music had lower RfDS ratings. This suggests that educational programmes incorporating diverse music genres could foster cultural awareness and inclusivity among university students.

Music also holds promise as a motivational tool in professional settings, with research demonstrating its ability to influence work performance and emotional regulation. Sanseverino et al. (2022) demonstrated a positive relationship between the emotional use of music and work performance, with job satisfaction mediating this effect. Different types of music, characterized by variations in rhythm, pace, and melody, elicit distinct emotional and physiological responses. For example, dynamic and fast-paced music, such as pop or rock, can increase energy and activation levels, while slower, more subdued music may evoke calmness or melancholy, helping to regulate emotions. This effect extends to managing negative emotions, with Jiang et al. (2023) highlighting how music's emotional content can influence mood: Quick rhythms and high pitches often evoke excitement, while slow rhythms and low pitches tend to induce tranquillity or sadness. Music's emotional impact has also been shown to affect cognitive processes. Blasco Magraner et al. (2022) found that music increased positive emotions and reduced negative ones. In an educational context, music can help facilitate learning by addressing negative emotions. Bramhachari (2022) examined how university students used negative emotions in world music courses to enhance motivation and cognitive reflection, suggesting that facing these emotions through repeated listening can improve academic engagement. However, negative emotions can also pose challenges, as they may impair attention and memory, as shown by Liu et al., (2023). Their study indicated that both negative emotions and cognitive functions, such as attention, improved significantly after music intervention.

Further studies suggest that music can alleviate the negative effects of emotional distress, Li (2023) found that music, combined with nerve feedback, significantly reduced negative emotions in college students, enhancing attention and cognitive focus. Bachman et al. (2022) also noted that emotional regulation through music listening is positively associated with positive solitude in older adults. While not specifically addressing self-awareness, their findings imply that the ability to regulate emotions through music enhances emotional understanding, contributing to overall emotional well-being. This highlights music's potential not only in regulating emotions but also in fostering greater self-awareness, allowing individuals to engage meaningfully with their emotions and improve emotional regulation. Fu and Tu (2023) investigated the impact of national music lessons on university students' subjective wellbeing, self-esteem, and national identify in China. Results showed that while national music lessons enhanced subjective wellbeing, they had no effect on self-esteem or national identity. Although high self-esteem and national identity were associated to higher wellbeing, they did not influence the impact of the music lessons. Han and Han (2022) identified key factors influencing life adaptation among university students in music-based liberal arts classes, including music interest, education satisfaction and stress coping strategies. Results indicated the need for effective intervention and planning in the music curriculum, as well as differentiated education goals through diverse music activities to enhance students' adaptation to university life.

Music therapy has proven effective in addressing mental health challenges within educational settings. Liu and Li (2023) examined its impact on university students with excessive anxiety, finding that receptive music therapy significantly reduced anxiety levels compared to standard interventions. Their study emphasised the importance of tailoring therapeutic approaches based on factors such as gender, academic major, and individual preferences to optimize outcomes. Similarly, Han et al. (2024) discovered that virtual music therapy significantly enhanced the mental health of highly stressed college students during pandemic. Beyond therapeutic applications, music plays a broader role in emotional regulation and wellbeing. Athalia and Kilis (2020) and Wang et al. (2022) found that resilience enhances emotional control, particularly among students, who exhibited better mental health compared to non-musicians. These findings suggest that integrating music-related interventions into educational programs could foster emotional wellbeing and resilience. Jiang et al. (2023) further expanded on this by developing a multimodal sentiment classification technology to analyse music's emotional impact, offering new research avenues for exploring emotional regulation through music.

International research has shown that music and related practice enhance emotional regulation, self-reflection, and spirituality among university students (Yana, 2022; Blasco-Magraner et al., 2023). Studies in Islamic educational

settings further suggest that music and song can foster emotional awareness and motivation (Blasco-Magraner et al., 2021), indicating that recitative practices embedded in Muslim traditions may cultivate higher self-awareness. Research on Malaysian youth has shown that music engagement is not only a source of leisure but also a medium for emotional regulation, reflection, and identity construction (Razali & Ma'rof, 2024a, 2024b). Ismail and Loo (2023) emphasized that Malaysia's musical identity is shaped by cultural diversity. Malay, Chinese, Indian, and indigenous traditions intersect with modern global sounds. This fusion creates aesthetic values such as harmony, rhythm, and cultural expression. It reflects the nation's multicultural character while remaining relevant to contemporary audiences. Likewise, studies on Malay urban youth in alternative music subcultures reveal that, despite global influences, many continue to draw upon religion and traditional values as important reference points in shaping their identities and social practices (Ismail, 2017). These findings are consistent with Baidarus and Fithri's (2024) found Muslim students' experiences in applying Islamic values within campus life, which showed that religious commitment fosters reflection, discipline, and ethical self-regulation. While Hidayatullah et al. (2024) demonstrated that the transmission of Malay music not only strengthens social bonds but also reinforces identity and reflective awareness, Shah and Adam Masumi (2016) emphasised the importance of cultural context in music education. Similarly, Laengkang (2024) highlighted how wisdom and values embedded in music influence listeners, shaping both their perceptions and experiences. This evidence suggests that Malay/Muslim students, whose cultural and religious framework emphasise continual self-examination, are more likely to demonstrate heightened levels of self-awareness.

Limited research has compared levels of self-awareness across students of different religious backgrounds in Malaysian universities. In particular, the contrast between Muslim, Buddhist, Christian and Hindu students remains underexplored. This leaves a gap in understanding how diverse cultural and spiritual framework may differentially influence students' reflective practices and self-awareness. Addressing this gap is crucial, such insights can inform more inclusive approaches to student development. They may also promote intercultural understanding and wellbeing in higher education settings. This study aims to extend existing literature by providing comparative evidence that has been largely absent. Providing a more comprehensive understanding of how music has been used as a tool across cultural and religious framework shape students' self-awareness and personal development.

Conceptual Framework

The Figure 1 below illustrates the multifaceted impact of various music genres such as Electronic Dance Music (EDM), Rock, Jazz, Dubstep, R&B, Techno, Country, Electro, Indie Rock, and Pop on personal development and self-discovery across different life stages. Each genre, with its distinct history and influence, ranging from the club-centric sounds of EDM and Techno to the lyrical depth of Jazz and R&B, blends classic and modern elements that contribute to the diversity of contemporary music. The research aims to explore how music shapes self-awareness, identity, and emotional states, particularly in today's fast-paced and interconnected world, where maintaining profound self-awareness and emotional well-being is becoming increasingly challenging (Vasylevska-Skupa et al., 2024). By examining music's role in facilitating personal growth, the study seeks to uncover patterns in how music inspires new interests, ideas, and values. It also delves into how individuals use music for self-expression, exploring whether musical preferences reflect their personalities, interest, and unique characteristics. Additionally, the research focuses on impact of music on emotions and attitudes, especially concerning emotional regulation. It aims to understand how music is utilized during moments of stress or anxiety and how regulated emotions influence attitudes toward tasks and activities, determining whether these effects are positive or negative. Ultimately, this comprehensive research seeks to illuminate the complex relationship between music, emotional states, and their impact on attitudes and behaviors across different contexts (Nuzzolo, 2015; GiGlue, 2017). As Vidas et al. (2022) found that for international students, using music as a coping strategy improved well-being, while for local students, using music for emotional reasons decreased well-being. As shown in the above chart, music genres are believed able to elicit emotional reactions that influence students' behavior. Emotional Resonance Theory suggested that melody and rhythm resonate with emotions, creating deeper emotional experiences. Arousal Theory, on the other hand, posits that faster genres like rock or EDM boost energy and arousal, while slower genres like Jazz promote relaxation. Music enhances self-awareness by connecting individuals with their emotions, as Emotion Theory asserts that emotions alter human perception of the environment. Meanwhile Cultural Determinism Theory demonstrates how students' cultural backgrounds influence their interpretation of music. Additionally, Multisensory Learning Theory highlights how music's sensory engagement fosters self-awareness. Associative Memory Theory suggests music can also be used to express oneself, regulate emotions, and trigger memories, helping individuals reconnect with significant experiences. Finally, this study explores how music

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

influences behavior, asserting that relaxing music can reduce anxiety, stimulate pleasure regions in the brain, and promoting resilience and positive attitude through stress management.

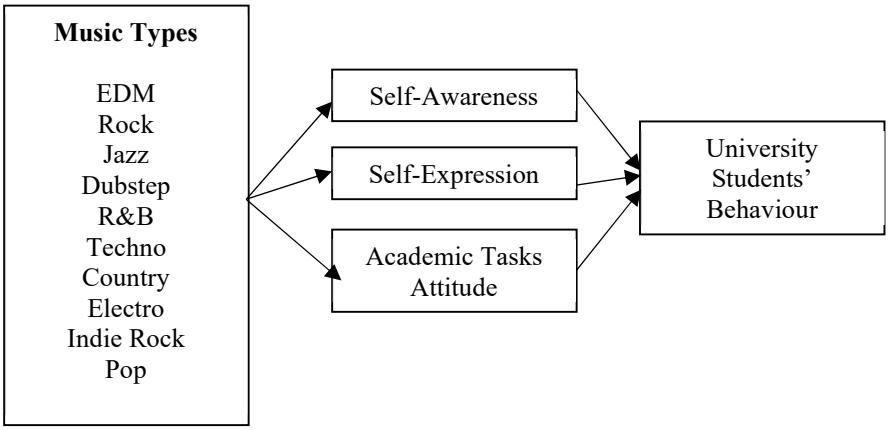

Figure 1. Conceptual framework

Research Methodology

This study employs a quantitative research design (Bhandari, 2023a; Fleetwood, 2024a) to examine the psychological and emotional effects of music among university students. Data were collected from 334 respondents through a structured online questionnaire distributed via instagram and WhatsApp (Marketing, 2024). At the outset, students were informed of the study's purpose and assured that participation was voluntary, with the right to withdraw at any stage. No personal identities were collected, ensuring anonymity and confidentiality. The questionnaire (Bhandari, 2023b) comprised two sections: demographic details (age, gender, race, religion, year and field of study, and knowledge of music) and psychological dimensions – self-awareness, self-expression, and emotional regulation (School, 2024; Navarro, 2015). It included 18 items rated on a six-point Likert scale from strongly disagree (1) to strongly agree (6), designed to examine central tendency bias (Zakharenko, 2023). Items were adapted from validated frameworks (School, 2024; Navarro, 2015; CalypsoRoom, 2023; Bakshi, 2023; Schafer et al., 2013; Kumar et al., 2016). Reliability analysis yielded a Cronbach's alpha of .991, demonstrating excellent internal consistency. Validity was established through a pilot test, expert review, and factor analysis (Hassan et al., 2006; Chiang et al., 2015; Middleton, 2023). Participants were Malaysian university students of diverse genders, ethnicities, and religion, recruited via convenience and snowball sampling (Golzar et al., 2022; Bhat, 2023; McCombes, 2023; Akman, 2023; Fleetwood, 2024b). To enhance response rates, the questionnaire was resent as suggested by Goodwin et al. (2020) and Hoang et al. (2022).

Data Analysis

Data were analysed using SPSS, employing both descriptive and inferential methods (Bergek et al., 2008; Williams, 2024). Inferential techniques, including t-tests and ANOVA, examined differences by gender, academic year, and education level (Banerjee & Chaudhury, 2010; Rana et al., 2021; Carpenter, 2024; Kenton, 2024). Descriptive statistics, such as percentages and medians, summarised trends, while visual aids like bar charts enhanced clarity (Nossier & Philip, 2024; Yi, 2024). Ethical practices ensured participant anonymity and robust response rates, resulting in 334 valid responses that strengthened the statistical power of the analysis. This approach provided comprehensive insights into how music influences students' psychological and emotional wellbeing (Stupacher & Wood, 2018; Peterson & Merunka, 2013; Pozzo et al., 2018).

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

Results

This section outlines the methods used to analyse data on the impact of music on self-awareness, self-expression, and emotional regulation among university students. Responses were analysed using the Statistical Package for Social Sciences (SPSS) a widely used tool for quantitative data analysis that incorporates diverse statistical techniques (Ben-Joseph, 2021). Key methods included descriptive statistics, hypotheses testing, one-way ANOVA, Tukey's Honestly Significant Difference (HSD), and independent sample t-tests. ANOVA tests were used to identify significant variables across demographic categories and music-related motivations based on Likert-scale responses (Rana et al., 2021; Zakharenko, 2023; Bevans, 2024).

Background of Respondents

Table 1. Demographic data of respondents

Variable	Frequency	Percent	Valid Percent
Gender			
Male	173	51.8%	51.8%
Female	161	48.2%	48.2%
Total	334	100%	100%
Age Group			
18-19	24	7.2%	7.2%
20-21	79	23.7%	23.7%
22-23	76	22.8%	22.8%
24-25	94	28.1%	28.1%
26-27	42	12.6%	12.6%
Others	19	5.7%	5.7%
Total	334	100%	100%
Race			
Chinese	147	44.0%	44.0%
Indian	87	26.0%	26.0%
Malay	100	29.9%	29.9%
Others	0	0.0%	0.0%
Total	334	100%	100%
Religion			
Buddhist	148	44.3%	44.3%
Hindu	86	25.7%	25.7%
Muslim	100	29.9%	29.9%
Others	0	0.0%	0.0%
Total	334	100%	100%
Year of Studies			
Year 1	94	28.1%	28.1%
Year 2	119	35.6%	35.6%
Year 3	121	36.2%	36.2%
Total	334	100%	100%
Field of Study			
Faculty of Art & Design	28	8.4%	8.4%
Faculty of Business & Management	59	17.7%	17.7%
Faculty of Chinese Medicine	57	17.1%	17.1%
Faculty of Engineering & Information Technology	52	15.6%	15.6%
Faculty of Humanities & Social Science	54	16.2%	16.2%
Faculty of Chinese Study	56	16.8%	16.8%

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

School of Foundation Studies	28	8.4%	8.4%
Total	334	100%	100%
Music Preferences			
Include Electronic Dance Music (EDM)	17	5.1%	5.1%
Rock	38	11.4%	11.4%
Jazz	34	10.2%	10.2%
Dubstep	35	10.5%	10.5%
R&B	34	10.2%	10.2%
Techno	49	14.7%	14.7%
Country	31	9.3%	9.3%
Electro	38	11.4%	11.4%
Indie Rock	35	10.5%	10.5%
Pop	23	6.9%	6.9%
Total	334	100%	100%
Basic knowledge of musical type			
1 Strongly Disagree	7	2.1%	2.1%
2 Disagree	80	24.0%	24.0%
3 Neutral	30	9.0%	9.0%
4 Agree	112	33.5%	33.5%
5 Strongly Agree	105	31.4%	31.4%
Total	334	100%	100%

The frequency and percentage distributions for gender, age, race, religion, faculty, academic year, and music preferences among university students categorized by various demographic characteristics. It includes the frequency of respondents in each group and their corresponding percentage of the total sample (see Table 1.)

Table 2. Mean scores and std. deviation for self-awareness

How does music build self-awareness?					
Question	**N**	**Min**	**Max**	**Mean**	**Std. Deviation**
1. I noticed a connection between a specific type of music and my identity.	334	2	5	3.7	0.949
2. I have experienced how music has helped me better understand who I am.	334	3	5	4.0	0.471
3. I have discovered new interests, ideas, and values through music.	334	2	4	3.1	0.568
4. I find that music contributes to my personal development at different stages of life.	334	4	5	4.5	0.527
5. I use music as a tool to better understand my emotional states (when feeling sad, happy, or anxious).	334	3	4	3.5	0.527
6. I find that music helps me understand my strengths and weaknesses.	334	2	4	3.2	0.422

The summary of descriptive statistics for respondents' perception of the relationship between music and self-identity. The data indicates a strong agreement with the notion that music contributes to personal development across various life stages as reflected by the highest mean score of 4.5 (SD = 0.53). Respondents also expressed agreement with the idea that music aids in understanding one's identity (M = 4.0, SD = 0.47). However, the statement regarding music's role in helping individuals recognize their strengths and weaknesses received a lower mean score of 3.2 (SD = 0.42) suggesting more diverse perceptions. Overall, these findings underscore music's pivotal role in shaping self-identity, with generally consistent responses across most items (see Table 2).

Table 3. Mean scores and std. deviation for questionnaire for self-expression.

How is Music Used for Self-expression?						
	Question	**N**	**Min**	**Max**	**Mean**	**Std. Deviation**
1.	I believe that sharing music allows me to showcase my personality more effectively.	334	3	5	4.0	0.667
2.	I think my taste in music reflects my character.	334	2	4	4.0	0.667
3.	I often expression myself through activities that involve music.	334	4	5	3.2	0.632
4.	I choose music that reflects my personality when sharing on social media.	334	3	4	4.5	0.527
5.	I use music to express emotions that I find difficult to communicate verbally.	334	3	4	3.6	0.516
6.	I share music with others as a way to communicate my thoughts or emotions.	334	2	4	3.2	0.422

The summary of presents respondent's use of music as a medium for self-expression. A strong agreement was noted regarding the use of music to reflect personality, particularly on social media platforms, as evidenced by a high mean score of 4.5 (*SD* = 0.53). Similarly, sharing music to convey personality traits and character received favorable responses (*M* =4.0, *SD* = 0.67). However, greater variability was observed in perceptions of music as a tool for expressing difficult emotions and thoughts (*M* = 3.6, *SD* = 0.52) and participating in self-expression activities (*M* = 3.2, *SD* = 0.63). Overall, these findings highlight the diverse and multifaceted role of music in facilitating personal expression and communication (see table 3).

Table 4. Mean scores and std. deviation for questionnaire attitude towards academic tasks

How Music Influences Emotions and Attitudes Toward Academic Tasks						
	Question	**N**	**Min**	**Max**	**Mean**	**Std. Deviation**
1.	I believe that music can influence people's emotions.	334	3	5	4.1	0.569
2.	I use music to regulate my emotions when I'm feeling stressed.	334	3	4	3.6	0.516
3.	I think music affects my ability to focus during certain activities.	334	2	4	3.1	0.568
4.	I listen to music to boost my mood before starting a task.	334	4	5	4.5	0.527
5.	I find that music helps me manage stress related to studying.	334	3	4	3.6	0.516
6.	Listening to music helps me get into the right mind-set for tackling difficult tasks.	334	2	4	3.2	0.422

To examines the role of music in emotional regulation. Respondents strongly agreed that music influences emotions (*M* = 4.1, *SD* = 0.57) and enhances attitudes prior to starting tasks (*M* = 4.5, *SD* = 0.53). Moderate agreement was observed for music's role in stress management (*M* = 3.6, *SD* = 0.52) and its ability to establish the appropriate mind-set for challenging tasks (*M* = 3.2, *SD* = 0.42) with some variability in responses. These findings suggest that music serves as an effective tool for emotional regulation and improving productivity (see Table 4).

Hypothesis Testing

Hypothesis testing examines whether musical engagement varies significantly across demographics such as gender, ethnicity, and religion, as well as academic factors like age, year of study, and faculty affiliation. The results of ANOVA tests and group comparisons are presented in details highlighting key differences and offering a comprehensive perspective on how music shapes identity, emotional states and task related attitudes.

Hypothesis (H): There are significant differences in the development of self-awareness through music engagement across different genders, races, and religions among university students.

T-test was utilized to analyse differences between genders, while a one-way ANOVA was applied to examine differences across races and religions. The statistical tests provide insights into how demographic factors influence self-awareness through musical engagement, offering a deeper understanding of the relationship between music and

personal development. Tukey HSD Multiple Comparisons were conducted to find out the significant groups among all.

Table 5. Group statistics for hypothesis test by gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Q1	Male	173	3.81	1.102	.084
	Female	161	3.78	1.078	.085
Q2	Male	173	3.79	1.263	.096
	Female	161	3.80	1.303	.103
Q3	Male	173	3.70	1.386	.105
	Female	161	3.73	1.342	.106
Q4	Male	173	3.87	1.131	.086
	Female	161	3.93	1.152	.091
Q5	Male	173	3.71	1.337	.102
	Female	161	3.70	1.323	.104
Q6	Male	173	3.68	1.256	.096
	Female	161	3.76	1.283	.101

The group statistics for the hypothesis across different genders. Notably, the standard deviation for Q3 in the male group is the highest at 1.39, indicating greater variability in responses among males for this question. In contrast, the lowest standard deviation is observed for Q1 in the female group at 1.08, reflecting greater consistency in responses among females for this question (see Table 5).

Table 6. Independent sample test for hypothesis test by gender

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
Q1	Equal variances assumed	.082	.774	.275	332	.392	.783	.033	.119	-.202	.268
	Equal variances not assumed			.275	331.154	.392	.783	.033	.119	-.202	.268
Q2	Equal variances assumed	.122	.727	-.066	332	.474	.947	-.009	.140	-.286	.267
	Equal variances not assumed			-.066	328.517	.474	.947	-.009	.141	-.286	.267
Q3	Equal variances assumed	.358	.550	-.183	332	.428	.855	-.027	.149	-.321	.267
	Equal variances not assumed			-.183	331.480	.428	.855	-.027	.149	-.321	.266
Q4	Equal variances assumed	.030	.862	-.517	332	.303	.605	-.065	.125	-.310	.181
	Equal variances not assumed			-.517	329.306	.303	.606	-.065	.125	-.311	.181
Q5	Equal variances assumed	.065	.799	.105	332	.458	.916	.015	.146	-.271	.302

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

	Equal variances not assumed			.105	330.748	.458	.916	.015	.146	-.271	.302
Q6	Equal variances assumed	.073	.787	-.544	332	.293	.587	-.076	.139	-.349	.198
	Equal variances not assumed			-.544	329.131	.293	.587	-.076	.139	-.349	.198

The independent samples t-test results show no significant differences between male and female groups in the development of self-awareness through music engagement across all six questions (Q1 to Q6). The two-tailed *p*-values for all items exceed the threshold of .05, indicating that gender does not significantly influence the development of self-awareness through music engagement. Therefore, hypothesis, which posited significant differences in self-awareness development through music engagement across genders is not supported (see Table 6).

Table 7. One-way ANOVA for hypothesis test by race group.

		Sum of Squares	df	Mean Square	F	Sig.
Q1	Between Groups	33.670	2	16.835	15.433	<.001
	Within Groups	361.076	331	1.091		
	Total	394.746	333			
Q2	Between Groups	56.428	2	28.214	19.069	<.001
	Within Groups	489.728	331	1.480		
	Total	546.156	333			
Q3	Between Groups	130.141	2	65.071	44.112	<.001
	Within Groups	488.266	331	1.475		
	Total	618.407	333			
Q4	Between Groups	47.872	2	23.936	20.597	<.001
	Within Groups	384.667	331	1.162		
	Total	432.539	333			
Q5	Between Groups	105.928	2	52.964	36.392	<.001
	Within Groups	481.727	331	1.455		
	Total	587.656	333			
Q6	Between Groups	97.531	2	48.766	36.852	<.001
	Within Groups	438.013	331	1.323		
	Total	535.545	333			

The results of one-way ANOVA conducted to assess the influence of race on self-awareness development through music engagement. Significant differences were identified across all six questions (Q1 to Q6) at the $p < .001$ level: Q1, $F(2, 331) = 15.43$, $p < .001$; Q2, $F(2, 331) = 19.07$, $p < .001$; Q3, $F(2, 331) = 44.11$, $p < .001$; Q4, $F(2, 331) = 20.60$, $p < .001$; Q5, $F(2, 331) = 36.39$, $p < .001$; and Q6, $F(2, 331) = 36.85$, $p < .001$. These results reveal statistically significant variations in perceptions of music's role in self-awareness development among individuals from different racial groups. The findings support hypothesis, indicating that demographic factors such as race, play a role in shaping self-awareness development through music engagement (see Table 7). The Tukey's HSD analysis reveals significant differences in self-awareness development through music engagement among racial groups. Malay respondents rated higher than Chinese and Indian respondents for Q1 (*M*diff = 0.495–0.84, 95% CI [0.18, 1.20], $p < .001$), Q3 (*M*diff= 0.833–1.48, 95% CI [0.41, 1.85], $p < .001$), Q5 (*M*diff = 1.033–1.43, 95% CI [0.67, 1.84], $p < .001$), and Q6 (*M*diff = 0.723–1.28, 95% CI [0.33, 1.63], $p < .001$). These findings highlight that Malay respondents consistently perceive a greater impact of music on self-awareness compared to Chinese and Indian respondents, underscoring the role of cultural and racial context.

Table 8. One-way ANOVA for hypothesis test by religion group.

		Sum of Squares	df	Mean Square	F	Sig.
Q1	Between Groups	33.288	2	16.644	15.242	<.001

	Within Groups	361.457	331	1.092		
	Total	394.746	333			
Q2	Between Groups	56.559	2	28.280	19.119	<.001
	Within Groups	489.596	331	1.479		
	Total	546.156	333			
Q3	Between Groups	129.405	2	64.702	43.796	<.001
	Within Groups	489.002	331	1.477		
	Total	618.407	333			
Q4	Between Groups	47.777	2	23.889	20.551	<.001
	Within Groups	384.762	331	1.162		
	Total	432.539	333			
Q5	Between Groups	106.490	2	53.245	36.628	<.001
	Within Groups	481.166	331	1.454		
	Total	587.656	333			
Q6	Between Groups	96.945	2	48.473	36.581	<.001
	Within Groups	438.600	331	1.325		
	Total	535.545	333			

The results of one-way ANOVA analysing the influence of religion on self-awareness development through music engagement. Stastitically significant differences were observed across all six questions (Q1 to Q6) at the $p < .001$ level; Q1, $F(2, 331) = 15.24$, $p < .001$; Q2, $F(2, 331) = 19.12$, $p < .001$; Q3, $F(2, 331) = 43.80$, $p < .001$; Q4, $F(2, 331) = 20.55$, $p < .001$; Q5, $F(2, 331) = 36.63$, $p < .001$, and Q6, $F(2, 331) = 36.58$, $p < .001$. These findings reveals that respondents from different religious groups demonstrated notable variations in their perceptions of music's role in enhancing self-awareness. The results provide support for the hypothesis, indicating that development factors such as religion significantly contribute to differences in self-awareness development through music engagement (see Table 8). A Tukey HSD post-hoc test revealed significant differences in perceptions of music's impact on self-awareness among religious groups. Muslim respondents scored higher than Buddhist and Hindu respondents on Q1 (*M*diff = 0.50–0.84, 95% CI [0.18, 1.20], $p < .001$), Q3 (*M*diff= 0.84–1.47, 95% CI [0.41, 1.84], $p < .001$), Q5 (*M*diff= 1.03–1.44, 95% CI [0.66, 1.85], $p < .001$), and Q6 (*M*diff= 0.73–1.27, 95% CI [0.33, 1.62], $p < .001$). These results suggest that Muslim respondents consistently perceive a stronger link between music and self-awareness, underscoring the influence of religious and cultural contexts.

Table 9. One-way ANOVA for hypothesis test by age group.

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Q1	Between Groups	33.881	4	8.470	5.169	<.001
	Within Groups	539.077	329	1.639		
	Total	572.958	333			
Q2	Between Groups	68.239	4	17.060	15.159	<.001
	Within Groups	370.243	329	1.125		
	Total	438.482	333			
Q3	Between Groups	133.076	4	33.269	18.548	<.001
	Within Groups	590.101	329	1.794		
	Total	723.177	333			
Q4	Between Groups	41.313	4	10.328	6.408	<.001
	Within Groups	530.247	329	1.612		
	Total	571.560	333			
Q5	Between Groups	29.554	4	7.388	5.057	<.001

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

	Within Groups	480.650	329	1.461		
	Total	510.204	333			
Q6	Between Groups	75.100	4	18.775	12.905	<.001
	Within Groups	478.637	329	1.455		
	Total	553.737	333			

The results of a one-way ANOVA conducted to examine the effect of age groups on preferences related to self-expression through music. Significant differences were identified across all six questions (Q1 to Q6) at the $p < .001$ level: Q1, $F(4, 329) = 5.17$, $p < .001$; Q2, $F(4, 329) = 15.16$, $p < .001$; Q3, $F(4, 329) = 18.55$, $p < .001$; Q4, $F(4, 329) = 6.41$, $p < .001$; Q5, $F(4, 329) = 5.06$, $p < .001$; and Q6, $F(4, 329) = 12.91$, $p < .001$ (see Table 9). These findings suggest that respondents from different age groups display statistically significant variations in their preferences and perceptions regarding self-expression through music. The results provide support for hypothesis, indicating that age is a key factor influencing music related self-expression preferences. A Tukey HSD post-hoc test revealed significant differences in self-expression through music across age groups. For Q1, respondents aged 18 – 19 reported higher agreement than those aged 20-21 (*M*diff = 0.90, 95% CI [0.08, 1.72], $p = .022$), for Q2, respondents aged 24-25 rated their preferences significantly higher than those aged 20-21 (*M*diff = 1.13, 95% CI [0.68, 1.57], $p < .001$). For Q3, respondents aged 20-21 reported significantly higher ratings compared to those aged 18-19 (*M*diff = 1.11, 95% CI [0.25, 1.96], $p < .004$) and 24-25 (*M*diff = 1.62, 95% CI [1.05, 2.18], $p < .001$). For Q5, respondents aged 18-19 rated their preferences significantly higher than those aged 20-21 (*M*diff = 0.83, 95% CI [0.05, 1.60], $p < .030$). Finally, for Q6, respondents aged 20-21 reported significantly higher ratings compared to those aged 18-19 (*M*diff = 0.99, 95% CI [0.22, 1.76], $p < .005$).

Table 10. One-way ANOVA for hypothesis test by year of study.

		Sum of Squares	df	Mean Square	F	Sig.
Q1	Between Groups	36.519	2	18.259	11.267	<.001
	Within Groups	536.439	331	1.621		
	Total	572.958	333			
Q2	Between Groups	139.027	2	69.513	76.836	<.001
	Within Groups	299.455	331	.905		
	Total	438.482	333			
Q3	Between Groups	164.126	2	82.063	48.587	<.001
	Within Groups	559.051	331	1.689		
	Total	723.177	333			
Q4	Between Groups	107.783	2	53.891	38.463	<.001
	Within Groups	463.777	331	1.401		
	Total	571.560	333			
Q5	Between Groups	38.243	2	19.121	13.410	<.001
	Within Groups	471.961	331	1.426		
	Total	510.204	333			

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

Q6	Between Groups	138.667	2	69.334	55.291	<.001
	Within Groups	415.069	331	1.254		
	Total	553.737	333			

The results of a one-way ANOVA conducted to examine the effect of year of study on preferences related to self-expression through music. Significant differences were observed across all six questions (Q1 to Q6). The results of a one-way ANOVA reveal significant differences in self-expression preferences across year of study. For Q1, the analysis yielded F (2, 331) = 11.27, $p < .001$, indicating notable variation in responses. Similarly, Q2 showed a highly significant differences with F (2, 331) = 76.84, $p < .001$, and Q3 followed suit with F (2, 331) = 48.59, $p < .001$. Additional questions, such as Q4 (F (2, 331) = 38.46, $p < .001$), Q5 (F (2, 331) = 13.41, $p < .001$), and Q6 (F (2, 331) = 55.29, $p < .001$), also exhibited statistically significant influences self-expression preferences, highlighting how students'' experiences shape their use of music as a medium for self-expression (see Table 10). A Tukey HSD post-hoc test revealed significant differences in preferences for self-expression through music across years of study. For Q1, Year 1 students rated higher than Year 2 (*M*diff = 0.78, 95% CI [0.37, 1.19], $p < .001$) while Year 2 rated higher than Year 3 (*M*diff = 0.59, 95% CI [0.20, 0.98], $p < .001$). For Q2, Year 1 rated higher than Year 2 (*M*diff = 1.48, 95% CI [1.17, 1.79], $p < .001$, and Year 2 rated higher than Year 3 (*M*diff = 1.21, 95% CI [0.92, 1.49], $p < .001$. For Q3, Year 1 reported higher than Year 2 (*M*diff = 1.42, 95% CI [1.00, 1.85], $p < .001$), and Year 2 rated higher than Year 3 (*M*diff = 1.49, 95% CI [1.10. 1.89]. $p < .001$), Q4, Year 1 scored higher than both Year 2 (*M*diff = 0.76, 95% CI [0.38, 1.15], $p < .001$) and Year 3 (*M*diff = 0.58, 95% CI [0.19, 0.96], $p < .001$), while, Year 2 also rated higher than Year 3 (*M*diff = 1.34, 95% CI [0.98, 1.70], $p < .001$). For Q5, Year 1 scored higher than Year 2 (*M*diff = 0.81, 95% CI [0.42, 1.19], $p < .001$), and Year 2 scored higher than Year 3 (*M*diff = 0.59, 95% CI [0.23, 0.95], $p < .001$). Lastly, for Q6, Year 1 reported higher than Year 3 (*M*diff = 0.54, 95% CI [0.18, 0.90], $p = .002$), and Year 2 rated higher than Year 3 (*M*diff = 1.51, 95% CI [1.16, 1.84], $p < .001$). Overall, these results suggest preferences for self-expression through music decline as students' progress through their academic years. Year 1 students consistently demonstrated stronger preferences compared to Year 2 and Year 3 students. Possibly reflecting differences in engagement levels, academic priorities, or life experiences.

Table 11 One-way ANOVA for hypothesis test by field of study.

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Q1	Between Groups	16.521	6	2.754	1.618	.141
	Within Groups	556.437	327	1.702		
	Total	572.958	333			
Q2	Between Groups	14.326	6	2.388	1.841	.091
	Within Groups	424.156	327	1.297		
	Total	438.482	333			
Q3	Between Groups	22.689	6	3.781	1.765	.106
	Within Groups	700.488	327	2.142		
	Total	723.177	333			
Q4	Between Groups	17.545	6	2.924	1.726	.114
	Within Groups	554.015	327	1.694		
	Total	571.560	333			

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

Q5	Between Groups	17.389	6	2.898	1.923	.077
	Within Groups	492.815	327	1.507		
	Total	510.204	333			
Q6	Between Groups	20.810	6	3.468	2.128	.050
	Within Groups	532.927	327	1.630		
	Total	553.737	333			

A one-way ANOVA was conducted to examine the effect of the field of study on preferences for self-expression through music. The analysis revealed no significant differences across fields of study for any of the six items (Q1 to Q6) at the conventional threshold of $p < .05$, with the exception of Q6, which demonstrated a marginal effect ($F(6, 327) = 2.13$, $p = .050$). These findings suggest that field of study is not a substantial determinant of preferences for self-expression through music, with only minimal evidence of variation observed for Q6 (see Table 11).

Hypothesis (H): There are significant differences between music preferences and basic knowledge of musical types, which lead to varying emotional responses and attitudes toward academic tasks among university students.

Hypothesis testing employed a one-way ANOVA to examine the differences between musical preferences, basic knowledge of musical types, and their influence on emotional responses and academic task-related attitudes. The analysis aimed to explore how individual musical preferences and familiarity with musical genres contribute to emotional regulation and behaviours related to academic task performance. The findings provide valuable insights into interplay between music and productivity among university students. The results of a one-way ANOVA conducted to examine the effect of music preferences on self-awareness through music engagement. The analysis revealed that none of the six questions (Q1 to Q6) showed statistically significant differences at the conventional threshold of $p < .05$. These findings suggest that music preferences do not significantly influence students' perception of self-awareness development through music.

Table 12. One-way ANOVA for hypothesis test by basic knowledge on type of music

		Sum of Squares	df	Mean Square	F	Sig.
Q1	Between Groups	272.37	4	68.09	154.19	<.001
	Within Groups	145.29	329	.44		
	Total	417.67	333			
Q2	Between Groups	469.43	4	117.36	322.25	<.001
	Within Groups	119.82	329	.36		
	Total	589.25	333			
Q3	Between Groups	440.94	4	110.24	290.21	<.001
	Within Groups	124.97	329	.38		
	Total	565.91	333			
Q4	Between Groups	354.68	4	88.67	267.33	<.001
	Within Groups	109.13	329	.33		
	Total	463.81	333			

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

Q5	Between Groups	532.27	4	133.07	216.09	<.001
	Within Groups	202.60	329	.62		
	Total	734.87	333			
Q6	Between Groups	412.04	4	103.01	201.09	<.001
	Within Groups	168.54	329	.51		
	Total	580.58	333			

The results of a one-way ANOVA conducted to examine the effect of basic knowledge of musical types on self-awareness through music engagement. Significant differences were observed across six questions (Q1 to Q6) at the $p < .001$ level. For Q1, the analysis reveals that $F(4, 329) = 154.19$, $p < .001$, indicating a strong relationship between knowledge of musical types and perceptions of self-awareness. Similarly, Q2 showed an even greater effect with $F(4, 329) = 322.25$, $p < .001$, For Q3, the F-statistic was 290.21, $p < .001$, further highlighting the impact of musical knowledge on self-awareness. Additionally, Q4, Q5, and Q6 demonstrates significant variations with $F(4, 329) = 267.33$, $p < .001$, $F(4, 329) = 216.09$, $p < .001$, and $F(4, 329) = 201.09$, $p < .001$, respectively. These findings indicate that respondents with varying levels of basic knowledge about musical types experience significantly different perceptions of self-awareness through their engagement with music (see Table 12). The Tukey's HSD analysis reveals significant differences in agreement regarding basic knowledge of musical types across Q1 to Q6. Respondent who strongly disagree consistently shows the largest disparities compared to other groups. Key differences include: Q1 (Mdiff = 2.66, $p < .001$), Q2 (Mdiff= 3.05, $p < .001$), Q3 (Mdiff = 2.80, $p < .001$), Q4 (Mdiff = 1.90, $p < .001$), Q5 (Mdiff= 3.26, $p < .001$), and Q6 (Mdiff = 2.90, $p < .001$). These results underscore the pivotal role of musical understanding in shaping perceptions of music's influence on self-awareness.

Discussions

The analysis revealed that music significantly fosters self-awareness, with respondents reporting a strong connection between music and personal identity (Kuehne, 2024). This is exemplified by high mean scores for statements such as "I find that music contributes to my personal development at different stages of life (M=4.5, SD=0.53). These results align with Emotional Resonance Theory, which posits that music resonates deeply with individuals, facilitating introspection and self-discovery. Similar results have been reported in international studies where music was found to enhance emotional regulation and self-reflection among students (Yana, 2022; Blasco-Magraner et al., 2023). The present findings also echo local research showing that Malaysian youth often turn to music as a means of emotional regulation, self-reflection, and identity construction (Razali & Ma'rof, 2024a, 2024b). Significant differences in self-awareness development were observed across racial and religious groups ($p < .001$) suggesting that cultural and spiritual contexts shape how individuals perceive music's role in understanding themselves. For example, Malay respondents consistently rated music's impact on self-awareness higher than other racial groups, underscoring cultural influences on emotional engagement with music Chen (2024). This reflects the influenced of cultural and spiritual tradition. Malaysian studies show that youth often use music for identity building and emotional reflection (Razali & Ma'rof, 2024a, 2024b). Research also notes that Malay urban youth, even in alternative music scenes, continue to draw on religion and traditional values in shaping identity (Ismail, 2017). In Islamic contexts, commitment to faith has been linked to reflection, discipline, and self-regulation (Baidarus & Fithri, 2024). These findings help explain the stronger self-awareness reported by Malay respondents in this study.

Music also serves as an emotional tool, enabling individuals to process and express inner feelings that are difficult to articulate. During music creation or listening, individual re-experience and organiser their emotions, gaining a clearer understanding of their personal inner world. Specific types of music trigger memories and emotions tied to personal experiences, fostering deeper reflections on values, goals and identity (Navarro, 2015). In Malaysia, traditional and Malay music has been shown to strengthen social bonds and reinforce cultural identity (Hidayatullah et al., 2024). Practices such as recitative singing in Islamic settings also cultivate emotional awareness (Blasco-Magraner et al., 2021). Together, these findings show that local cultural practices enhance the reflective role of music. Significant cross-cultural differences emerged in how music influenced self-awareness and emotional expression. Respondents

from collectivist cultures, such as Malay and Indian groups, reported higher levels of emotional resonance with music compared to individualistic groups. This aligns with research suggesting that cultural values shape emotional experiences and music preferences (Kuehne, 2024) and Friedmann (2018). Malaysian studies similarly highlight how values embedded in music shape perceptions and lived experiences (Laengkang, 2024). These principles serve as a foundation for understanding the essence of music and its impact on both creators and audiences. Religious beliefs further mediated the relationship between music and emotional regulation (Ma, 2024), with respondents from religious communities expressing greater reliance on music for spiritual and emotional grounding (Barton, 2018). This agrees with findings from Islamic education, where music and song encourage motivation and reflection (Blasco-Magraner et al., 2021). Despite these insights, few studies have compared students from different religions in Malaysia. This study therefore adds to the literature by showing how Muslim, Hindu, Buddhist, and other students differ in their experiences of music and self-awareness.

Music influenced emotions and attitudes towards academic tasks, with respondents agreeing that music positively impacted emotions (M = 4.1, SD = 0.57) and improved attitudes before academic tasks (M = 4.5, SD = 0.53). These findings underscore music's pivotal role in emotional regulation, aligning with Emotion Regulation Theory. Music not only helps manage stress but also enhances focus by influencing emotional and cognitive states. Relaxing music effectively reduces stress and anxiety, fostering a calmer and more focused approach to academic tasks. The findings on emotional regulation further suggest implications for students' academic engagement. Respondents who reported using music to manage stress, anxiety, or mood swings also indicated greater readiness to approach academic tasks with focus and persistence. This supports the view that effective emotional regulation, facilitated by music listening or creation, enhances concentration, motivation, and resilience when completing coursework or preparing for examinations. For instance, calming genres such as jazz and instrumental music appeared to aid relaxation before study sessions, while more upbeat genres such as EDM or pop were associated with increased energy and task initiation. Conversely, music that evokes negative emotions can disrupt concentration and impede performance (Juslin & Västfjäll, 2008; Galindo, 2009; Li, 2023; Epperson, 2024; Kuehne, 2024). Chamorro-Premuzic et al. (2009) found that individuals higher in Neuroticism often use music for mood regulation. Similarly, Ma (2024) highlighted that singing enhances emotional regulation, self-confidence, teamwork, and interpersonal skills, and physiological health, including cardiovascular and respiratory benefits. These patterns highlight music's potential as a self-directed learning aid, enabling students to optimise their emotional states to meet academic demands more effectively. Overall, the findings highlight music's dual role. On the personal level, it supports reflection, identity, and spiritual growth within Malaysia's multicultural and religious context. On the academic level, it aids emotional regulation, focus, and motivation. This dual function shows how music can contribute both to student wellbeing and to intercultural understanding in Malaysian higher education.

Conclusion

This study highlights music's significant contribution to fostering self-awareness, enabling self-expression, and influencing emotions and attitudes toward academic tasks among university students. Using descriptive statistics, hypothesis testing, t-tests, and one-way ANOVA, variations across demographic factors (race, religion, age, academic background) were examined. Respondents consistently affirmed music's positive impact on personal growth and emotional regulation, with notable differences across demographics. These findings provide valuable insights into music's cultural and psychological roles, offering a foundation for future research and educational applications. Beyond its cultural and psychological significance, the study demonstrates that music-facilitated emotional regulation can positively influence students' readiness and attitudes toward academic tasks, suggesting its practical value as a tool for enhancing focus, motivation, and overall learning outcomes.

Limitations and Future Studies

This study, while offering valuable insights, has certain limitations. The sampling, restricted to Malaysian university students, limits the generalizability of findings to other cultural or geographic contexts. Broader sampling in future research could capture diverse cultural influences on music's impact. Reliance on self-reported data, though effective for subjective experiences, introduces potential response biases, integrating objective measures like physiological responses could further enhance reliability. The wide scope of musical genres and activities examined, while comprehensive, may have diluted specificity, focusing on particular genres or forms of engagement could provide

e-ISSN 2600-8572 | DOI: https://doi.org/10.11113/itlj.v9.191

deeper insights. Additionally, the cross-sectional design limits causal inferences, and longitudinal studies are recommended to explore the long-term effects of music on personal and emotional development. The absence of qualitative methods also overlooks nuanced personal experiences suggesting the need for in-depth interviews to complement quantitative data and enrich understanding as in line with May et al. (2017) that to get the benefits of multiple methods. Future research should broaden its scope to include participants from diverse ages, cultural backgrounds, and professions, enhancing the generalizability of findings and offering insights into the role of cultural norms in music engagement. Comparative cross-cultural studies could illuminate how values shape music's influences, while experimental design might establish causal relationships by testing specific interventions such as exposure to particular musical activities over time. Investigating the distinct impacts of creating, performing, or listening to music could uncover unique pathways of influence, and longitudinal studies tracking individuals over time would provide deeper insights into music's long-term effects on identity, emotional resilience, and social connections across life stages.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Acknowledgment

We would like to express our sincere gratitude to the Editorial board of University Technology of Malaysia, for their valuable guidance and helpful feedback.

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