

Article

Emotional Resonance and Identity Recognition in Chinese Late Adolescent Digital Music Consumption

Lina Li¹, Yubin Li², Jing Wu³, and Hao Gao^{2,*}

¹ College of Film-Television and Communication, Shanghai Normal University, China

² School of Journalism and Communication, Nanjing Normal University, China

³ Faculty of Social Sciences, University of Ljubljana, Slovenia

* Corresponding author (42396@njnu.edu.cn)

Submitted: 29 April 2023 | Accepted: 28 August 2023 | Published: in press

Abstract

This study conducts qualitative research on late adolescent digital music users aged 17–19 to explore their emotional resonance and identities in digital music consumption. The findings indicate that late adolescents are highly dependent on music, with it playing a significant role in their lives, particularly in meeting emotional needs and shaping identities. Late-adolescent digital music users seek to assert themselves through unique and unconventional music tastes. The study also uncovers the coexistence of personalization and socialization in their music-listening behaviors, dividing them into “music-experienced” and “music-socialized” groups. Regarding emotional motivation, the music-experienced group listens to music for personal empathy, while the music-socialized group seeks interpersonal emotional resonance through music-based social interaction. From a practical perspective, this study suggests that the digital music industry should focus on the emotional value generated by music and balance users’ personalization and socialization needs.

Keywords

adolescents; digital music; digital music platforms; emotional resonance; music consumption; music listeners; music preference; self-identity

Issue

This article is part of the issue “Digital Media and Younger Audiences: Communication Targeted at Children and Adolescents” edited by Olga Kolotouchkina (Complutense University of Madrid), Celia Rangel (Complutense University of Madrid), and Patricia Núñez Gómez (Complutense University of Madrid).

© 2023 by the author(s); licensee Cogitatio Press (Lisbon, Portugal). This article is licensed under a Creative Commons Attribution 4.0 International License (CC BY).

1. Introduction

According to the *51st Statistical Report on China’s Internet Development*, the number of digital music users in China reached 684 million by December 2022, accounting for 64.1% of total internet users (China Internet Network Information Center, 2023), making digital music consumption a significant component of internet use in China. In terms of digital music consumption, post-00s (people who were born between 2000 and 2009) and post-10s (people who were born between 2010 and 2019) in China accounted for 69.6% of digital music consumption growth in 2022, and this group has become the main growth group for digital music consumption

(Fastdata, 2023). Chinese post-00s and post-10s are typical digital natives who, having grown up with the development of the internet and experienced the rapid innovation of digital media, have become important digital entertainment consumers (Batat, 2021).

As the digital music industry flourishes, its applications have optimized the functions and interfaces to satisfy users’ needs and tend to be intelligent, interactive, socialized, and multimedia. Regarding intelligent features, digital music platforms use big data, AI, and machine learning to analyze users’ preferences and behaviors to provide personalized recommendations and services. Regarding interactive features, digital music platforms provide an extensive range of rich and

convenient interaction options. Users can play/pause, adjust the volume, and switch songs by clicking, dragging, and swiping. Music platforms allow users to comment, leave likes, and share songs for further interaction. As for socialized features, digital music media have been cooperating with social media platforms to bring greater social interaction to users. Furthermore, music platforms are transitioning from the traditional single audio format to diverse media presentations. Short music videos and live-streaming platforms offer faster and broader music transmission, creating opportunities for closer connections between artists and their fans.

The evolution of digital music applications in terms of their intelligence, interactivity, sociality, and multimedia has shaped adolescents' listening habits and experiences, presenting new music consumption characteristics (Wang, 2022). For example, intelligent features satisfy the need for personalized music and enable adolescents to customize music playlists according to their preferences and interests (Webster, 2021). Music listening reflects a private, personal self-experience and communication provides adolescents with opportunities for interpersonal communication based on music (Papinczak et al., 2015).

People aged from 17 to 19 belong to late adolescence and have the strongest personal emotions and self-identity in a lifetime (Tanti et al., 2011). As typical digital natives, the internet is an important medium for the late adolescent group to communicate with the world, learn about themselves, express themselves, and interact with others (Stern, 2004). Mobile applications and other digital devices connect young people through the internet and construct a mental and online psychological space for their generation (Gardner & Davis, 2013).

This study conducts qualitative research on late adolescent digital music users, examining their music consumption behaviors and the typical characteristics of their generation, and then provides suggestions for the development and applications of digital music.

2. Literature Review

2.1. Adolescent Music Consumption

Music has many psychosocial implications and influences on people at different stages of development (Hargreaves, 1986). Adolescence is when people have a significant fascination with music in different periods of development, making adolescents an essential and heavy music consumer group. Adolescents comprise the largest proportion of all music consumers, including digital music consumers (Levitin, 2006). Studies indicate that adolescents listen to music for up to three hours per day, reaching a cumulative time of over 10,000 hours throughout adolescence. In the mobile, media-socializing, and multi-tasking digital life, adolescents, as digital natives, have turned music listening into a media behavior without limitations of time and space (Brown & Bobkowski,

2011). Thus, the significantly increased time adolescents spend on music listening makes them expert listeners in the digital age (Miranda, 2013).

Erikson (1968) identified the core psychological task of adolescence as the formation of self-identity, and late adolescence is a critical period for doing so. Late adolescents may consider questions such as: "What kind of person am I?," "how am I seen through others' eyes?," "who do I want to be?," and "what kind of life do I expect?" They prefer music linked to their sense of inner self, which can express their mental states (Levitin, 2006). Studies found that music opens a window for the completion of psychological tasks in adolescence, which can also influence adolescent development, including identity, aesthetic experience, socialization, gender roles, emotion regulation, positive youth development, and personality and motivation (Miranda, 2013). Thus, this study targets digital music consumers of late adolescence and explores the performance, characteristics, and psychosocial factors influencing their music consumption behavior:

RQ1: What are the characteristics of late adolescents' music consumption behaviors?

2.2. Psychological Functions of Music Consumption: Emotion Regulation, Identity, and Social Interaction

Researchers emphasize the psychological role of music (Hargreaves, 1986). Merriam (1964) concluded the psychological functions of music in daily life, including emotional expression, aesthetic enjoyment, entertainment, communication, and symbolic representation. North et al. (2000) revealed three motivations for adolescents listening to music: satisfying emotional needs, building social image, and enjoyment. Hargreaves and North (1999) developed the social psychology of music. They highlighted three social functions of music: the formulation and expression of self-identity, the establishment and maintenance of interpersonal relationships, and providing a means of mood management. Scholars have also identified four music uses among adolescents: improving mood, solving problems, achieving personal identity, and marking social identity (Ter Bogt et al., 2011). Current research on the psychological functions of music consumption mainly focuses on three perspectives: the means of emotion regulation in daily life, the formulation and expression of self-identity, and the establishment and maintenance of interpersonal relationships.

Whether music continues to serve the above psychological functions in the daily life of late adolescents is related to changes caused by social and technological developments in the music industry. These changes force us to rethink the psychological function of music listening for late adolescents in the digital native generation. This study employs the three social psychological functions of music proposed by Hargreaves and North (1999) for analysis: emotional function, self-identity, and social networking.

2.2.1. Music, Aesthetics, and Emotion Regulation

The main reason why people engage with music is for the emotional experience (Juslin & Sloboda, 2001). Emotion regulation is usually associated with aesthetics (Levitin, 2006); the aesthetic experience of listening to music can help people obtain pleasure, safety, and immersion, motivating them to seek out music (Levitin, 2006).

Adolescents view music as a resource to satisfy emotional needs, especially for emotion regulation (Saarikallio & Erkkilä, 2007). A study based on the uses and gratifications theory found that adolescents use music to improve their moods (Bever, 1988). Adolescence is a typical period of emotional fluctuation; adolescents show emotional polarities. Their emotional variability and stubbornness, such as strong, soft, violent, and gentle, can coexist and exchange (North et al., 2000). Young people in their late teens and early 20s easily experience extreme emotions, such as anxiety, sadness, and romantic passion (Saarikallio & Erkkilä, 2007). Adolescents need a safe space to confide troubles, exchange ideas, and keep secrets when facing psychological uneasiness and anxiety. Through music listening, they can regulate their emotions, distract and transfer painful and negative emotions, and gain comfort (Schwartz & Fouts, 2003).

Emotional regulation, coping, and music are fundamental to adolescents' success in adapting to developmental issues and maintaining resilience amid daily stresses and strains of life (Zimmer-Gembeck & Skinner, 2011). Previous research provides two perspectives for understanding the emotional regulation of music. One perspective suggests that music regulates and influences emotions through biological structures and processes (Peretz & Zatorre, 2003). Music activates neurotransmitters associated with pleasure, such as dopamine (Menon & Levitin, 2005), and music can also regulate stress-related hormones, such as cortisol (Khalifa et al., 2003). The experimental research revealed the other perspective that listening to mood-congruent popular music, such as listening to sad music when feeling sad, can provide a sense of emotional sharing, similar to interacting with an empathetic friend (Lee, 2009). Thus, we asked the following question:

RQ2: Does digital music listening serve the function of emotion regulation and emotional satisfaction? Moreover, how is the function realized?

2.2.2. Music Preference and Identity

Scholars have argued that music has a socially shared meaning (Dillman Carpentier & Potter, 2007), influencing the formation of personal identity (Gunn & Hall, 2008). The interactive nature of digital media further increases the influence of music in constructing identity (Church, 2017).

Music selection and preference become markers of individual and group identity (Hagen & Lüders, 2017).

People use music preferences to manage social impressions, assess similarities to each other, and obtain social perceptions about the personalities and values of people they meet (Rentfrow & Gosling, 2006). Studies on popular music indicated that music could distinguish social groups and further affect personal identity formation (Hagen & Lüders, 2017). The media application model posits that adolescents' self-identity determines their choice of media products. Music is a source of social cognitive norms that influence the development of adolescents' self-concept (Kistler et al., 2010). Research on the music consumption process of pre-adolescent girls found that they find their "real me" through music consumption (Baker, 2001). Turner and Tollison (2021) found that pop music can inform the personal identity of moderate to heavy pop music listeners, and their music selection is guided by their desire to align their music listening choices with their self-concept. Their music consumption is a marker of their identity, related to their inner sense of self, and influences how they represent themselves to others (Turner & Tollison, 2021). In addition to searching for themselves, many people search for songs and musical artists that align with or may challenge their personal identities and the social identities they present to others (Miranda, 2013).

Adolescence is also critical for developing musical tastes (Hargreaves et al., 2006). A 21-month longitudinal study revealed that aesthetic appreciation of music develops in early adolescence and stabilizes in late adolescence (Mulder et al., 2010). Adolescence is also a turning point for musical preferences, with most people developing their musical tastes between the ages of 18 and 20. In contemporary society, people's interest in music reaches its peak during adolescence, and adolescents listen to friends' preferred music to find a sense of identity, connect with people they want to be with or have something in common with, or to build a sense of community (Levitin, 2006).

Digital music platforms analyze users' preferences and behavior and then provide users with personalized recommendations and services, further strengthening the type of music that they prefer. So, this study asked:

RQ3: Do digital music users in late adolescence have significant music preferences? What identity and sense of belonging do they establish through music consumption?

2.2.3. Music Listening and Social Interaction

The essence of musical expression and communication is interpersonal communication, which facilitates social relationships (Turner & Tollison, 2021). Digitization has changed how music is produced, marketed, distributed, consumed, and shared—bringing a new era of interactive music consumption (Pedrero-Esteban et al., 2019). A typical feature of the evolution of digital music platforms is the ability to communicate with others

through music. Social functions embedded in digital music platforms enable users to establish connections and use music as a social object (Hagen & Lüders, 2017). Moreover, digital music platforms integrate social functions; they facilitate a connection between music listening and interpersonal communications, whether based on strong or weak ties (Tepper & Hargittai, 2009).

Music is a social bonding element that strengthens ties with close friends (Lizardo, 2006). As a prominent digital music platform in China, NetEase Cloud Music launched the Share Play program, which allows users to listen to the same music simultaneously with their friends in real-time. This feature enables two friends in different locations to share the experience of listening to a song together, eliminating the sense of spatial distance and maintaining intimacy while they discuss and enjoy their favorite music. Therefore, promoting music as a means of strong social interaction is reflected in interpersonal communication in which music is used as a medium and topic of discussion.

Common musical interests among users can facilitate the formation of weak ties (Baym & Ledbetter, 2009), which scholars call “para-social relationships.” The concept of “para-social interaction,” introduced by Horton and Wohl (1956), recognizes a subjective sense of interpersonal intimacy or friendship with a mediated character (rather than a real person) based on media exposure. Para-social interaction is evident in the interactions with one’s favorite artists and the socialization and engagement generated through a shared interest in music. For instance, as a leading digital music platform in China, NetEase Cloud Music has launched a pioneering music social interaction community called “Cloud Village,” allowing users to interact with artists, musicians, and fellow users, as well as to share music and exchange ideas.

The emergence of digital music media allows popular music fans to build direct relationships with their favorite artists on music media. These online social interactions shape the digital music selection process, influence music sharing, and affect the relationships between artists and their fans (Epps & Dixon, 2017). Studies investigating the popular music para-social interaction scale have discovered that music listeners utilize social media to bridge the interpersonal gap between themselves and the artists (Turner & Tollison, 2021). Regular music listeners often report experiencing a sense of kinship, intimacy, and interpersonal connection with their favorite artists (Turner & Tollison, 2021).

In online music communities, users listen to music and follow and build friendships with other users. This weak social relationship is formed by exchanging and sharing music of common interest (Epps & Dixon, 2017). Zhou et al. (2018) examined a group of active users whose NetEase music accounts are associated with their Weibo accounts and confirmed the homogeneity between users and their friends in online music listening. The similarity in music tastes is also the internal cause of promoting interpersonal communication with weak ties.

Driven by shared musical tastes, weak ties can trigger a sense of social homophily, including a sense of belonging and group identity. Thus, this study asks that:

RQ4: How do adolescent digital music users engage in social interaction in the music community? What are the underlying motivations behind the social interactions? How should there be a focus on satisfying these motivations in digital music consumption?

3. Method

3.1. Data Collection

From November 2022 to January 2023, a pre-interview was conducted with 15 university students between the ages of 17 and 19 using a snowball approach. These unstructured interviews, both offline and online, focused on digital music listening habits. Based on responses, the interviewer asked follow-up questions. Each session lasted 30 minutes to one hour.

The pre-interview explored the interviewees’ digital music app usage, behaviors, motivations, features, and evaluations. It shaped the design of the formal interview and optimized our data collection approach. Observing a preference for online text over in-person communication among participants, we chose written self-experience reports for the formal interview to encourage more authentic self-expression.

In March 2023, first-year students (aged 17–19) from Nanjing Normal University’s School of Journalism and Communication were prompted to track their digital music habits for two weeks and provide self-experience reports. As detailed in Supplementary File Table 1, these reports contained six open-ended questions, addressing topics from self-assessed listening behavior to perspectives on music socialization and media integration. By 30 March 2023, of the 133 reports received, 28 were excluded for lacking detail, leaving 105 valid for analysis.

3.2. Sample

Table 3 of the Supplementary File shows the demographic information of the valid sample. There are 17 males and 88 females, between the ages of 18 and 19. According to the official website of the researched school, the ratio of male students to female students is 1:5. Thus, the sample male-to-female ratio is basically in line with the gender distribution of the first-year students in their school. We also randomly generated numbers (1–105) among the sample for statistics and analysis.

3.3. Thematic and Textual Analysis

For the collected self-reports, this study employed DiVoMiner, an integrated online data analysis tool that merges traditional content, text analysis, and big data analytics. It is designed for coding textual data, statistical

word frequency counting, and associative rule analysis; it has been widely adopted in social science research (DiVoMiner, 2023). Using a predefined codebook encompassing six themes (see Supplementary File Table 2), two coders engaged in dual coding, achieving a Cohen's Kappa coefficient of $\kappa = 0.84$, further delineating the thematic distribution of these self-reports. The open-ended responses show commonalities and individual variations among participants; thus, we further conducted textual based on the interview content to explore the digital music consumption characteristics.

4. Results

4.1. Typical Digital Music Listening Behaviors Among Late Adolescents

The interviewees are digital natives between the ages of 18 and 19 who grew up with digital technologies. Their daily life is closely related to digital media, and their digital music listening also reflects the characteristics of their generation (see Supplementary File, Table 4).

Regarding "do you consider yourself a digital native," 77% ($N = 81$) agreed, and their music consumption behaviors align with their identity as digital natives. As one interviewee (No. 002) said, "We are the digital generation who lives based on the internet, and music listening is also closely connected to the internet." The interviewees show they use at least one regular music streaming application and have used it for six years on average. Of the interviewees, 88% have listened for over four years, and 42.9% have used music streaming applications for over seven years. The self-reports indicate some common characteristics of music listening behavior: greater dependence on music ($N = 36$, 14.8%), accompaniment ($N = 70$, 28.7%), and private and listening experience-oriented ($N = 88$, 36%).

4.1.1. Greater Dependence on Music

The most typical feature distinguishing the interviewees from other generations is that they are more dependent on music and report highly frequent use of music applications. Many say that music-listening has become a habit in their spare time, accompanying many other activities and permeating daily life. On average, the interviewees spend 2.34 hours per day listening to music, and more than 66% of them do so for over an hour per day, showing significant dependence on music. For example: "I listen to music with headphones on almost 24/7 (except for study)," (No. 036); and "as digital natives, we are much more dependent on music, and I can't live without music". I usually put on my headphones for music listening unconsciously" (No. 085).

As stated, "My parents rarely use music applications to listen to music. They usually listen to the car stereo or use Xiaomi or other stereos. They also do not think that no music listening equals missing life" (No. 005).

The interviewees are aware of their deep need for and heavy dependence on music. They recognize its importance and believe that "music is an integral part of life" (No. 077). They differentiate themselves from their parent's generation in that their parents do not have the experience of "not being able to live without music" (No. 013).

4.1.2. Habitual and Accompanying Listening Context

Regarding their love for and dependence on music, the interviewees generally view music listening as a habit or a part of life. As music listening only mobilizes auditory attention, it can accompany many other activities that they can do at the same time. This kind of context also reflects the uniqueness of the digital generation.

The first type of context is accompanied by fragmented time (e.g., listening to music when walking or waiting). As reported, "I listen to music more often in fragmented time, such as waiting for the bus or the time on the subway" (No. 103). Other multi-tasking digital activities accompany the second type of context. For instance, they listen to music while playing games, chatting with others online, and doing mechanical tasks online. For example, "I listen to music while doing work without technical challenge simultaneously" (No. 075). The third type of context is related to music being an accompaniment to their whole lives. For example, "Music listening is like the Background Music of my life. It does not cost me much time but is very important" (No. 033). Music serves as a friend when people are in a bad mood, feel bored, or at bedtime—music listening thus becomes a habitual part of their emotional self-regulation.

4.1.3. Personalized Music Listening Enjoyment

As Chinese university students live in groups, their music listening provides a "private" listening experience. The respondents usually use mobile music applications and wireless Bluetooth earphones to listen to music. According to our observations, almost every university student interviewed has earphones plugged into their ears. "I wear headphones when listening to music. It is a sense of ritual to me, and the headphones can separate me from the noisy world for a short time" (No. 030). Earphones help make their music listening a private activity. However, they also listen to music in their personal space with an external stereo. For example, "Usually, I use earphones to listen to music, but I prefer a home pod at home. I like the atmosphere that music is everywhere in my room" (No. 095).

When listening to music, surround sound, earphones, and earplugs improve the personalization of the music listening experience. Because the sound is transmitted to the eardrum through the earplugs, free of external noise, the listener has a much more immersive experience, and they feel a sense of being surrounded by the music or even penetrated by it.

In line with the need for private music listening, interviewees emphasized the importance of the “immersive” sensory experience when using music applications. They also expect to enhance the music listening experience through equipment and software improvement. In addition to the pursuit of earphone quality, the sound quality of tracks and sound effects (e.g., high-resolution vocals, 3D surround, and exclusive stereo) have also influenced their choice of music applications. “It is convenient to enjoy music in an immersive way only with earphones, and you can also adjust the vocal mode, wide surround, and many other modes within the music application features” (No. 056).

4.2. Music Preferences and Self-Identity

4.2.1. Diversity and Personalization of Music Preferences

“As digital natives, we listen to music from different eras with diverse genres and languages. We are very receptive to new things” (No. 086). The interviewees categorized their music preferences and listed the music styles they like and frequently listen to (see Supplementary File, Table 4). Their music preferences reflect strong individual differences and diversity. In addition to Chinese pop music, they also listed Western pop music genres from Europe, America, Japan, Korea, and various niche music genres such as ancient Chinese, instrumental, K-pop, ACG, school ballads, and rock music.

Cultural interests significantly influence music preferences and are an extension of cultural preferences. In self-reports, novel readers are more inclined to listen to fan-fiction music and theme music of audio drama; Japanese anime fans and anime series followers prefer anime-related music; and TV series fans are more inclined to the relevant original soundtrack.

Furthermore, interviewees appreciate the music labeling and intelligent recommendations in music applications: “The song playlist is very necessary! An application without a personalized playlist is terrible” (No. 047). They believe that a labeled playlist reflects how music applications understand them. Labeling users according to their music listening styles in music applications is very popular. For example, “QQ Music labels me as INFP-Healer (a personality type of Myers–Briggs Type Indicator), and a romantic poet, and I like the label” (No. 055); “At the end of 2022, I checked my annual report on Spotify and NetEase cloud music. It is an interesting experience to compare my cyber image built from music tastes on different platforms” (No. 047); “If they label me as a neo-traditional girl or folk youth, I will have a little bit of ‘vanity’” (No. 009). The “vanity” mentioned by interviewees is a sense of self-identity established based on music preferences, and self-identity is a self-image built from music listening.

4.2.2. Music Choice of Anti-popularization

Adolescents want to prove themselves through their distinctive and unconventional music tastes, reflected in their preference for “niche” rather than “popular” music choices. The self-reports mentioned the “chain of contempt” related to music preferences. They consider popular music, especially the virally spread music from Douyin, to be at the bottom of the contempt chain, while the more niche the music is, the more worthy it is of being listened to. They also mention that they would follow well-known artists or appreciate the works of talented new singers, internet celebrities, and amateurs. Their unique music preference and choice value reveal a group’s resistance to mainstream standards and desire to distinguish themselves through their particular music preference.

Motivated by anti-popularization, late adolescents seek niche and “treasure” music (good but not well-known). They wrote, “I feel annoyed if the public discovered my treasured music and widely spread it in short videos” (No. 007). Regarding music listening, late adolescents prefer the music they like rather than the trending music. They consider themselves more unique when listening to niche music than those who listen to trending music, and they even “do not want [their] favorite music or artist to be famous but to be ‘private’” (No. 038).

4.3. The Emotional Value of Digital Music Listening Behavior: From Personal Empathy to Interpersonal Resonance

In terms of the question, “What is the meaning of music listening to you,” the answers reflect their motivations for listening to music, including emotion regulation, solitude in self-spiritual space, emotional acquisition, and companionship, emotional resonance, killing time, aesthetic cultivation, improving work/study efficiency, inspiration, fan activities, interpersonal communication, and reminiscing about the past. The emotional value of music is the most mentioned motivation (see Supplementary File, Table 4). The answers to, “How is your emotional need being met?” indicate that music’s emotional regulation and resonance mainly reflect the satisfaction of emotional motivation.

Regarding digital music listening behavior and the function of music applications, late-adolescent digital music users can be divided into “music-experienced” and “music-socialized.” The “music-experienced” group focuses on satisfying personal music-listening experiences, while the “music-socialized” group relies on music for social networking. Regarding emotional motivation, the music-experienced group listens to music for personal empathy, while the music-socialized group expects interpersonal emotional resonance through music-based social interaction.

4.3.1. Empathy: Satisfying the Emotional Motivations of Music-Experienced Users

For music-experienced users, the emotional regulation of music reflects their emotional satisfaction with the music-listening experience, encompassing pleasure, relaxation, and emotional catharsis derived from music aesthetics.

Music-experienced users aim to discover more music they like and enjoy a more immersive experience when using music applications. The key factors influencing their choice of music applications are concise functions, convenience, rich playlists, and personalized recommendations. For example, “If you are experiencing negative emotions and play a sad song, the application will recommend music with a similar style and tone, which is in line with your current preferences and keeps you in the mood” (No. 041). The accuracy of big data recommendations allows the users “to listen to the recommended music without manually switching song, and then creates the immersive experience of music listening for a long time” (No. 009).

The interviewees show great affection for their used music applications and view the applications as their “friends.” They are intensely loyal to their particular applications and unwilling to change them. The main reason is due to the playlists, especially the highly popular personalized recommendation function. The personalized playlists allow users to listen to the music they want and need, and this resonance that it has with them personally makes users feel that “the application understands me like a friend” (No. 007). The annual report of the music application is also attractive. The music application will generate a personalized annual report for users’ music-listening data. The music report is an important emotional memory asset for late adolescents. Much like a music journal, they record their personal life and growth through their music listening habits.

In addition, interactive functions, such as music recognition, private FM (frequency modulation), podcasts, and music video appreciation, improve users’ personal music experience and gain recognition from music-experienced users. Of the interviewees, 47% ($N = 50$) supported extending music applications’ features, and 33% ($N = 35$) were against it. The latter group of music users does not use the socialized function of the applications: “Uh, I only need the application for music listening, and I do not need other functions” (No. 101); “I rarely use the social and video viewing features. In my opinion, these functions make music listening more complex” (No. 080). They do not need social interaction when listening to music and consider the socialized function a kind of interference with the music experience.

4.3.2. Emotional Resonance: Satisfying the Emotional Motivation of Music-Socialized Users

Both music-experienced and music-socialized users seek the emotional value of music. Music-experience users pursue emotional communication with music, which is a process of self-propagation. Music-socialized users seek emotional resonance with people who share the same music preferences and build para-social interactions with artists. They want to socialize for interpersonal interaction and gain a sense of belonging through music.

Music-socialized users can be divided into two categories: social interaction with close friends based on solid relationships and hobby social interaction based on weak relationships. The former type of users interacts with friends in real life around music, such as by sharing personal moments and listening to and experiencing music together. They wrote: “In real life, my friends and I often share music that can move us” (No. 017). Also, they use the shared play function to listen to music with friends in different places: “I like that we can listen to the same music at the same time no matter where we are, and music connects our hearts” (No. 035).

The latter type of users find a sense of belonging and identity by commenting, reading song reviews, and joining a music community to communicate with like-minded people. In addition to music listening, reading comments is the most used function by music-socialized users (see Supplementary File, Table 4). The comment is also interpersonal; leaving opinions and comments is a primary means for developing para-social interaction. For example, fans can leave messages to their favorite artists, express their opinions about music, and find a star-struck community: “People who share the same interest gather here. We review and purchase albums and peripherals of our favorite artists and music. It is an online community where people can find their identity and belongingness” (No. 017).

Music users engage in interpersonal interactions through commenting and creating a para-social relationship based on a common favorite music topic. The social function of comments provides a space to communicate, meaning that, as our interviewees stated: “Comments satisfy people’s desire for expression and communication after listening to music” (No. 077); “I can always find people who have similar opinions to mine, and I can freely express the happiness brought by music” (No. 039); and “music [is] a way or a medium for me to gain resonance with many netizens” (No. 016).

Users gain an understanding of music and emotional resonance by reading the comments. They exchange songs and ideas when sharing music: “The music and comments make me feel a resonance that I have connected with thousands of strangers worldwide” (No. 019). They have the feeling of being understood, such as “I find similar experiences or emotions from the music comments. I realize there are so many people like me, and I am not alone” (No. 036).

5. Discussion and Suggestion

5.1. *The Individualized Approach to the Emotional Function of Music: Emotional Consistency*

Emotion regulation is a significant challenge at adolescents' stage of psychological development (Gardner & Davis, 2013), and the fact that music can help them relieve negative emotions and find comfort and approval is one of the reasons why they rely so heavily on it.

People need to form and maintain close relationships characterized by caring, affection, and mutual concern. People often look for emotionally aligned and sympathetic individuals who provide emotional support, belonging, and comfort. The desire to be understood and to receive emotional support is a typical psychological need reflected by the adolescent group. For this group, the role of music is to trigger and amplify emotions (Bever, 1988). When the emotions expressed by the music are consistent with their emotions, the music will play an empathic function, thus becoming a "friend" in their minds.

Music selection is associated with the sense of "inner self" and expresses the mental and emotional state (Liu & Reimer, 2008). Emotionally aligned aesthetic experiences (e.g., listening to sad music when feeling sad) provide a sense of emotional sharing, similar to interacting with a friend. Through this experience, people feel that their emotions are understood and that they are cared for, supported, and validated (Lee, 2009). Thus, through emotionally congruent aesthetic stimuli, people seem to have found an empathetic friend, gaining a sense of friendship in music listening (e.g., "music is my friend"). This ability of music to evoke the presence of others may explain why adolescents use it to alleviate loneliness (North et al., 2000).

Digital music personalized playlists and recommendations can realize emotional consistency (Webster, 2021). Thus, the unique and personalized listening experience has become a typical feature of digital music consumption and can be a core feature determining the competitiveness of digital music platforms. However, the personalized recommendations also have drawbacks for users, such as by creating "emotional cocoons." The music recommendation of "emotional consistency" may limit users' access to other styles, thus making users become immersed in music with the same emotional atmosphere and so especially vulnerable to the possible adverse effects of negative emotions.

5.2. *From Personal Experience to Collective Empathy: The Communicative Power of Musical Experience*

Turner and Tollison (2021) emphasized that music consumption is interpersonal interaction, especially for digital music. This study also supports this finding. People who share the same music interests or follow the same artists communicate with each other on digital music

platforms about their listening experience and music reactions, and they can become friends within the online community and the music platform due to the sense of homogeneity created by the communication.

Bever (1988) argued that the key to music's emotional power is that it stimulates cognitive operations that free people's private emotions. Although music listening is a personal experience, the emotional power of music is further stimulated through interpersonal communication, allowing music listening to promote a sense of belonging and connect self-awareness to a larger community or even a "generation" of peers (van Dijck, 2007).

Music has an interpersonal value that transcends strong ties and builds shared musical tastes (Lizardo, 2006). The realization of individual music experience to collective resonance is aided by communication and the advent of sharing in the digital music listening process. Music is a collective experience that transcends the individual; the "we" in the music experience is not equivalent to the same social class or group, and it is an emotional community that is felt due to emotional resonance in the musical experience (Morris, 2013). Researchers explain it as a result of interpersonal homogeneous "attraction" (similarity), where people tend to form friendships with those who are similar rather than different and tend to form bonds with like-kind rather than other types of groups (Centola et al., 2007). Integrating social functions also allows users to become musical partners with each other (Hagen & Lüders, 2017).

Digital media breaks down one-way social relationships, and multidirectional exchanges between music lovers and artists promote intimacy in para-social relationships (Turner & Tollison, 2021). With the development of digital technology, music apps have developed more social interaction functions, such as live streaming, but the interviewees also expressed concerns. For example, some social interaction functions are irrelevant to music and even reduce the experience of music applications. Therefore, how to promote "homogenous feeling" is the focus for developing the social function of music applications.

5.3. *The Balance Between Personalization and Socialization*

This study finds that two types of users (the music-experienced and the music-socialized) have opposing views on the need for social functions in music applications. Music-experienced users focus more on the immersive personal experience of music listening. In terms of digital music listening, surround sound, earphones, and earplugs improve the personalization of the music listening experience. The earplugs transmit the sound to the eardrum, and the listener feels surrounded by the music or even penetrated by it, thus providing a much more immersive experience, isolated from outside noise. Furthermore, personalized music recommendations, more user-friendly interactive interfaces, and

immediately available options make it easier for people to immerse themselves in the sensory aesthetics brought by music. Thus, digital music is more likely to bring people to an undisturbed and isolated music environment, which enhances the sensory aesthetic experience of music. They dislike functions irrelevant to music listening and believe these functions will reduce the simplicity of the interface and the convenience of use. They also express concerns about the possible loss of privacy through social functions.

In contrast, music-socialized users believe the current music application provides a “music software + social software” combination. They want more practical social interaction functions from the music application but want the application to stay consistent with the essence of music software.

Thus, when developing functionality, balancing the satisfaction users get through music listening and social interaction is a significant issue for digital music applications.

6. Conclusions

This study observed that late adolescents exhibit unique characteristics in music consumption, which are influenced by the digital media environment and their media usage behavior. Their music-listening behavior tends to be concurrent with other activities, indicating a multi-tasking approach, and they seek an immersive sensory experience. Additionally, they highly rely on music; it has a significant role in their lives. The findings suggest there is potential for a research focus on this group.

This study finds that music helps late adolescents manage emotions, form self-identity, and facilitate interpersonal interaction. Regarding emotional management, late adolescents match their sentiments with music, further validating the emotional consistency theory. In digital music consumption, they attempt to express their uniqueness through the “distinctiveness” of the tracks they listen to and confirm their “distinctiveness” through their music preferences. This finding further validates the role of music in fostering the formation of self-identity among adolescents. Additionally, digital music’s interactive and social attributes promote interpersonal communication based on music topics and experiences, which further attests to the significance of digital music in improving social interaction and interpersonal communication among this age group.

This study highlights the coexistence of personalization and socialization in their music-listening behavior. The findings suggest that this coexistence has essential implications for developing digital music products. From a practical standpoint, the study emphasizes the need for the digital music industry to recognize the unique music consumption habits of late adolescents and cater to their desire for immersive experiences. Additionally, it suggests that the industry should address late adolescents’ psychological need for self-identification through music

consumption by labeling personalities based on different music preferences. Moreover, music applications can utilize algorithms to analyze personality traits associated with music preferences and recommend music accordingly, thereby strengthening late adolescents’ sense of self-identity. Lastly, while social interactions facilitated by digital music apps can enhance emotional resonance in music listening, it is essential to balance personalized experiences and social functions.

This study has limitations in that the interviewees are first-year university student volunteers, which cannot fully reflect the entirety of digital music users aged 18–19 in China. This limitation suggests that future research needs to consider the diverse characteristics of this group. Furthermore, this study has yet to consider the impact of differences in demographic characteristics on behavioral differences. The impact of demographic differences such as gender, education, occupation, and economic level on digital music consumption behavior, motivation, and preference needs further exploration in future research.

Acknowledgments

The authors would like to express their gratitude to Raquel Silva, the Academic Editors Olga Kolotouchkina, Celia Rangel, and Patricia Núñez Gómez, as well as the reviewers for their invaluable support. Special thanks are also extended to the students from the School of Journalism and Communication at Nanjing Normal University who contributed self-experience reports for this research. This article is supported by the Qinglan Project of Jiangsu Province, China.

Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

References

- Baker, S. (2001). “Rock on, baby!”: Pre-teen girls and popular music. *Continuum*, 15(3), 359–371. <https://doi.org/10.1080/10304310120086830>
- Batat, W. (2021). *Youth marketing to digital natives*. Edward Elgar Publishing.
- Baym, N. K., & Ledbetter, A. (2009). Tunes that bind? Predicting friendship strength in a music-based social network. *Information, Communication & Society*, 12(3), 408–427.
- Bever, T. G. (1988). A cognitive theory of emotion and aesthetics in music. *Psychomusicology: A Journal of Research in Music Cognition*, 7(2), 165–175. <https://doi.org/10.1037/h0094171>

- Brown, J. D., & Bobkowski, P. S. (2011). Older and newer media: Patterns of use and effects on adolescents' health and well-being. *Journal of Research on Adolescence*, 21(1), 95–113. <https://doi.org/10.1111/j.1532-7795.2010.00717.x>
- Centola, D., Gonzalez-Avella, J. C., Eguiluz, V. M., & Miguel, M. S. (2007). Homophily, cultural drift, and the co-evolution of cultural groups. *Journal of Conflict Resolution*, 51(6), 905–929.
- China Internet Network Information Center. (2023). Di 51 ci zhongguo hulian wangluo fazhan zhuangkuang tongji baogao [The 51st statistical report on internet development in China]. <https://www.cnnic.cn/NMediaFile/2023/0322/MAIN16794576367190GBA2HA1KQ.pdf>
- Church, S. H. (2017). Against the tyranny of musical form: Glitch music, affect, and the sound of digital malfunction. *Critical Studies in Media Communication*, 34(4), 315–328. <https://doi.org/10.1080/15295036.2017.1333624>
- Dillman Carpentier, F. R., & Potter, R. F. (2007). Effects of music on physiological arousal: Explorations into tempo and genre. *Media Psychology*, 10(3), 339–363.
- DiVoMiner. (2023). Shiyong DiVoMiner pingtai wancheng de bufen chengguo (chixu gengxin) [Partial achievements completed using the DiVoMiner platform (continuously updated)]. https://www.divominer.cn/blog-single.html?_id=621
- Epps, A. C., & Dixon, T. L. (2017). A comparative content analysis of anti- and prosocial rap lyrical themes found on traditional and new media outlets. *Journal of Broadcasting & Electronic Media*, 61(2), 467–498. <https://doi.org/10.1080/08838151.2017.1309411>
- Erikson, E. H. (1968). *Identity: Youth and crisis*. Norton.
- Fastdata. (2023). 2022 nian zhongguo shuzi yinyue hangye dongcha baogao [2022 China digital music industry report]. <https://baijiahao.baidu.com/s?id=1756787645930931874&wfr=spider&for=p>
- Gardner, H., & Davis, K. (2013). *The app generation: How today's youth navigate identity, intimacy, and imagination in a digital world*. Yale University Press.
- Gunn, J., & Hall, M. M. (2008). Stick it in your ear: The psychodynamics of iPod enjoyment. *Communication and Critical/Cultural Studies*, 5(2), 135–157. <https://doi.org/10.1080/14791420801989728>
- Hagen, A. N., & Lüders, M. (2017). Social streaming? Navigating music as personal and social. *Convergence: The International Journal of Research into New Media Technologies*, 23(6), 643–659. <https://doi.org/10.1177/1354856516673298>
- Hargreaves, D. J. (1986). *The developmental psychology of music*. Cambridge University Press.
- Hargreaves, D. J., & North, A. C. (1999). The functions of music in everyday life: Redefining the social in music psychology. *Psychology of Music*, 27(1), 71–83.
- Hargreaves, D. J., North, A. C., & Tarrant, M. (2006). *Musical preference and taste in childhood and adolescence*. Oxford University Press.
- Horton, D., & Wohl, R. (1956). Mass communication and para-social interactions: Observations on intimacy at a distance. *Psychiatry*, 19(3), 215–229. <https://doi.org/10.1080/00332747.1956.11023049>
- Juslin, P. N., & Sloboda, J. A. (2001). *Music and emotion: Theory and research*. Oxford University Press.
- Khalifa, S., Dalla Bella, S., Roy, M., Peretz, I., & Lupien, S. J. (2003). Effects of relaxing music on salivary cortisol level after psychological stress. *Annals of the New York Academy of Science*, 999, 374–376.
- Kistler, M., Rodgers, K. B., Power, T., Austin, E. W., & Hill, L. G. (2010). Adolescents and music media: Toward an involvement-mediational model of consumption and self-concept. *Journal of Research on Adolescence*, 20(3), 616–630. <https://doi.org/10.1111/j.1532-7795.2010.00651.x>
- Lee, J. (2009). Contesting the digital economy and culture: Digital technologies and the transformation of popular music in Korea. *Inter-Asia Cultural Studies*, 10(4), 489–506. <https://doi.org/10.1080/14649370903166143>
- Levitin, D. J. (2006). *This is your brain on music: The science of a human obsession*. Penguin.
- Liu, K. T., & Reimer, R. A. (2008). Social playlist: Enabling touch points and enriching ongoing relationships through collaborative mobile music listening. In H. Hofte & I. Mulder (Eds.), *MobileHCI '08: Proceedings of the 10th international conference on human computer interaction with mobile devices and services* (pp. 403–406). ACM Press. <https://doi.org/10.1145/1409240.1409299>
- Lizardo, O. (2006). How cultural tastes shape personal networks. *American Sociological Review*, 71(5), 778–807. <https://doi.org/10.1177/000312240607100504>
- Menon, V., & Levitin, D. J. (2005). The rewards of music listening: Response and physiological connectivity of the mesolimbic system. *NeuroImage*, 28(1), 175–184.
- Merriam, A. P. (1964). *The anthropology of music*. Northwestern University Press.
- Miranda, D. (2013). The role of music in adolescent development: Much more than the same old song. *International Journal of Adolescence and Youth*, 18(1), 5–22. <https://doi.org/10.1080/02673843.2011.650182>
- Morris, M. (2013). Communicative power and ideology in popular music. *Journal of Communication Inquiry*, 37(2), 113–127. <https://doi.org/10.1177/0196859913479800>
- Mulder, J., Ter Bogt, T. F. M., Raaijmakers, Q. A. W., Gabbainn, S. N., & Sikkema, P. (2010). From death metal to R&B? Consistency of music preferences among Dutch adolescents and young adults. *Psychology of Music*, 38(1), 67–83.
- North, A. C., Hargreaves, D. J., & O'Neill, S. A. (2000). The importance of music to adolescents. *British Journal of Educational Psychology*, 70(2), 255–272. <https://doi.org/10.1348/000709900158083>

- Papinczak, Z. E., Dingle, G. A., Stoyanov, S. R., Hides, L., & Zelenko, O. (2015). Young people's uses of music for well-being. *Journal of Youth Studies, 18*(9), 1119–1134. <https://doi.org/10.1080/13676261.2015.1020935>
- Pedrero-Esteban, L. M., Barrios-Rubio, A., & Medina-Ávila, V. (2019). Adolescentes, smartphones y consumo de audio digital en la era de Spotify [Teenagers, smartphones and digital audio consumption in the age of Spotify]. *Comunicar, 27*(60), 103–112. <https://doi.org/10.3916/C60-2019-10>
- Peretz, I., & Zatorre, R. (2003). *The cognitive neuroscience of music*. Oxford University Press.
- Rentfrow, P. J., & Gosling, S. D. (2006). Message in a ballad: The role of music preferences in interpersonal perception. *Psychological Science, 17*(3), 236–242. <https://doi.org/10.1111/j.1467-9280.2006.01691.x>
- Saarikallio, S., & Erkkilä, J. (2007). The role of music in adolescents' mood regulation. *Psychology of Music, 35*(1), 88–109. <https://doi.org/10.1177/0305735607068889>
- Schwartz, K. D., & Fouts, G. T. (2003). Music preferences, personality style, and developmental issues of adolescents. *Journal of Youth and Adolescence, 32*, 205–213.
- Stern, S. R. (2004). Expressions of identity online: Prominent features and gender differences in adolescents' World Wide Web home pages. *Journal of Broadcasting & Electronic Media, 48*(2), 218–243. https://doi.org/10.1207/s15506878jobem4802_4
- Tanti, C., Stukas, A. A., Halloran, M. J., & Foddy, M. (2011). Social identity change: Shifts in social identity during adolescence. *Journal of Adolescence, 34*(3), 555–567. <https://doi.org/10.1016/j.adolescence.2010.05.012>
- Tepper, S. J., & Hargittai, E. (2009). Pathways to music exploration in a digital age. *Poetics, 37*(3), 227–249. <https://doi.org/10.1016/j.poetic.2009.03.003>
- Ter Bogt, T. F., Mulder, J., Raaijmakers, Q. A., & Nic Gabhainn, S. (2011). Moved by music: A typology of music listeners. *Psychology of Music, 39*(2), 147–163. <https://doi.org/10.1177/0305735610370223>
- Turner, J. S., & Tollison, A. C. (2021). The evolving communicative value of popular music: Music is interpersonal communication in the age of digital media. *Journal of Broadcasting & Electronic Media, 65*(3), 357–376. <https://doi.org/10.1080/08838151.2021.1957893>
- van Dijck, J. (2007). *Mediated memories in the digital age*. Stanford University Press.
- Wang, C. (2022). Features of the development of creative thinking when creating electronic music in adolescents: Specialized applications. *The Journal of Creative Behavior, 56*(4), 488–500. <https://doi.org/10.1002/jocb.542>
- Webster, J. (2021). The promise of personalisation: Exploring how music streaming platforms are shaping the performance of class identities and distinction. *New Media & Society, 25*(8), 2140–2162. <https://doi.org/10.1177/14614448211027863>
- Zhou, Z., Xu, K., & Zhao, J. (2018). Homophily of music listening in online social networks of China. *Social Networks, 55*, 160–169. <https://doi.org/10.1016/j.socnet.2018.07.001>
- Zimmer-Gembeck, M. J., & Skinner, E. A. (2011). Review: The development of coping across childhood and adolescence: An integrative review and critique of research. *International Journal of Behavioral Development, 35*(1), 1–17.

About the Authors



Lina Li is an associate professor at Shanghai Normal University, College of Film-Television and Communication. Her research interests include youth media cultural consumption, communication psychology, and cultural and communication studies.



Yubin Li is a student at the School of Journalism and Communication at Nanjing Normal University. His research interests include youth media cultural consumption and media effects research.



Jing Wu is a PhD student at the Faculty of Social Sciences, University of Ljubljana. Her research interests are cultural and communication studies, public relations, and health communication.



Hao Gao is a professor at the School of Journalism and Communication of Nanjing Normal University. His research interests are cultural and communication studies, science communication, online visual media, and journalism.