Bulletin of Engineering Science, Technology and Industry| ISSN(e): 3025-5821
Volumes 3 No. 4 (2025)

THE INFLUENCE OF MUSIC RECOMMENDATION ALGORITHMS ON ADOLESCENT SELF-IDENTITY IN THE DIGITAL STREAMING ERA

Nirwansyah Revan F[1]., Ahmad Zion Alfattah[2],
Faiq Abrisam S[3]., Ahmad Fadhil Muzaki L[4], Nurjamiaty, M.Pd[5].
SMAS AL-Azhar Medan, JL. Pintu Air IV No. 214, Kwala Bekala, Medan, Indonesia
Email: revanfadilah2008@gmail.com, zionalfatah@gmail.com, faiqabrisrg@gmail.com
fadhilmudzakki88@gmail.com, yatinurjamiyati@gmail.com

Received	: 30 August 2025	Published	: 18 November 2025
Revised	: 10 September 2025	DOI	: https://doi.org/10.59733/besti.v3i4.148
Accepted	: 25 September 2025	Publish Link	: https://bestijournal.org/index.php/go

Abstract

Music-streaming platforms have become deeply embedded in the everyday lives of adolescents. Algorithmic recommendation systems simplify music discovery by continuously adapting to users' listening behaviors. Yet, behind this convenience lies an important dynamic: the subtle but impactful role of algorithms in shaping teenagers' identities. This study investigates how adolescents negotiate personal autonomy with algorithmic intervention in forming musical preferences. Employing a qualitative descriptive method through interviews and digital-behavior observations, the findings reveal a dual influence. Algorithms not only expand musical exposure but also create limited listening spheres or "echo chambers." These dynamics are evident in how adolescents use music to communicate identity, build social affiliation, and interpret their sense of self. The study underscores the critical need for digital literacy, enabling adolescents to remain aware of algorithmic influence while preserving autonomy in constructing musical identity.

Keyword: This section provides a comprehensive overview of the research purpose, methodology, and main findings.

Introduction

The rapid advancement of digital technologies has significantly transformed music-consumption practices, particularly among adolescents. Whereas music was once accessed through traditional media such as radio, physical recordings, or peer recommendations, it is now predominantly consumed through digital platforms like Spotify, YouTube Music, and Apple Music. Among the most widely used features of these platforms are automated recommendation systems driven by user-behavior data, including listening frequency, track skipping, and engagement duration. Although these systems provide convenience and personalized listening experiences, music plays a broader role for adolescents. It serves as a medium for articulating identity, expressing emotions, shaping personal aesthetics, and establishing social belonging. This raises an important question for contemporary media research: To what extent do adolescents' musical preferences reflect genuine personal agency, and to what extent are they shaped by algorithmic mechanisms? The increasingly curated digital environment means that adolescents often engage with music that is system-selected rather than self-explored. This creates a tension between authentic preference formation and algorithmic influence. Accordingly, this study examines how music recommendation algorithms contribute to the formation of teenage self-identity and whether adolescents continue to maintain meaningful decision-making power over their musical choices.

Note: This section provides background, relevance of the topic, and the rationale for conducting the research.

Research Method

This study was carried out using a qualitative research design with an exploratory-descriptive orientation. The purpose of this approach is to capture adolescents' subjective interpretations, lived experiences, and personal reflections related to the influence of music-recommendation algorithms on their identity formation.

1. Research Participants

The participants in this study were adolescents aged 15–19 who actively use digital music-streaming services. They were selected through criterion-based purposive sampling, ensuring that all individuals included in the study regularly interact with algorithmic recommendation features.

2. Data Collection Techniques

Data collection was submitted through several complementary procedures:

- **Semi-structured interviews**, designed to encourage open-ended discussion while allowing participants to articulate their thoughts freely regarding algorithmic influence.
- **Digital behavioral observations**, which involved examining how participants navigate music applications, including the playlists suggested to them, their browsing patterns, and their listening choices.
- **Supporting documentation**, such as participant-generated notes, screenshots of their curated or recommended playlists, and viewing of listening-history records.

3. Research Instruments

The instruments used consisted of:

- An interview protocol developed to guide the conversation while maintaining flexibility for deeper probing.
- Field-observation sheets used to record behavioral patterns and contextual notes during the observation process.

4. Data Analysis

All collected information was analyzed using an iterative qualitative technique inspired by the Miles and Huberman analytical cycle. This process included organizing the raw data, coding emerging ideas, constructing thematic categories, and synthesizing interpretations. The analysis resulted in several core themes, including the shaping of musical preferences, algorithmic filtering, identity expression through music, and the emergence of personalized listening silos.

5. Data Validation

To strengthen the trustworthiness of the findings, the study implemented methodological triangulation. Insights from interviews were cross-checked with digital observations and documentation to ensure coherence and consistency across different sources of evidence.

Note: This section explains the methodological logic of the research, the selection of participants, the data-collection procedures, and the analytical strategy used to generate the study's conclusions.

Results and Discussion

1. Algorithms as gateways to musical discovery

Participants frequently reported that algorithmic recommendations introduced them to new genres and artists that aligned with their previous listening preferences, thereby broadening their musical repertoire.

2. Echo chambers in algorithm-mediated listening

Despite this expanded access, many adolescents perceived that the algorithms repeatedly promoted similar musical styles, leading to monotonous listening patterns and limiting opportunities for genuine exploration.

3. Music as a vehicle for social and personal identity

For adolescents, music functions as a symbolic resource for expressing individual identity. Participants described using playlists as representations of themselves and sharing music on social media to signal tastes, emotions, or group affiliation.

4. Balancing personal autonomy with algorithmic influence
Although some adolescents consciously curated playlists based on personal preference, many acknowledged that the majority of new music they encountered was suggested by algorithms. This reveals a negotiated process between self-directed choice and system-generated influence.

OverallDiscussion:
The findings illustrate that adolescent musical identity emerges from a dynamic interplay between intrinsic preferences and algorithmic structuring. Algorithms act simultaneously as facilitators of discovery and as limiting agents within personalized music ecosystems.

Note: This section presents the main findings and provides interpretations of the results.

Conclusion and Recommendations

This study demonstrates that music recommendation algorithms exert both empowering and constraining effects on adolescent musical identity. While they expand access to diverse music, they also risk reinforcing narrow listening patterns through algorithm-generated echo chambers. Music remains a central medium through which adolescents articulate personal and social identity, highlighting the need for critical engagement with digital systems.

Recommendations

1. **Adolescents should cultivate digital awareness** to recognize how algorithms shape consumption patterns.
2. **Streaming platforms should enhance exploration tools** to encourage exposure to broader musical genres.
3. **Digital literacy programs** should be strengthened to ensure that young listeners maintain agency in shaping their musical identities.
   Note: This section summarizes the study's final conclusions and presents recommendations for future practice or research.

REFERENCES

- Beer, D. (2013). Popular culture and new media: The politics of circulation. Palgrave Macmillan.
- Hesmondhalgh, D. (2019). The cultural industries (3rd ed.). SAGE Publications.
- Pariser, E. (2011). The filter bubble: How the new personalized web is changing what we read and how we think. Penguin Press.
- Prey, R. (2018). Nothing personal: Algorithmic individuation on music-streaming platforms. Media, Culture & Society, 40(7), 1086–1100. https://doi.org/10.1177/0163443717736118
- Seaver, N. (2019). Captivating algorithms: Recommender systems as traps. Journal of Material Culture, 24(4), 421–436. https://doi.org/10.1177/1359183518820366
- Valkenburg, P. M., & Piotrowski, J. T. (2017). Plugged in: How media attract and affect youth. Yale University Press.