

# SOCIOLOGY AND MUSIC RECOMMENDATION SYSTEMS

**Daniel McEnnis**  
Waikato University  
Computer Science

**Sally Jo Cunningham**  
Waikato University  
Computer Science

## ABSTRACT

Music recommendation systems have centred on two different approaches: content based analysis and collaborative filtering. Little attention has been paid to the reasons why these techniques have been effective. Fortunately, the social sciences have asked these questions. One of the findings of this research is that social context is much more important than previously thought. This paper introduces this body of research from sociology and its relevance to music recommendation algorithms.

## 1 INTRODUCTION

Traditionally, music has been recommended by trusted friends. Automating this process is a challenging problem since social factors play such a major role in determining what makes a good recommendation. Very little information about social factors has been utilized in the MIR music recommendation literature or why people choose to listen to the music that they do and in what contexts—correct guesses under idealized listening situations are sufficient information for MIR.

Fortunately, the social science literature provides concrete research on these questions.

## 2 MUSIC RECOMMENDATION SYSTEMS

There have been a number of music recommendation systems proposed. Generally, these have used either content-based analysis or collaborative filtering for generating play lists. More recent systems have used user-supplied metadata and web-based data to augment content-based approaches.

Logan [7] uses a purely content based approach, producing play lists either directly from similarity, or similarity to a set of songs. Pampalk et al. [10] also uses content-based analysis but the play lists are altered by users with explicit ratings, as did Pauws [11]. Pandora.com is a commercial example of a content-based recommendation system. Two of Chen and Chen's [3] recommendation algorithms utilize purely content-based approaches.

One of Chen and Chen's [3] algorithms utilizes a pure collaborative filtering approach. Crossen [4] utilizes user

recommendations to determine the music to play in a shared space, filtering over hand-picked genre classifications.

Celma et al. [2] constructs networks of artists based on their FOAF (friend of a friend) profiles. Sandvold et al. [12] extended this with tagging and content based analysis.

## 3 EXISTING CONTEXT ANALYSIS WITHIN MIR

Earlier work has explored the importance of context and culture in MIR. Lee et al. [6] examined the challenges of cross-language music queries. Uitdenbogerd and Schynedel provided an overview of social context, culture, and psychological foundations [14]. Moelants et al. [9] demonstrate the dangers of context-insensitive content-based analysis and the importance of context-aware tagging.

## 4 SOCIOLOGY

Bennett [1] sums it up: 'Consumers take the structures of meaning - the musical and extra-musical resources associated with particular genres of pop - and combine them with meanings of their own to produce distinctive patterns of consumption and stylistic expression.'

This sociological approach approaches assume from the outset that musical preferences will differ from culture to culture and that even the meanings of the same music in different cultures will be different. This philosophy of the non-universality of both music and its meaning is inherent in all modern research in sociology.

### 4.1 Locality

Music is interpreted in terms of how it expresses local issues and concerns, often quite removed from the circumstances that inspired the music's creation, dramatically changing the meaning across locations and especially cultures.

For example, compare 'Geordie' hip hop culture in Newcastle, England to hip hop culture in Germany. Newcastle is a largely working class town that is homogeneous and has class divisions. As a result, music, especially hip hop, is interpreted in terms of class struggle, not racial identity.

In Frankfurt, hip hop by ethnic German youth is a rebellion against the assumption that they are not German because of their appearance. For this group, hip hop is an expression of assimilation and national identity, a radically different meaning.

A more poignant example of the influence of local culture on interpretation in music is the way Chopin has been celebrated as a Polish icon over time. Each change in government has resulted in differing musical properties being associated with his work. Interestingly, his lifetime precedes all the interpretations, so there can not be changes in the composer that affected these changes in interpretation [8].

This demonstrates that attempts to define universal meanings for music are destined to fail, especially across cultural boundaries.

#### 4.2 Media Influences

'Mediators of Taste' [5]—the individuals and entities with influence of trends within musical subcultures—provide insights into how they exert this power.

There exist a number of small music publications that specialize in 'discovering' new subgroups. These processes do more than just report on new subgroups: they construct the group, giving it an identity [13]. This process initially takes 'outsider' groups and creates an insider status in a new group. Later media on the group publicizes and sustain it. This pattern for socially constructing genre is demonstrated by the changes in social groups associated with genres of dance music [13]

Much of this media is now available in electronic form for analysis. By analyzing these media publications, keywords and genres can be linked to music that had little or no previous social metadata.

#### 4.3 Changing Meanings

There are two distinct types of social groups: subculture and neo-tribes.

A subculture is a social group that is significantly different from others, and requires a significant commitment to join the group. Members of a subculture share very similar musical tastes with an insider language of niche music. An example of this kind of group is the Goth movement [5].

A neo-tribe refers to a loose group of people that share a subset of musical tastes [1]. Membership tends to be degrees of membership rather than discrete and involves little commitment to be a member

Both of these two terms describe very different approaches to constructing communities. Software that is able to recognize these groups can better predict musical tastes by utilizing the homogeneity of these groups.

### 5 ACKNOWLEDGEMENTS

The first author would like to acknowledge the generous support of the Waikato Doctoral Scholarship.

### 6 REFERENCES

- [1] Andy Bennet. *Popular Music and Youth Culture*. MacMillan Press Ltd, London, 2000.

- [2] Oscar Celma, Miquel Ramirez, and Perfecto Herrera. Getting music recommendations and filtering newsfeeds from foaf descriptions. *International Conference on Music Information Retrieval*, 2005.
- [3] Hung-Chen Chen and Arbee L. P. Chen. A music recommendation system based on music data grouping and user interests. *CIKM*, 2001.
- [4] Andrew Crossen, Jay Budzik, and Kristian J. Hammond. Flytrap: Intelligent group music recommendation. *IUI*, 2002.
- [5] Paul Hodkinson. *Goth: Identity, Style and Subculture*. Berg, Oxford, 2002.
- [6] Jin Ha Lee, J. Stephan Downie, and Sally Jo Cunningham. Challenges in cross-cultural/multilingual music information seeking. *International Conference on Music Information Retrieval*, 2006.
- [7] Beth Logan. Music recommendation from song sets. *International Conference on Music Information Retrieval*, 2004.
- [8] Zdzislaw Mach. *Ethnicity, Identity, and Music: The Musical Construction of Place*, chapter National anthems: the case of Chopin as a national composer. Berg, Oxford, 1994.
- [9] Dirk Moelants, Olmo Cornelis, Marc Leman, Jos Gansemans, Rita De Caluwe, Guy De Tré, Tom Matthé, and Axel Hallez. Problems and opportunities of applying data- and audio-mining techniques to ethnic music. *International Conference on Music Information Retrieval*, 2006.
- [10] Elias Pampalk and Martin Gasser. An implementation of a simple playlist generator based on audio similarity measures and user feedback. *International Conference on Music Information Retrieval*, 2006.
- [11] Steffen Pauws and Sander van de Wijdeven. User evaluation of a new interactive playlist generation concept. *International Conference on Music Information Retrieval*, 2005.
- [12] Vegard Sandvold, Thomas Aussenac, Óscar Celma, and Perfecto Herrera. Good vibrations: Music discovery through personal musical concepts. *International Conference on Music Information Retrieval*, 2006.
- [13] Sarah Thornton. *Club Cultures: Music, Media and Subcultural Capital*. Wesleyan University Press, Middletown, 1996.
- [14] Alexandra Uitdenbogerd and Ron Vvan Schyndel. A review of factors affecting music recommender success. *International Conference on Music Information Retrieval*, 2002.