

Content or context? Searching for musical meaning in task-based interactive information retrieval.

Charlie Inskip
Dept of Information Science
City University London
c.inskip@city.ac.uk

Andy Macfarlane
Dept of Information Science
City University London
andym@soi.city.ac.uk

Pauline Rafferty
Dept of Information Studies
University of Aberystwyth
pmr@aber.ac.uk

ABSTRACT

Creative professionals search for digital music to accompany moving images using interactive information retrieval systems run by music publishers and record companies. This research-in-progress investigates creative professionals and intermediaries communication processes and information seeking and use behaviour with a view to making recommendations to information retrieval systems builders about the relative importance of content and contextual factors. A communications model is used to suggest that the meaning of music is determined by its listener and use context, as well as cultural codes and competences.

Categories and Subject Descriptors

H.3.3 [Information Search and Retrieval]: Search Process;
H.3.7 [Digital Libraries]: User issues

General Terms

Human Factors

Keywords

Music information retrieval, users, communication, meaning, relevance.

1. INTRODUCTION

In recent years there has been a discussion in the Information Retrieval (IR) literature about the meaning of 'context' and its relationship to information seeking behaviour, with more interest in users. This recognises the interactive nature of IR which is affected by the contexts in which it takes place [2]. These interactions and contexts are summed up by Ingwersen and Jarvelin [3], who illustrate the interdependent elements of an interactive IR system, and suggest that research into these systems should take a more holistic approach. Closer examination of context – from both 'system' and 'user' points of view – will inform research about tasks, relevance, queries and focus includes information environment, information seeking, IR interaction and query level [2].

We investigate information seeking by creative professionals within the music industry, and focus on their search for music, specifically when music accompanies moving images. There are various levels of context in this process, known as *synchronisation*, which affect the nature of the retrieval: the intended meaning of the music in its filmic context and how this relates to query formation; systemic context, or how the query matches; IR mechanisms that are used and organization of the collections that are searched; user context or work role; the music's relationship with the wider cultural contexts, impacting on the relevance decisions of users and the eventual music use.

This paper presents early results of an ongoing study of information behaviour, and concentrates on users and use contexts, which are found to be predominantly affective. Section 2 describes the approach taken, involving the use of a reflexive communications model, and discusses the methodology, while Section 3 discusses early findings, focusing on meaning, context and relevance and how these relate to the search process and relevance decisions in use of music in films, television and commercials. Section 4 summarises the paper and discusses the levels of importance of content and context in music search.

2. APPROACH TAKEN FOR RESEARCH

The music industry is a network involved in exploiting compositions and recordings by manufacture, distribution, sales and marketing of CDs and, increasingly, downloads but also by 'secondary exploitation' which involves encouraging the use of material in films, commercials and on radio and television as well as in clubs, internet and live. Record companies, music publishers and outside organisations are Music Owners, controlling the use of material. Music Users consist of film companies, broadcasters, clubs and others who use music and present it to the Music Consumer. The communication process between the Music Users and the Music Owners is the focus of this research.

A snowball sample of eleven experienced Owners and Users took part in face-to-face semi-structured interviews lasting up to one hour. This technique allowed access to a specialist group of professionals by peer-recommendation [8]. The interviews were designed to elicit information about the participants' information seeking behaviour and the processes used when they were searching for music to accompany moving images. Using subject guidelines rather than strict questionnaires allowed the researcher to follow up themes arising during the research process and allowed a flexible and informal approach reflecting the nature of communication in the industry under examination. Interviewees included five music supervisors and one film editor (Music Users) who source music for films, four employees of record companies and music publishers directly involved in exploitation of music (Music Owners). Additionally one independent music searcher, whose role lies between the Users and the Owners was also interviewed.

We suggest that the organizational, social and cultural contexts [3] of the actors give rise to *Codes* and *Competences*, which affect the interpretation of musical-meaning. Semiotic codes are agreed by the community and enable an understanding of the link between the sound and the context [1]. Competences are based on the individual's background, interest and experiences [9]. Although Owner and User may have their own codes and

competences, based on their organizational, social and cultural contexts, some will intersect (Fig 1).

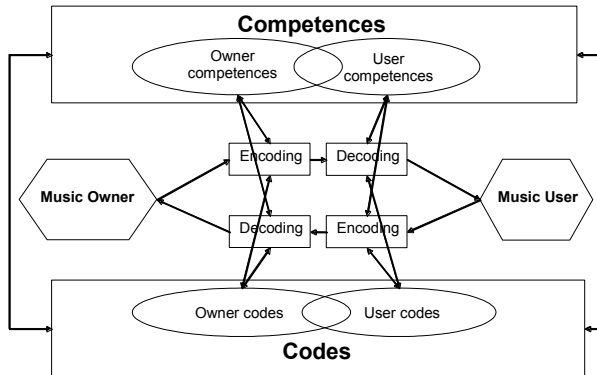


Figure 1 Reflexive communications model [4]

In [4] we propose that the meaning-making process between Owner and User is reflexive, depending on their relative codes and competences, which are cultural, organizational and social. It is likely that systems designed to assist communication between User and Owner need to incorporate methods to facilitate the encoding/decoding process, which is determined by how much the participants in the process share codes and competences.

For the purposes of this paper the texts of the interviews were listened to and transcribed. Broad themes of discussion, *Meaning*, *Context* and *Relevance*, arose from careful reading of the texts, relating to music seeking, retrieval and behaviour.

3. FINDINGS

3.1 Meaning

When starting a search, Music Users have to extract meanings from a script, brief or images and translate these into a query that results in successful retrieval of material that matches the meaning that they wish to present to the viewer. Communicating this meaning clearly depends on all parties involved sharing cultural codes and competences:

'I need a track [...] that it's quite slow to begin with but has a real good build at the end, that's emotional but quite driven' (010SUP, TV promos supervisor)

is a typical example of a query that incorporates a range of affective meanings (*emotional, driven*) and content requirements (*slow, build at the end*) that require mutual understanding for a successful result. In order to accommodate the range of meanings encompassed by this type of query, a selection is offered to the User, who will try these against the images and discuss with stakeholders, who may not share the same understandings. They will then either accept one of these offers or go back to the Owner with a revised query, which may be based on similarity with a piece in the first offering or an 'ideal' piece. Gradually the reflexive communication of the meaning of the music (Fig 1), which can also change during the process due to outside influences, is refined by matching codes and competences, trial and error, input from other stakeholders, and 'gut instinct' until the query is satisfied.

3.2 Context

The use context, how the music 'fits' the picture and its intended audience, is key in the process [7] and although interpretation of musical meaning is subjective, meanings do converge within an audience [10]. Frequently a *visual* (film clip) is emailed to Owners with a written brief to communicate the use context. The Owners then try to match music with the visual and return a rough edit to the User:

'if it's a classical, uplifting, anthemic piece, then you know, there's thousands and but also the same time it's finding the right song, and it is just – I mean it's best when we have the visuals, it's a lot easier.' (007SYN, Record company)

In advertising, the cultural context of the product and how it is marketed indicates the type of music that will be suitable:

'Because if you're dealing with a brand, it could be Heinz or Lucozade, or .. they don't want necessarily anything too clever. They just want something that is going to help sell their product. And be a nice accompaniment to the film. Whereas maybe somebody like – obviously I'm generalizing – but someone like 02 or Orange, they'll want a staggering piece of music that people are going to sit up and sort of pay attention to.' (007SYN)

The search process needs to be able to reflect these *affective context* criteria, which are related to cultural values contained within the music [6]. The targeted consumer will need to relate to the music in a positive way, and this relates to facets such as cultural attitudes, codes and competences and the content of the music signal.

3.3 Relevance

Contextual factors such as budgets and whether rights holders will allow the use help improve precision. Relevance is also affected by affective context issues such as audience metrics and the tastes of the various stakeholders. There is no scientific way of agreeing on the right piece of music, and many pieces of music will satisfy a query:

'But then you can find ten other things that are the right tempo, that are the right style, and the right mood, and which one works? Well, all of them, potentially.' (004SUP Independent music supervisor)

Relevance is based on higher-order relevance [5] affective criteria such as 'gut instinct' or familiarity, as well as more objective facets such as budget, novelty, time availability, legal and business issues, and content factors such as tempo and style.

4. CONCLUSION: CONTENT OR CONTEXT?

While it initially appears that it is the content of the music itself that determines use, the context of the music within the final film clip as well as the wider contextual significance of the music in society, the organization and culture [3] also have major impact on music search. Users rarely search for works by named artists or titles, instead focusing on genre, periods, instrumentation,

affective facets, and content such as tempo and timbre. While some search criteria are more clearly defined, such as tempo, budget and recognisability (by chart position), other higher-level or affective criteria, such as *uplifting* or *anthemic*, or whether the music *'fits'*, are less rigid and cause problems in establishing relevance. As has been illustrated in a range of existing research, relevance judgements are strongly affected by context [3] and here, the impact of affective context requires further investigation as it will have significant impact on systems development.

It is therefore likely that the systems which are designed for music retrieval for these purposes would more effectively meet the needs of their users by recognizing the need to accommodate searches by content and context.

Future research will widen the sample to include broadcasters, computer games designers and those directly involved in the music composition, recording and performance processes, analysing these and the discourses of accompanying texts as well as evaluating existing systems.

5. References

- [1] Brackett, D. (2000). *Interpreting Popular Music*. University of California Press, Berkeley
- [2] Cool, C. and Spink, A. (2002). Issues of context in information retrieval (IR): an introduction to the special issue. *Information Processing and Management*, 38 pp 605-611
- [3] Ingwersen, P. and Jarvelin, K. (2005). *The Turn*. Springer, Dordrecht.
- [4] Inskip, C., Macfarlane, A. & Rafferty, P. (2008) Meaning, communication, music: towards a revised communication model. *Journal of Documentation*, in press.
- [5] Kekalainen, J. & Jarvelin, K. (2002) Evaluating information retrieval systems under the challenges of interaction and multidimensional dynamic relevance in Bruce, H., Fidel R., Ingwersen, P. and Vakkari, P. (Eds.) *Proceedings of the 4th CoLIS Conference*. Greenwood Village, CO: Libraries Unlimited, pp. 253-270.
- [6] Middleton, R. (1990). *Studying Popular Music*. Open University Press, Buckingham.
- [7] Neumeyer, D. and Buhler, J. (2001). Analytical and Interpretive Approaches to Film Music (I): Analysing the Music. In Donnelly, K.J. ed (2001). *Film Music – Critical Approaches*. Continuum International Publishing Group, London. Ch 1, pp 16-38.
- [8] Patton, M. (1990) *Qualitative evaluation and research methods*. Sage Publications, Newbury Park, California
- [9] Stefani, G. (1987) A Theory of Musical Competence *Semiotica* 66:1-3, pp7-22
- [10] Tagg, P. and Clarida, B. (2003). *Ten Little Title Tunes*. Mass Media Scholars' Press, New York and Montreal