

# THE ROLE OF MUSIC, SOUND EFFECTS & SPEECH ON ABSORPTION IN A FILM: THE CONGRUENCE-ASSOCIATIONIST MODEL OF MEDIA COGNITION

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## 1. INTRODUCTION

Feature films aim to engage an audience in a story. In the present paper, we refer to such engagement as *absorption*. We are interested in the contribution of soundtracks to absorption. They typically consist of speech, sound effects and music. Unlike speech and sound effects, music plays no part in the story as music per se. Without this rationale, how does music contribute to audience engagement? Should it not instead distract the audience? The Congruence-Associationist Model (C-A M; cf., Boltz, 2004; Cohen, 2001, 2005) provides an answer.

C-A M assumes that the audience's goal is to create a meaningful story from the material of the film: two visual (scenes and text) and three audio (music, effects, and speech) channels (see Fig. 1). At lower levels of analysis, information in these distinct channels is analyzed for meanings and structures. Some information leaks upward to long-term memory which then provides inferences about the narrative. The best match between top-down inferences and bottom-up analysed information results in the conscious *working narrative*—the experience of the film as the audience knows it. In C-A M, the brain can exploit that part of musical information has value for the story (e.g., emotional meaning) while ignoring the rest (e.g., the acoustical properties of the musical sounds). The principle of Association aggregates meanings from the five channels. Thus emotional meaning of music can provide context for a neutral visual scene. The principle of Congruence accounts for impact of shared structural features across channels, e.g., shared rhythm of music and visual motion could draw attention to the agency of the visual motion.

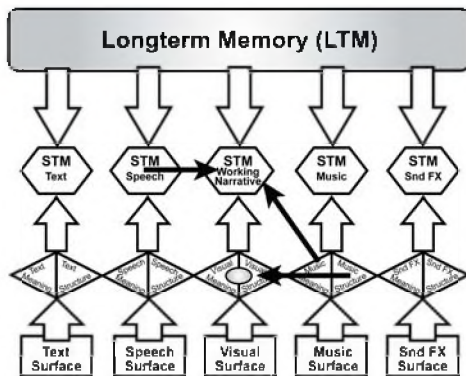


Fig. 1. Congruence-Associationist Model of Media Cognition (C-A M; from Cohen, 2005, p. 30)

Our laboratory has been exploring the role of music on absorption in a film. We have shown that the presence as opposed to absence of music in a film clip can lead to higher self-ratings of absorption in the clip (Cohen, MacMillan, & Drew, 2005). The present study extends this enquiry by comparing absorption as a function of three different soundtracks (only sound effects, only speech, and only music) for the same visual clip. Three soundtracks were created to make sense with the film so as to determine whether the music track, as compared to the speech and sound effects tracks, promoted audience absorption.

## 2. METHOD

### 2.1 Stimuli

Video information consisted of two 1-minute clips from DVD's of *Witness* (P. Weir, 1985) and the *Day of the Jackal* (F. Zinneman, 1973). The original soundtrack for the *Witness* (George Delerue) contained only music. The original soundtrack for *Jackal* contained speech and sound effects. For *Witness*, two additional soundtracks were created; one containing only realistic sound effects typical of the police-office setting (sirens, typing etc.), the other containing speech of the characters on the screen (a boy and several older people). For *Jackal*, three new soundtracks were created: a music track from music found elsewhere in the film (Maurice Jarre); a speech track of possible dialogue associated with the actors in the scene (an older criminal, a female victim, and a military officer); and a sound effects track matching the outdoor and apartment scenes (crowds, crutches on pavement, running water, ticking clock, etc). The tracks were created using Avid and Digidesign non-linear editing facilities, Foley techniques for the sound effects as well as digital sound libraries. In addition to these independent soundtracks, two combination soundtrack conditions were created for each of the video clips. One combined the two realistic sets of sounds (sound effects and speech) and the other combined all three soundtrack types. The combinations entailed some boosting and attenuation of various tracks in order to avoid masking of the speech by the music, for example. For each of the 5 soundtrack conditions, two DVD's were created: one which presented the *Witness* clip first and the other which presented the *Jackal* clip first. The main emphasis of the present paper is the soundtracks representing only one domain, music, effects, or speech.

## 2.2 Participants

There were 60 adults primarily from the university population participated in the study (mean age 22.23 years, SD = 5.26, range 18-44; 12 for each soundtrack group).

## 2.3 Procedure

Participants were tested alone or in groups of up to three. They were told that they would be presented with a short clip of a presentation and that they would be asked to rate on a 7-point scale their *absorption* in the presentation, the *realism* of the presentation, and the *professional quality* of the presentation. Prior to each of the two clips, they were asked to read the synopsis of the story that took the reader to the beginning of the clip. After rating absorption, realism, and quality, they were asked to rate their certainty that certain events would occur following the clip. Biographical information and some other questions about media were then completed.

## 3. RESULTS.

The study aimed to determine whether music led to audience absorption in a manner comparable to that of sound effects or speech. It is this questions that we focus on. Judgments of realism and quality provide measures of control, to assure that absorption judgments are not simply based on a sense of general professionalism of the production rather than on the specific mode of the soundtrack.

The mean Absorption, Realism, and Quality ratings for the only- music, speech, and sound effects conditions for each of the two film clips are shown in Table 1. The highest level of absorption is found under the condition with music for the film *Witness*. The lowest is for *Jackal* with speech.

<b>Table 1. Mean Rating as a function of Film (<i>Jackal/Witness</i>) &amp; Soundtrack type: Sound Effects (FX), Speech (Spc) and Music (Mus) [ <i>max se.</i> = .44]</b>						
	<i>Day of the Jackal</i>			<i>Witness</i>		
	FX	Spc	Mus	FX	Spc	Mus
<b>Absorption</b>	4.7	<b>3.5</b>	4.4	4.0	4.7	<b>5.5</b>
<b>Realism</b>	3.1	3.6	4.0	4.7	4.5	4.6
<b>Quality</b>	3.9	3.6	4.6	4.8	5.1	5.2

The absorption, realism and quality ratings were entered into an ANOVA with 2 within-subject factors of rating type (Absorption, Realism, and Quality) and film (*Witness/ Jackal*) and 1 between-subject factor of Soundtrack Condition. Separate analyses were also carried out for Absorption, Realism, and Quality. In the overall analysis, there was a significant interaction of Rating type (Absorption/ Realism/Quality), Soundtrack Condition (FX,

Speech, Music) and Film,  $F(4,66) = 3.59; p < .01$ , with significant linear and quadratic effects. The only other significant effect in the analysis was that of Film, with *Witness* leading to higher ratings overall than *Jackal*. Thus, the film soundtrack type influenced the judgments of absorption, realism and quality for a particular film in different ways. In separate analysis of absorption, there was a significant interaction of film and soundtrack type,  $F(2,33) = 3.9; p < .03$ . For the analyses of realism and quality, this interaction was not significant. Mean quality and realism were statistically higher for *Witness* than *Jackal*.

## 4. DISCUSSION

The degree of self-assessed absorption in the clips depended on whether the soundtrack was composed of sound effects, speech, or music, even when the professional quality of these three soundtracks was deemed statistically equal. Because the effect was observed under a highly controlled and unnatural situation of viewing a clip for only 1 minute, the results suggest that the effects of music on absorption are efficient and that music alone may at times hold a privileged path to absorption while watching a film, even without a basis in the narrative for the music as music per se. In cases where music adds to audience absorption, it is likely that music is contributing essential information, such as emotional information, to the story-telling. Such an account is consistent with the Congruence-Associationist Model (Cohen, 2001, 2005).

## 5. REFERENCES

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