



Familiarity of Thematic Music Affects Story Generation Performance

Cynthia Sifonis, Katherine Moore,
Ethan Paschall, & Sean Monica

Music Should Be Associated with Complex Concepts/Schemas

- Certain types of music become associated with certain concepts
- Composers purposely evoke concepts in the listener
 - Instruments, stanzas, musical themes
- Lifetime of exposure to music
 - Musical cues associated with events/concepts

Music Influences Mood & Cognition

- Characteristics of music influence a listener's mood (Kastner & Crowder, 1990)
 - Major key = happy
 - Minor key = sad
- Activating mood affects interpretation of ambiguous stimuli
 - Story interpretation (Ziv & Goshen, 2006)
 - Movie scene interpretation (Boltz, 2001)
 - "Ominous" soundtrack: Character interactions interpreted as hostile
 - "Upbeat" soundtrack: Character interactions interpreted as friendly

Demonstrating Concept Activation

- Would illustrate the richness of conceptual representations
 - Important for making sense of the world
 - Important for extending knowledge in novel ways
- Accomplished through creative generation tasks
 - Open-ended
 - Shows effects of knowledge

Creative Generation Tasks and Mood

- Unscrambling hostile sentences (Marsh, Bink, & Hicks, 1999)
 - Draw creatures with horns, fangs, claws
- Story completion (Boltz, 2001)
 - “Ominous” soundtrack: Character interactions interpreted as hostile; scene completed with a “bad” ending
 - “Upbeat” soundtrack: Character interactions interpreted as friendly; scene completed with a “good” ending

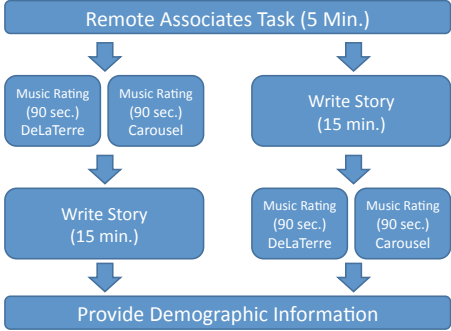
Purpose

- Study 1
 - Examine ability to prime complex concepts through exposure to thematic music
 - Data collected for study reported in Sifonis & Fuss (2012) and Sifonis & Memering (2012)
 - Coding for schema elements and analysis are new for current study
- Study 2
 - Examine whether familiarity of thematic music strengthens effects

Study 1 Predictions

- Exposure to thematic music
 - Before story generation
 - Increases # of schematic elements in story
 - After story generation
 - Does not affect # of schematic elements in story
- Type of schematic elements included depends on music theme

Study 1: Procedure (Sifonis & Fuss, 2012)



Study 1: Stimuli

Music	Title	Artist	Familiar M (SD)	Pleasant M (SD)	Liking M (SD)	Music Associations
DeLaTerre	De La Terre a la Lune	Vernian Process	.86 (.23)	2.01 (1.50)	2.87 (1.65)	War (33%), Marching Band (17%), Marching (15%)
Carousel	A Carousel on a Slide Projector	Lullatone	2.28 (1.70)	5.19 (1.84)	4.28 (1.88)	Sleeping (28%), Baby/Babies (28%), Lullaby (17%)

Rated on a scale from 1-7 (7 = most pleasant/liked/etc.)

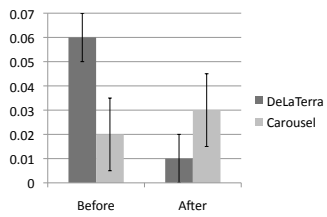
- Story generation task instructions
 - For the next 15 minutes, please write a story with the theme “My adventure on an Alien Planet

Study 1: Obtaining Schema Elements

- Oakland University students (14 “Alien Child”, 12 “Alien War”) provided schematic features
- Instructions
 - “Imagine you have traveled to an alien planet and you spend a full day observing the inhabitants and their actions in a town **with a lot of young alien children/that is fighting a battle during a war.**
- Elements specific to music theme
 - “War schema” items
 - Dry, dust, bare, run down, dead, search/scavenge
 - “Child schema” items
 - School, family time, green skin

Study 1: Results

- 2 X 2 Factorial ANOVA
 - Music (DeLaTerre, Carousel)
 - Place (Before story, After story)
- War Schema
 - Music X Place interaction
 - $F(1,138) = 6.77, p < .05, \eta^2 = .05$
- Child Schema
 - No significant effects



Study 1: Conclusions

- Predictions partially supported
 - War-themed music before writing story
 - Increased inclusion of war-schema elements in story
 - Child-themed music before writing story
 - Did not influence inclusion of child-schema elements in story
- Lack of power?
 - Increased variability due to unfamiliar music?

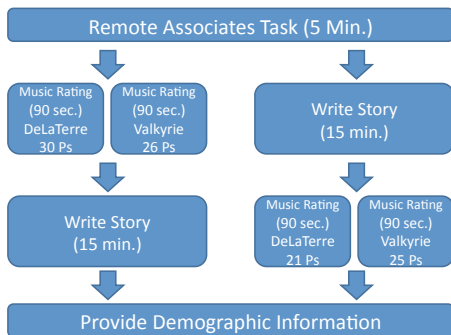
Study 2 Predictions

- Exposure to thematic music
 - Before story generation
 - Increases # of schematic elements in story
 - After story generation
 - Does not affect # of schematic elements in story
- Familiarity of music
 - Familiar music
 - More thematic elements incorporated into story
 - Unfamiliar music
 - Fewer thematic elements incorporated into story

Study 2: Music Pilot Testing

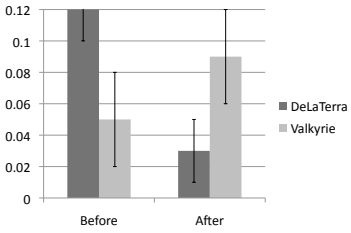
			Familiar	Pleasant	Liking	Concept
Fates	Duel of the Fates	John Williams	3.89 (2.41)	4.40 (1.90)	4.19 (1.97)	Star Wars (26%), War(23%), Chase (13%)
Valkyrie	Die Walkure	Wagner	6.47 (1.30)	4.89 (1.52)	4.72 (1.60)	War (15%), Star Wars (13%)
Overture	1812 Festival Overture	Tchaikovsky	6.42 (1.47)	5.26 (1.70)	5.06 (1.47)	Fireworks (19%)
DeLaTerra	De La Terre a la Lune	Vernian Process	.86 (.23)	2.01 (1.50)	2.87 (1.65)	War (33%), Marching Band (17%), Marching (15%)
Brahms	Op.49 No. 4	Johannes Brahms	6.57 (1.20)	5.85 (1.46)	5.06 (1.49)	Lullaby (40%), Sleep/(23%), Babies (21%), Violin (13%)
Pachelbel	Pachelbel Canon	Lullaby Classics	6.13 (1.65)	5.96 (1.41)	5.53 (1.28)	Wedding (33%), Christmas (13%)
Carousel	A Carousel on a Slide Projector	Lullatone	2.28 (1.70)	5.19 (1.84)	4.28 (1.88)	Sleeping (28%), Baby (28%), Lullaby (17%)

Study 2: Procedure



Study 2: Results

- 2 X 2 Factorial ANOVA
 - Music (DeLaTerre, Valkyrie)
 - Place (Before story, After story)
- War Schema
 - Music X Place interaction
 - $F(1,102) = 5.79, p < .05, \eta^2 = .06$



Study 2: Conclusions

- Predictions not supported
 - Familiar music did not increase inclusion of associated schema items
 - May even result in fewer schematic items being included
- Partial replication of Study 1
 - Listening to war-themed music prior to generation task
 - Increases inclusion of schematic elements into story

Conclusions

- Our knowledge includes musical associations
 - Listening to music activates those associations
 - Influence performance in generation task
- Variables influencing access to musical associations
 - Demographic variables (familiarity with genre, enjoy reading science fiction)
 - Concepts associated with songs
 - Liking/Pleasantness of song