Appeal Factors:
Enabling Cross-media Advisory Services

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Readers' advisory (RA) is widely acknowledged by the library community as a mission-critical service. However, current RA practices and tools focus heavily on the recommendation of books and audiobooks, excluding a wide variety of the library collection in other formats. Additionally, librarians and RA recommendation engines currently rely on metadata fields related to topic and genre, which are limited in their ability to generate great recommendations. We conducted a research project investigating common "appeal factors" across multiple types of media, including books, films, video games, graphic novels, and music, to support the provision of robust, 21st century readers' advisory services in libraries. The goal of this research is to enable libraries to use appeal factors to provide cross-media advisory services.

Background and Research Goal

Readers' advisory has been a core library service and vital to public libraries since the 1950s (Haines, 1950). A recent survey of 694 public librarians conducted by Library Journal, with NoveList and the Reference & User Services Association (RUSA) also revealed that librarians consider the provision of readers' advisory as, "mission-critical and an area of growth" (Thorton-Verma & Schwartz, 2014). Additionally, more than half of respondents reported that RA will become even more important in the next three years. Given the current and growing importance of RA as a critical library service—especially for encouraging its use and delivering on one of the central value propositions of libraries—it is imperative that we have a solid framework and guidelines for providing such services.

Although RA was deemed critical by respondents to the above-mentioned survey, one out of five expressed angst in providing RA. Respondents cited several reasons, including the inability to keep up with new books and unfamiliarity with certain genres. Moreover, 23% of respondents reported that their institution provides no training or support for RA, and thus most librarians rely on external recommendation databases such as NoveList (61%) or social networking tools like Goodreads (34%) for recommendations. These services, though useful, only support recommendations of books and audiobooks.

Two additional survey findings are especially noteworthy: only about half of respondents felt confident in advising children or young adults, and most of the RA work reported focused heavily on recommendation of books and audiobooks, excluding wide swaths of the library's collection in other formats. We believe that one way to effectively engage younger populations would be to incorporate and suggest media they are already regularly consuming, such as video games, graphic novels, films, and music.

The Guidelines for Media Resources in Academic Libraries[1] published in 2012 by the Association of College & Research Libraries (ACRL) and Guidelines for Library Services to Teens[2] distributed by RUSA arrive at the same conclusion: audio-visual materials are becoming increasingly important in teaching, learning, and research. They state the importance of meeting youth where they are by developing and promoting resources that reflect tools and technologies they use on a daily basis.

We seek to address these pressing challenges in recommendation and advisory services in libraries by developing provisions for high-quality cross-media advisory services based on the idea of "appeals"—that certain people are attracted to certain types of materials, regardless of format. In order to support recommendation services in digital libraries, we aim to identify and investigate common appeal factors across different media types and develop ways to describe those appeals in a manner that facilitates cross-media advisory services. Search/browse features in digital libraries based on appeals should improve the quality of recommendation services for end-users and allow librarians to make suggestions with increased confidence, even within unfamiliar genres and media. We address the following specific research questions:

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[1] http://www.ala.org/acrl/standards/mediaresources

[2] http://www.ala.org/rusa/resources/guidelines/guidelinesteens

RQ1. What are the most common appeal factors across multiple types of media?
RQ2. How do we describe the different values for these common appeal factors in a way that is efficient for indexing in digital libraries and also helpful to users?

Few funded research projects to date have focused on improving and renovating RA. One example is an IMLS grant awarded to the Bellingham Public Library in 2006 for staff training in recommending books with a focus on the genre of historical fiction.[3] The scope of our work differs in that we are exploring the use of appeals rather than genres, and including different material types in addition to books. Other related efforts such as Beth Gallaway's blog on games in libraries[4] have been led by individual librarians interested in incorporating games or audio-visual materials into RA. We envision that our work will amplify the impact of these previous efforts by offering a solution to enhance cross-media access via appeals description.

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[3] "Readers Advisory: Staff Picks for Historical Fiction," Bellingham Public Library (n.d.), http://www.bellinghamlibrary.org/RAGrant.htm.

[4] Beth Gallaway, Game On: Games in Libraries (2008), http://libgaming.blogspot.com

Scope and Methods

This project consists of multiple phases (Table 1), building upon our previous research on the appeals of video games as part of a larger research effort to establish a metadata schema for video games and interactive media (Lee, Clarke, & Rossi, 2016). The first phase focused on a domain analysis based on review of existing literature and consultation with domain experts. Building on the results from the first year, we conducted an empirical user study in the second phase to obtain a richer understanding of the relevance and importance of various appeals to users when they choose media to consume. Continuing our research, we expect to conduct an online survey to gather more user data on how people describe these appeals in Phase III, which will allow us to establish controlled vocabularies for those appeals.

Table 1. Summary of Research Plan/Process

Timeline	Goals	Methods	Activities
Phase I	Identify the appeals of various types of media objects Select potential cross-media appeals to explore in Phase II	Domain analysis	Survey of literature on appeals in multiple domains Consultation with domain experts
Phase II	Investigate the relevancy of potential cross-media appeals identified in Phase I to users Identify other cross-media appeals from user data	User interviews	Semi-structured interview of 30 participants
Phase III (Future plan)	Test the applicability of cross-media appeals identified in Phase I & II Gather user data to establish controlled vocabularies for common cross-media appeals	Online survey	A large-scale online survey of media consumers including young adults and teens

Findings and Discussion

Phase I: Domain Analysis
In this phase, we conducted a domain analysis as our initial approach in identifying possible cross-media appeals. We started by reviewing bodies of literature related to appeal factors in multiple domains, including library and information science, psychology, marketing, and media studies. We also comprehensively identified and reviewed online resources, including websites, bibliographies, indexes, and databases that employ appeal factors or similar concepts for providing access to various media objects.

After that, we consulted with the advisory board established for this project, consisting of three experts in readers' advisory and multimedia organization/recommendation: Nancy Pearl, Lecturer, Librarian, and an Author, University of Washington, Information School; John Vallier, Head of Distributed Media, University of Washington Libraries Media Center; and Judi Windleharth, Director of Learning Resource Center at DigiPen Institute of Technology.

Based on our analysis of these resources, we derived a combined taxonomy of 19 appeals across different media types with descriptions and references to source materials (Table 1). As an exploratory study, the primary goal was to identify a small number of cross-media appeals from the 19 identified appeals to explore in depth in the subsequent user study in the second phase. This selection was based on multiple criteria such as the transferability across multiple media types, degree of subjectiveness, and ability to measure and describe the appeals.

The research team, after consulting with the advisory board members, ultimately decided to initially focus more deeply on *Mood, Setting,* and *Complexity (Cognitive),* based on the results of testing the applicability of individual appeal across multiple media in a series of exercises describing the appeals for sample media objects representing different media types.

Table 2. Summary of appeal discussed in previous literature

	Appeal	Description	Literature
Content-based	Characters (also referred to as Characterization)	People such as protagonists, heroes, and villains in a story with whom readers have an emotional connection	Saricks (2005); Pearl (2012)
	Setting (Frame, Background)	The world in which a story takes place	Saricks (2005); Trott and Williamson (2011); Pearl (2012)
	Language (Style)	Writing style, grammar, and word use in a piece of literature	Mooney and Roy (2000); Saricks (2005); Pearl (2012)
	Narrative (Story, Story line)	Plot and events that media take the reader through	Hunicke, LeBlanc, and Zubek (2004); Saricks (2005); Pearl (2012)
	Pacing	How the story unfolds	Saricks (2005)
	Genre (Style, Format)	A style or form of content	Trott and Williamson (2011)
	Theme (Subject, Topic)	Main subject of the media	Saricks (2005); Trott and Williamson (2011)
Experiential	Accomplishment (Achievement, Completion, Reward structures, Satisfaction)	When the core reason for consuming the media is to feel the satisfaction of acquiring and/or completing something	Wigand, Borstelmann, and Boster (1985); Bartle (1990); Klimmt (2003); Vorderer, Klimmt, and Ritterfeld (2004); Yee (2006); King and Defarbo (2009); Tocci (2012)
	Arousal (Excitation, Stimulation, Adrenaline, Exhilaration)	Feeling excited and/or stimulated by consuming the media	Wigand, Borstelmann, and Boster (1985); Griffiths (1991, 1993); Vorderer, Hartmann, and Klimmt (2003); Klimmt (2003); Hunicke, LeBlanc, and Zubek (2004); Sherry et al. (2006); Abbott (2010); Greenberg et al. (2010)
	Sensation (Sense-pleasure, Audiovisuality, Graphics, Sound)	When the core reason for consuming media is to appreciate the visual and/or auditory content	Klimmt (2003); Hunicke, LeBlanc, and Zubek (2004); Ermi and Mäyrä (2005); Abbott (2010)
	Fantasy (Imaginative fiction, Make-believe)	When the core reason for consuming media is to immerse oneself in a fantasy world, and thus be able to do things not possible in real life	Malone (1981); Myers (1990); Hunicke, LeBlanc, and Zubek (2004); Sherry (2004); Ermi and Mäyrä (2005); Tocci (2012); Choi et al. (2013)

Mood (Tone, Feel, Emotion)	When the core reason for consuming media is to achieve a particular emotional state, and/or immerse oneself in media that expresses a particular mood	Goldberg and Gorn (1987); Nell (1988); Ross (1999); Ross and Chelton (2001); Saricks (2005); Banerjee et al. (2008); Hu et al. (2008); Hollands (2006); Rossi, Lee, and Clarke (2014)
Challenge (Obstacle course)	When the core reason for consuming media is to feel the joy of overcoming obstacles or difficulties	Malone (1981); Vorderer, Hartmann, and Klimmt (2003); Csikszentmihalyi (1990); Hunicke, LeBlanc, & Zubek (2004); Vorderer, Klimmt, and Ritterfeld (2004); Ermi and Mäyrä (2005)
Fellowship (Social framework, Cooperation, Teamwork, Social reward)	When the core reason for consuming media is to enjoy the company of others	Griffiths (1991); Hunicke, LeBlanc, and Zubek (2004); Jansz and Tanis (2007); Greenberg et al (2010)
Discovery (Exploration, Uncharted territory, Curiosity)	When the core reason for consuming media is to get the feeling of exploring uncharted territory	Malone (1981); Bartle (1990); Myers (1990); Hunicke, LeBlanc, and Zubek (2004); Abbott (2010)
Expression (Self-discovery, Ego)	When the core reason for consuming media is self-discovery/actualization	Hunicke, LeBlanc, and Zubek (2004); Sherry et al. (2006)
Cognitive (Thinking, Knowledge, Learning)	When the core reason for consuming media is to learn and/or think about something	Vorderer, Klimmt and Ritterfeld (2004); Ermi and Mäyrä (2005); Stewart (2011)
Submission (Pastime, Recreation, Abnegation)	When the core reason for consuming media is to pass time and/or "turn off one's brain" and/or unwind/relax	Hunicke, LeBlanc, and Zubek (2004); Schuurmaan et al. (2008)
Interactivity (Interactions between user and game elements, Social interaction)	When the core reason for consuming media is selecting and/or modifying experiences to which users are exposed	Selnow (1984); Bartle (1990); Myers (1990); Vorderer (2000); Sherry et al. (2006); Tocci (2012)

Phase II: User Study

We proceeded to collect empirical user data regarding how these appeals manifest for users across different media. We recruited 30 participants via various university mailing lists and researchers' social networks. All participants were 18 or older, and were active users of at least two different types of media objects. We conducted a semi-structured interview and asked participants about their preferred media objects and appeals for those objects to gain an improved understanding of appeals in general, as well as how users may describe appeal factors across multiple media (e.g., "I like games and books that are dark and gritty.").

Participants were asked to fill out the pre-interview questionnaire before coming to the session. In the questionnaire, they were asked to 1) specify which types of media they generally consume among options including books, video games, films/animations/TV shows, graphic novels/manga, music, and other; 2) provide two to three examples of the kinds of works they typically enjoy for each media type; 3) explain what they like about the listed examples; and 4) describe common characteristics of the examples listed. The purpose of thepre-interview questionnaire was mainly to prompt users to think about how these different media objects appeal to them prior to coming to the interview session.

In the interview session, we asked them more specific questions regarding the importance of three select appeals (i.e., *Mood, Setting,* and *Complexity*). Regarding *Mood*, we asked if they feel there is a prominent mood among the media objects they generally like to consume. Regarding *Setting*, we asked if the media objects they like tend to be based on our world, an imaginary world, or alternate world. Regarding *Complexity*, we asked if the media they typically like tend to have complex plots or structures, and if they have a preferred level of mental or intellectual engagement when choosing certain media. In addition, we asked how important they thought *Mood, Setting,* and *Complexity* were for them in determining consumption of certain media. We also asked them to describe any appeals (other than *Mood, Setting*, and *Complexity*) important to them when they choose to consume more than one type of media in order to identify other common cross-media appeals.

The responses from the pre-interview questionnaire and recordings of the interviews were open-coded using NVivo, a qualitative data analysis application. Four independent coders conducted coding, identifying all the instances where each appeal was mentioned. In order of frequency of citation, these five dominant appeals are *Mood* (24), *Theme* (23), *Setting* (21), *Complexity* (20), and *Character* (16), which will be discussed in more detail.

Mood

Overall, mood was the most commonly mentioned appeal by our participants. When the core reason of consuming media objects is to experience or appreciate particular feelings, we considered mood the core appeal. Specifically for music, mood was predominantly mentioned compared to other appeals—20 out of 24 participants said mood was particularly relevant to music. It was also apparent that the mood of music was especially relevant to tasks participants were carrying out as they were listening. Several participants mentioned that they select music that helps them better focus on their work, although the type of work could vary, such as studying, writing, exercising, or manual labor. For other media types, the mention of appeal seemed to be more distributed.

The calming aspects of mood (e.g., peaceful, relaxing, calm, etc.) were most frequently noted as the feeling sought by participants (18 responses), followed by humorous (17) (e.g., humorous, light-hearted, etc.), exciting (14) (e.g., intense, excited, aggressive, adventurous, etc.), and sad (13) (e.g., sad, melancholy, depressing, etc.). Other moods mentioned by more than five participants include: serious (12), unsettling (12), dark (8), and happy (8).

Another interesting tendency was that some participants found it easier to note moods they wanted to avoid, as opposed to moods they prefer and seek (e.g., "*Horror. Scary movies. I really hate that.*" (P11)). For users, being able to avoid particular moods may be as important as being able to select preferred moods, and thus should be considered in the design of recommendation systems.

Setting

Setting also played an important role in 21 participants' selection of media. When participants discussed setting, they tended to view it as an appeal that is broadly relevant to their general media consumption rather than to specific types of media. Setting was mostly mentioned with regard to media objects that have strong narrative components such as movies, TV shows, books, and games, but rarely to music.

For the participants who mentioned setting as a relevant appeal to them, we asked them to identify which setting primarily appeals to them among three categories: our world (the setting of media reflects reality, as it is now), imaginary world (usually a fantasy world, where users can enjoy imaginary settings and characters), and alternate world (between our world and an imaginary world, keeping the setting mostly real but having a little twist, such as having zombie or vampire characters). Overall, imaginary world was mentioned the most as a relevant setting to our participants (20), followed by alternate (14) and our world (10).

Complexity
Aspects of the complexity of media were mentioned by 20 participants. Participants' comments regarding complexity clustered into three types of sentiments: intellectual complexity (mentioned by 12 participants), structural complexity (11 participants), and time commitment (4 participants).

Intellectual complexity represents cognitive challenges posed by media, and asks for a greater share of a consumer's mental focus to process and understand the media. More elaborate and complex writing, a larger number of characters with more complex relationships, more complex plots, and complicated subject matter require more mental engagement from the user.

Structural complexity represents a clearly articulated set of characteristics that multiple users found particularly relevant. It is described as being significantly non-linear or multi-layered means of presenting the media, such as the use of framing, non-linear timelines and flashbacks, stories within stories, and multiple alternate points of view.

Lastly, time commitment, as an element of complexity, represents the time investment required to process the entirety of a media object. This aspect of complexity was important to some users because they had limited time to consume media objects in their everyday lives, and thus had to make decisions as to which media object they had to consume.

Character
Character was mentioned as an appeal by 16 participants, and character development (i.e., how characters grow up/change throughout the story) by four participants. Except for music, all media types that have a stronger narrative component tend to draw references related to this appeal. A few participants mentioned that they are drawn to media objects that feature specific types of characters with certain characteristics.

Participants also mentioned that they like characters to which they can relate. One participant (P1) specifically mentioned that she avoids any type of media that does not have any relatable characters to her. A few participants focused more on describing how the characters evolve and change in the narrative, rather than specific types of characters, indicating the importance of considering characters and narrative concurrently. It will be fruitful to further explore what exact aspects of character information (e.g., personality, occupation, gender, or appearance) users find useful and relevant, which would help establish a controlled vocabulary for character.

Theme
Of the five primary appeals that emerged from the user data, theme seems to be the most well represented appeal in existing systems and frameworks via metadata elements such as themes, subjects, and topics. Some examples of themes mentioned by users include references to appreciating post-apocalyptic themes in games and comic books, or historical themes in film and books. A majority of respondents (23) listed one or more themes that they considered useful or important in media. A number of general comments about the relevance of theme suggested that a particular type of subject matter is important to the user at a given time, representing some manner of "content" appeal in a particular context.

Summary of Key Findings

To summarize, the results of our study revealed the following findings:

- Based on frequency of citation, the five dominant appeals were *Mood, Theme, Setting, Complexity,* and *Character*.
- *Mood* is predominantly mentioned with regard to music, and the mood of music was especially relevant to tasks that participants were carrying out as they listened.
- *Setting* was frequently mentioned with regard to media objects that have strong narrative components, and could be organized into three broader categories: our world, imagined world, and alternate world.
- Participants' comments regarding *Complexity* can be classified into three elements: intellectual complexity, structural complexity, and time commitment.
- All media types that have a stronger narrative component tend to draw references related to *Character*. Further exploration will be necessary to understand what aspects of character information (e.g., personality, occupation, gender, or appearance) users find most useful.
- Some participants noted that a particular type of subject matter (*Theme*) is important to them at different points in time, representing some manner of "content" appeal in particular contexts.

The outcome of the study confirms that the three primary cross-media appeals we chose to more deeply explore were in fact relevant to media users, and that users were able to articulate these appeals by mentioning and categorizing specific moods, types of settings, and levels of complexity. These appeals could be used for users filtering the results in recommendation systems, complementing the use of other common access points. Adding these appeal categories as metadata in digital libraries will also help librarians provide recommendations transcending dependence on genre and theme, and help serve as a bridge to assist users in discovering new media in novel ways. This would also work across media boundaries.

Project Outcomes

We have presented the results of this work at ALISE 2016. We also have a conference paper presenting the results of this study that is currently under review: "Toward an Understanding of Cross-Media Appeals for Recommending Digital Media Objects."

Suggestions for Future Research

Based on findings obtained from the initial exploratory study, in future work, we plan to conduct a survey to further evaluate the relevance of the primary appeals identified and test the applicability of the categories established for describing these appeals with a larger group of users (Phase III in Table 1). We also hope to more fully explore and enumerate the descriptors users employ and possibly uncover other potential cross-media appeals. Candidate descriptive terms will be extracted from survey data for each appeal factor. Through a card sorting activity potentially involving facet analysis (i.e., identifying multiple dimensions or attributes of information represented in the terms), we will establish a controlled vocabulary of descriptive terms. The vocabulary will include a definition of each term and specify relationships among the terms.

After Phase III of the research is conducted, we envision two potential follow-up studies. The first study will be a systematic user evaluation of the controlled vocabularies created in this project. There will be three components to this user study:

1) Users will be asked to describe the common appeal factors of a sub-set of media objects they are already familiar with, using their own terms. Their description will help identify terms to be added to the controlled vocabularies as preferred or lead-in terms.

2) Users will be introduced to our controlled vocabularies and asked to describe the appeal factors of sample media objects based on our controlled vocabularies. We can then evaluate the usability of our controlled vocabularies and identify any issues or challenges in their application.

3) Users will be asked to provide feedback on the ease of use, understandability, and accuracy of the controlled vocabularies and to share what they liked and disliked about them. We can then us improve the quality of the controlled vocabularies in the next iteration.

A second study will focus on development of a prototype recommendation tool and subsequent usability testing. At the end of the proposed project, we will be well positioned to apply for support for full implementation of a prototype cross-media recommendation tool. The research team will design a prototype recommendation tool in the form of an HTML5 JavaScript web application that will allow users to browse various media objects based on appeal factors. A sample collection encompassing a wide variety of genres and topics and consisting of at least four different media types, (including fiction, video games, movies, and music) will be selected and catalogued from the UW Libraries Media Center and the Learning Resource Center at the DigiPen Institute of Technology. When the tool is ready for exploration, we will recruit 20-30 users who identify as average to heavy multimedia consumers to test usability, focusing on aspects such as usefulness, ease of use, ease of learning, and satisfaction. Researchers will observe how users interact with the tool and ask them to fill out a questionnaire eliciting feedback on specific evaluation criteria. We will also seek open-ended feedback regarding how the tool may be improved in the next iteration.

There are also fruitful areas to further explore regarding individual cross-media appeal identified and discussed herein. For instance, regarding the specific appeal of *Mood*, it was interesting to note that specific moods seem to be sought in certain media more often than others. These differences underscore the notion that, aside from general preferences and trends in these appeals, users sometimes want to seek media for specific purposes or gratifications. Future research could reveal how common these patterns are among a larger group of users.

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