

Information Needs for Anime Recommendation: Analyzing Anime Users' Online Forum Queries

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ABSTRACT

Despite the increasing consumption and popularity of audio-visual materials and non-textual information, recommendation-based information retrieval research regarding these materials remains limited. To provide robust recommendation services to users, it is critical to understand how users describe their needs when they seek audio-visual materials. We conducted a content analysis of 396 recommendation threads from Anime News Network online forums to identify 19 common information features used in these requests. Work, Theme, and Genre were the most frequently mentioned features when users described anime they were seeking. Findings also show Audience as an important anime information need. Together, these form a distinct set of interests, vital to understanding the information needs of anime users.

CCS CONCEPTS

• **Information systems** → Information retrieval → *Document representation; Ontologies; Thesauri*

Keywords

Audio-visual materials, Anime, Animation, Multimedia information, Information needs, Information seeking behavior, Query analysis

1. INTRODUCTION

The Association of Japanese Animation's report shows that the anime industry has grown for the last five consecutive years, becoming larger than ever. Due to the increase of merchandising, marketing, and distribution rights sales, the size of the Japanese animation industry in 2014 was reported at 1.6 trillion yen, approximately 14.4 billion US dollars [9]. Anime has also become a mainstream phenomenon in the United States [4]. Librarians are increasingly aware of the popularity of anime and manga and the need to include them in libraries [4], and researchers are recognizing anime as worthy of scholarly study [5].

Although demand for anime and other graphic materials continues to increase, a limited number of studies define and describe the characteristics of anime and explain why they appeal to their audiences. Closer inspection of existing anime programs at libraries reveals most were planned or structured by library users [2]. Due to a lack of domain knowledge, creating anime events or programs reflecting popular trends can be challenging and time-consuming for librarians [7]. A better understanding of anime and its users can help librarians work more efficiently.

With systems like Crunchyroll¹, Anime News Network², and Anime-Planet³, users cannot browse or search for anime based on specific interests. For example, searching for anime with elements beyond title and genre (e.g. characters, visual style, or length) can be challenging, as reported in previous studies [3][4]. Currently, users with more specific information needs depend on online anime and manga communities, forums, or QA websites. Anime and manga domains are well-known for having responsive communities [1], with experienced anime and manga users who are informally considered "experts."

Online forums are excellent sources of user data that can be analyzed to provide insight into anime users' information needs, trends within the domain, and the importance of human resources to anime users. The study investigates the information needs of anime users online, focusing on users looking for recommendations. By understanding recommendation-seeking behavior, we build a theoretical foundation for a taxonomy and recommendation system for anime materials which may be extended to other types of multimedia, such as films, audio books, media arts, video games, web comics, etc. Particularly, we aim to answer the following research questions in this study:

RQ1. What are the primary information needs of anime users when they seek anime recommendations?

RQ2. Are the information needs of anime users well-implemented in currently available information systems? If not, which features should be implemented to reflect users' needs?

2. METHODS

Our study used qualitative methods to analyze textual data from online forum threads, following the steps described in Hsieh and Shannon [6]. Data collection was performed in June, 2016, via a series of Ruby scripts which scraped data from the "General: Anime" forum on the Anime News Network online message board⁴. After an initial examination and analysis of the material, a second script was run to filter the original set for occurrences of "recommend" or "suggest" in the topic or body of each thread. The second set was manually screened to eliminate additional threads in which those strings occurred but did not actually discuss an anime recommendation request. The total number of relevant recommendation threads, once data cleaning was done, was 396. The codebook was then created and initial sample coding was conducted. Codes were revised after sample coding, and coders completed the qualitative coding task using Dedoose⁵, a software used for analyzing qualitative research.

¹ <http://www.crunchyroll.com/>

² <https://www.animenewsnetwork.com/>

³ <http://www.anime-planet.com/anime/all>

⁴ <http://www.animenewsnetwork.com/bbs/phpBB2/viewforum.php?f=1>

⁵ <http://www.dedoose.com/>

3. FINDINGS AND IMPLEMENTATIONS

The codebook contains 19 codes, each representing commonly used information features in users' recommendation requests:

Table 1. Identified anime features from online forum queries

Feature	Description	#
Work	Title of anime or other related media based on the anime (e.g., video games based on anime, related manga, etc.)	638
Theme	Frequently recurring anime structures	250
Genre	Categories of anime characterized by similarities in form, style, or subject matter, including typical genre labels that are commonly used by anime users	223
Audience	Intended audience and rating information regarding anime, including descriptions about the audience	154
Mood	The feeling and overall atmosphere of an anime	140
Plot/ Narrative	How the main events of anime are presented as interrelated sequence, including types of endings	134
Characters	Specific characters (a character from an anime mentioned by name) or types of characters (personality, appearance, occupation, age, etc.)	101
Tropes	Significant or recurrent motifs, relating or described by anime scenes or events	94
Package	Price, different versions, region code, special features	53
Artwork/ Visual style	The visual features and artistic design of an anime	50
Source/ Platform	Sources of anime and different types of platforms for viewing (e.g., DVD, streaming)	44
Creatives	Individuals and Corporate Bodies responsible for creating anime	34
Audio style	The Sound effects, music, or voices in anime	30
Language	Language of anime, including whether the anime is dubbed or has subtitles	29
Release date	The timeframe of an anime's release	27
Length	Running time, number of episodes	26
Popularity	Popularity of anime at certain time	9
Completeness	Whether anime has an ending or ongoing episodes	5
Other	Miscellaneous	23

In addition, we had one code representing users' attitude toward materials (+Don't like). For example, when a user mentioned that they did not like a visual style, Artwork/Visual style and +Don't like co-occur. There were also two codes representing relationships among materials (+Similar to, +Related to). Compared to a previous study [8], the current study identified 6 more features of anime: Theme, Tropes, Package, Creatives, Audio style, Language, Popularity, and Completeness.

Users often listed anime they like to represent the spectrum of their tastes. They seemed to expect other users to understand similarities among works presented and thus recommend something similar. Sometimes users listed all the anime they had watched to avoid recommendations for something they had seen. The findings of a previous study [8] suggest that allowing users to specify known anime to find similar items/examples or to exclude certain items may be necessary, with which this study's findings also agree.

It was noteworthy that the auxiliary code, +Don't like was one of the most frequently mentioned terms (204) by users (i.e., **P14765**: "nothing sad, please... I'm already too depressed (a lot more than you can probably imagine)"). It may indicate that users find it easier to identify or describe audio-visual materials they do not like rather than ones they like, indicating exclusion as an important feature for recommendation services. +Don't like was associated with features such as Tropes (113), Work (69), and Theme (35).

Other than the most popular codes identified, Artwork/Visual style (50) and Audio style (30) were important to some users (i.e., **P125843**: "well animated, that also pays attention to detailed movement and fluidity"). Unlike Genre or Theme, which are relatively well implemented in current recommendation systems, searches based on contexts such as artistic or audio style remain limited. These missing features seem to be one reason users turn to online forums for anime information.

Audience was also an important information need for users seeking anime recommendations. By describing themselves or a target audience, users generally expected others to understand their tastes and preferences for anime. Since media consumption is based on personal, subjective decisions, it is natural to see anime users introduce themselves to express their interests. However, implementation in recommendation systems is challenging due to users' emphasis on personal taste. A robust taxonomy could describe audiences and their audio-visual information needs.

4. CONCLUSION AND FUTURE WORK

In the study, we identified 19 different information features related to anime user information needs. Although users are consuming more non-textual information, a lack of recommendation-based research on multimedia information in the library and information science domain limits our understanding of the audio-visual information needs of users. This study aims to address that gap by improving our understanding of user needs, specifically targeting anime. Our findings suggest the importance of creating a context-rich taxonomy and controlled vocabulary for anime materials. Our preliminary findings act as a first step in our efforts towards organization and recommendation of multimedia information.

Due to the characteristics of online forums, we could not analyze users' demographic information, which could give research a clearer understanding of anime users. In the future, we plan to perform a large-scale survey and do interviews to better associate users' characteristics with their anime information needs.

REFERENCES

- [1] Chandler-Olcott, K. 2015. Anime and manga fandom: Young people's multiliteracies made visible. *Flood, Heath and Lapp*, 247-257.
- [2] Delaughter, M. 2011. Host Your Own Anime Convention. *Voice of Youth Advocates*, 34(4), 338-339.
- [3] Disher, T., Jett, J., & Lee, J. H. 2017. Investigating the Status of Anime Collections in Public Libraries. *iConference 2017*. Manuscript submitted for publication.
- [4] Exner, N. 2012. Anime-zing in North Carolina: Library Views of Anime Fans. *North Carolina Libraries (Online)*, 70(1), 28-34.
- [5] Fennell, D., Liberato, A. S. Q., Hayden, B., & Fujino, Y. 2013. Consuming Anime. *Television & New Media*, 14(5), 440-456. <http://doi.org/10.1177/1527476412436986>
- [6] Hsieh, H.F. and Shannon, S.E., 2005. Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), pp.1277-1288.
- [7] Kruse, K. 2013. Otakus. *Voice of Youth Advocates*, 36(4), 36-37.
- [8] Lee, J. H., Shim, Y., & Jett, J. (2015, June). Analyzing User Requests for Anime Recommendations. In *Proceedings of the 15th ACM/IEEE-CS Joint Conference on Digital Libraries* (pp. 269-270). ACM.
- [9] The Association of Japanese Animations. 2016. *Report on Japanese Animation Industry 2015*. Masuda, H., Hikawa, R., Sudo, T., Rikukawa, K., and Mori, Y.