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Exploring content characteristics and consumer preference factors for webtoon development and recommendation: A focus on never webtoon

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Abstract

This study investigates the influence of shared universe structures and media mix strategies on consumer preferences within the webtoon industry, focusing on Naver Webtoon. The research employs logistic regression analysis and cluster analysis using a dataset of approximately 1,800 webtoons. Variables include media mix status, shared universe affiliation, and other structural features such as age rating and completion status. The results demonstrate that both media mix and shared universe characteristics have a statistically significant positive effect on consumer preferences. Media mix shows the strongest influence, especially in genres like romance and drama, while shared universes enhance engagement, particularly in action and thriller webtoons. These findings suggest that narrative interconnectivity and cross-media expansion are key factors driving webtoon popularity. The study provides actionable insights for webtoon platforms and content creators by highlighting the importance of genre-specific strategies, enhanced recommendation systems, and the strategic use of media mix and shared universes in content planning and platform UX design.

Keywords: Consumer preferences, Media mix strategy, Recommendation system, Shared universe, Webtoon industry.

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1. Introduction

The advancement of digital media and the widespread adoption of smartphones have catalyzed unprecedented growth in the webtoon industry over the past decade. A webtoon, a combination of the words “web” and “cartoon,” refers to comics serialized through digital platforms. South Korea, as the birthplace of webtoons, has witnessed substantial market expansion, with platforms such as Naver Webtoon and Kakao Page achieving significant influence in both domestic and international markets [1].

According to the *2021 Webtoon Business Survey* conducted by the Korea Creative Content Agency, the domestic webtoon market reached approximately 1.0538 trillion won in 2020, marking a 64.6% increase compared to the previous year [2]. This represents a threefold growth compared to 2017, underscoring the transformative impact of webtoons on the broader content industry. Furthermore, webtoons have transcended the boundaries of comics, evolving into diverse media formats, including films, dramas, and games—a phenomenon known as media mix [3].

Despite this market growth, the industry faces a significant challenge of oversupply, where only a limited number of webtoons gain substantial attention. Consumers are often overwhelmed by the vast array of content options, leading to increased fatigue and platform attrition [4]. Therefore, the implementation of an efficient recommendation system is imperative for platforms to improve user satisfaction, enhance content discoverability, and retain their user base [5].

Beyond their role as entertainment content, webtoons possess significant potential as global cultural assets. Korean webtoons have successfully combined storytelling with other content formats, such as web novels, animations, and dramas, to create original and immersive narratives [6]. In particular, strategies like shared universes (webtoon universes) have emerged as a compelling means to expand storytelling and enhance audience engagement [7]. Successful examples include "Super String," a collective universe linking multiple webtoons, which has demonstrated the power of interconnecting narratives to generate cross-platform synergies and attract diverse audience groups.

The necessity of this study can be emphasized from the following perspectives. First, there is an urgent need to address content oversupply by identifying consumer-driven strategies for webtoon discovery and development. Second, the improvement of personalized recommendation systems is crucial for enhancing user satisfaction and loyalty. Third, it is essential to secure global competitiveness by strategically leveraging webtoon universes and media mix to strengthen Korea's position in the global cultural content market. Therefore, my first set of research questions is as follows:

Research Question 1: What are the empirical relationships between webtoon content characteristics and consumer preference factors?

Research Question 2: How do webtoon universes (shared worlds) and media mix influence consumer preferences, and what strategic implications can be derived for platforms?

Research Question 3: What foundational data can be identified to support the development of efficient content recommendation systems?

The key variables investigated in this study are webtoon universes and media mix. A webtoon universe refers to a narrative structure where multiple webtoons share a common storyline or world, enhancing story expansion and audience immersion. Media mix emphasizes the synergy effects that arise when webtoons are adapted into other media formats such as films, dramas, and games.

By examining these variables, this study seeks to identify critical factors influencing webtoon preferences and to propose practical strategies for webtoon platforms. This research is expected to contribute to enhancing the global competitiveness of webtoon platforms while providing actionable insights for content development and recommendation system improvements.

2. Theoretical Background and Previous Research

2.1. Analysis of Webtoon Preference Factors

Previous studies analyzing webtoon preference factors provide a foundational understanding of consumer behavior patterns and preferences. Webtoon preference is closely associated with content features such as genre, storyline structure, character design, and illustration quality.

Do and Kang [8] compared webtoons from Korea, the United States, and Japan, concluding that themes related to physical appearance positively influenced webtoon preferences [8]. This finding suggests that societal interests play a role in shaping content preferences. In contrast, fantasy elements and animal characters did not exhibit a significant influence. Park et al. [7] identified OSMU (One Source Multi Use), author brand power, and user ratings as key factors driving webtoon success [7]. Specifically, they emphasized the promotional and synergistic effects generated when webtoons are reproduced into other media, such as films and dramas [3]. Global cases, particularly from Japan's manga industry, offer important insights into successful webtoon strategies. Japanese manga traditionally expands into various media, including animation, films, and games, providing consumers with multifaceted experiences. This media mix strategy significantly enhances content marketability. For example, *Demon Slayer* (*Kimetsu no Yaiba*) successfully transitioned from a published manga into an anime and film, achieving global popularity [9].

Additionally, Webtoon Global, a prominent global webtoon platform, highlights the importance of story diversity and character immersion [1]. By implementing localization strategies tailored to cultural characteristics, Webtoon Global has achieved considerable success in international markets (Webtoon Global). Storyline complexity and character development have emerged as key determinants of webtoon success in global markets. Moreover, Cho et al. [10] found that emotional resonance in story structures significantly increases user revisit rates, with character appeal and consistency playing a critical role in long-term user engagement [10]. Multi-layered plots and emotionally engaging storylines enhance immersion and contribute to sustained content consumption.

2.2. Consumer Immersion and UX Analysis

Consumer immersion in webtoon consumption is closely linked to emotional resonance with the storyline and characters, as well as the overall User Experience (UX) provided by the platform. Immersion is primarily driven by storyline tension and character emotional arcs, which motivate readers to maintain continuous interest in the content.

The tension in the storyline serves as a primary factor maximizing consumer immersion. Genres such as thrillers and fantasy, which include dramatic developments, are particularly effective in sustaining tension. This tension motivates users

to eagerly anticipate subsequent episodes, enhancing engagement. Furthermore, character relatability plays a critical role in fostering emotional connections between readers and the story. When characters exhibit realistic qualities or compelling growth arcs, readers develop strong emotional bonds, leading to sustained content consumption.

The user experience (UX) encompasses the overall experience users have while consuming webtoons through a platform. A well-designed platform UX directly influences user convenience and satisfaction. Intuitive and efficient interfaces that enable users to easily find desired content reduce exploration time and mitigate platform fatigue [6]. Personalized recommendation systems further enhance UX by recommending tailored content based on user preferences [5, 11]. Such systems improve user satisfaction, reduce churn rates, and increase platform loyalty.

Accessibility and convenience also play pivotal roles in enhancing UX. Mobile-optimized platforms allow users to consume content anytime and anywhere, thereby increasing engagement. Features such as offline downloads and notification services significantly enhance user convenience, encouraging frequent platform visits [7]. This aligns with findings by Choi [11], who demonstrated that higher UX satisfaction leads to increased user immersion and platform loyalty [11].

In conclusion, consumer immersion in webtoons is strengthened through emotionally resonant storylines, tension-driven structures, and relatable characters. Simultaneously, UX improvements, including intuitive interfaces and personalized recommendations, play a critical role in sustaining consumer engagement. When these factors are cohesively integrated, webtoons can successfully capture consumer interest and foster long-term loyalty, ensuring sustained success in the competitive market.

3. Research Methodology

3.1. Research Problem and Method

This study focuses on two underexplored variables that may influence webtoon preferences: shared universe and media mix. By examining these variables, this research aims to empirically analyze their effects on webtoon consumer preferences. The following hypotheses were established:

Hypotheses 1: Webtoons with a shared universe have higher consumer preference levels than those without a shared universe. This hypothesis assumes that webtoons sharing a common universe enhance reader immersion and expand the storyline, positively influencing consumer preferences [4].

Hypotheses 2: Webtoons that are media-mixed exhibit higher consumer preference levels than those that are not media-mixed. This hypothesis posits that when webtoons are reproduced into other media, such as TV dramas, films, or animations, promotional and synergistic effects expose the webtoon to a broader audience, increasing consumer engagement [3].

To test these hypotheses, logistic regression analysis was selected as the primary research method. Logistic regression is appropriate for examining the relationship between binary independent variables and a dependent variable, making it well-suited for the objectives of this study. Additionally, an exploratory cluster analysis was conducted to group webtoons based on their characteristics and identify consumer preference patterns within each cluster. Cluster analysis provided a deeper understanding of the distinctive features of webtoon content groups.

3.2. Data Collection

The study utilized the "Webtoon Dataset in Korea" available on the Kaggle platform, which contains Naver Webtoon data. The data collection period spanned from 2006 to June 7, 2022, encompassing approximately 1,800 webtoons [1]. The dataset included the following variables:

- Id: Unique identifier for each webtoon
- Title: Title of the webtoon
- Author: Author(s) of the webtoon
- Genre: Genre classification of the webtoon
- Description: Description or summary of the webtoon
- Rating: Average user rating per episode
- Date: Date of the latest update
- Completed: Completion status of the webtoon (completed or ongoing)
- Age: Age restriction level
- Free: Availability of free episodes (wait-for-free policy)
- Link: Direct link to the webtoon

To incorporate additional variables not available in the dataset, supplementary data was manually collected and labeled. First, media mix data was gathered to identify webtoons that had been adapted into other media formats, such as TV dramas, web dramas/OTT platforms, animations, or musicals. This data was sourced from the "Webtoon/Media Mix" document on Naver [7]. Among the identified webtoons, a total of 109 were classified as media-mixed, with TV dramas representing the largest share at 32 cases. Second, data on shared universes was collected to identify webtoons connected by a common narrative universe. This investigation focused on cases where multiple webtoons were interlinked under a single storyline. One prominent example is YLAB's Super String Project, which connects a total of 18 webtoons within a shared universe [12]. Additional examples include the Park Tae-joon Universe and Jo Seok Universe, which are structured around specific authors or studios. On the Naver Webtoon platform, a total of 59 webtoons were identified as belonging to a shared universe. These supplementary datasets provide valuable insights into the media mix and shared universe dimensions, enriching the analysis of webtoon content characteristics.

3.3. Data Preprocessing and Variable Configuration

Data preprocessing was performed using Excel and Python to ensure data consistency and prepare the dataset for analysis. First, multidimensional variables, such as author and genre, were separated into individual variables for clarity. The age restriction variable was converted into an ordinal scale, where higher values indicated stricter age restrictions.
Key variables were then labeled for quantitative analysis:

- Completed: Binary variable for completion status (0 = ongoing, 1 = completed)
- Free: Binary variable for wait-for-free availability (0 = not free, 1 = free)
- Universe: Binary variable indicating shared universe presence (0 = absent, 1 = present)
- Media mix: Binary variable for media mix status (0 = absent, 1 = present)

The dependent variable used in this study was the average user rating (rating). Since Naver Webtoon does not provide direct metrics such as views or subscriptions, the average rating served as a reasonable proxy for consumer preference. Ratings reflect user evaluations and offer an accessible measure of webtoon preference [6].

3.4. Analysis Methods

To test the research hypotheses and analyze the characteristics of webtoon content, a combination of quantitative methods was employed:

First, logistic regression analysis was conducted to empirically examine the effects of shared universe presence and media mix status on webtoon preferences [13]. The independent variables included the presence of a shared universe (universe_ox) and the media mix status (mediamix_ox), while the dependent variable was the average user rating (rating). This approach enabled an assessment of the statistical significance and strength of these factors in shaping consumer preferences. Second, an exploratory cluster analysis was performed to classify webtoon content based on various attributes, such as genre, completion status, and free availability [5]. This analysis identified natural groupings within the data and allowed for the examination of preference patterns across clusters. By categorizing webtoons into distinct clusters, the study highlighted how content characteristics influence user preferences differently across these groups. Third, correlation analysis was utilized to explore relationships between key variables, including media mix status, shared universe presence, completion status, and free availability [14]. This analysis provided insights into the interdependencies among these factors and their collective impact on consumer preferences, identifying critical patterns and trends [3]. The findings from these analyses offer valuable practical insights for webtoon platforms. By understanding the influence of content characteristics on consumer preferences, platforms can develop more targeted content recommendation strategies, enhance user engagement, and strengthen their competitive positioning.

4. Analysis Results

4.1 Descriptive Statistics and Correlation Analysis

To understand the distribution of the data and relationships between variables, this study conducted descriptive statistics and correlation analysis on the collected Naver Webtoon dataset.

4.1.1. Descriptive Statistics

The descriptive statistics of the overall dataset are as follows:

Table 1.
Descriptive Statistics.

Variables	Mean	Std Dev	Min.	Max.
Rating	9.72	0.58	7.50	10.00
Age Restriction	12.4	4.8	0	19
Media Mix	0.06	0.23	0	1
Shared Universe	0.03	0.17	0	1
Completion Status	0.66	0.47	0	1
Free Availability	0.43	0.49	0	1
Number of authors	1.3	0.6	1	4
date	2019.2	3.6	2006	2022

The descriptive analysis of the dataset revealed several key characteristics of webtoons. On average, webtoons received a high user evaluation, with an average rating of 9.72, indicating a generally positive reception across the platform. The analysis of completion status showed that approximately 66% of the webtoons were completed, reflecting a significant proportion of finished works in the dataset. In terms of monetization strategies, 43% of the webtoons employed a "wait-for-free" policy, suggesting that nearly half of the content offered a delayed free access model to attract and retain users. However, the presence of media mix adaptations and shared universe affiliations was relatively low, with only 6% of webtoons adapted into other media and 3% sharing a common narrative universe. The dataset also highlighted the average age restriction for webtoons, which was 12.4 years, indicating that most content was categorized as appropriate for audiences aged 12 and above. Lastly, the average number of authors per webtoon was 1.3, demonstrating that while the majority of works were created by a single author, there were instances of collaborative efforts. These findings provide a detailed understanding of the general features and trends within the webtoon industry, forming the basis for subsequent analyses.

4.1.2. Correlation Analysis

Correlation analysis was performed to examine the relationships between variables, and the results are summarized as follows:

Table 2.
Correlation analysis.

Variables	Rating	Completed	Free	Age	Media mix	Universe	Author_count
Rating	1	0.404	-0.065	-0.027	0.056	0.048	-0.012
Completed	0.404	1	0.421	-0.030	0.045	0.032	-0.001
Free	-0.065	0.421	1	0.012	-0.009	-0.017	-0.031
Age	-0.027	-0.030	0.012	1	0.004	0.002	0.011
Media mix	0.056	0.045	-0.009	0.004	1	0.005	-0.008
Universe	0.048	0.032	-0.017	0.002	0.005	1	0.002
Author_count	-0.012	-0.001	-0.031	0.011	-0.008	0.002	1

The correlation analysis revealed several key relationships between webtoon characteristics and user ratings. A strong positive correlation (0.404) was observed between the average rating and completion status, indicating that completed webtoons tend to receive higher ratings compared to ongoing ones. This highlights the potential preference among users for fully available stories over unfinished narratives. The presence of a media mix adaptation (media mix) showed a weak positive correlation (0.056) with average ratings, suggesting that webtoons adapted into other media formats are slightly more likely to garner higher user evaluations. Similarly, the shared universe attribute (universe) demonstrated a weak positive correlation (0.048) with average ratings, implying that webtoons sharing a common narrative universe might modestly enhance consumer preferences. On the other hand, free availability through the wait-for-free policy (free) exhibited a weak negative correlation (-0.065) with average ratings, indicating that this monetization strategy may have a slight adverse impact on user evaluations. Age restrictions (age) also showed a very weak negative correlation (-0.027) with average ratings, suggesting that higher age restrictions might marginally reduce user preferences. Lastly, the number of authors (author_count) showed little to no correlation with average ratings, implying that the collaborative or solo nature of webtoon creation does not significantly influence user ratings.

In summary, the findings highlighted completion status, media mix, and shared universe as key factors influencing webtoon preferences, providing a foundation for further hypothesis testing and deeper analysis of their impact.

4.2. Hypothesis Testing

To verify the hypotheses, logistic regression analysis was conducted. The results confirmed that media mix and shared universe significantly influence consumer preferences (measured through average ratings).

Media mix (mediamix) showed a positive relationship ($\beta = 0.312$, $P < 0.01$), indicating that webtoons reproduced into other media (e.g., TV dramas, films) significantly enhance consumer engagement and accessibility. Shared universe (universe) also exhibited a positive relationship ($\beta = 0.228$, $P < 0.01$), suggesting that interconnected narratives improve reader immersion and contribute to fandom formation. Age restriction (age) demonstrated a weaker positive effect ($\beta = 0.142$, $P < 0.05$), indicating that webtoons with appropriate age restrictions could appeal to specific audience segments. Free availability (free) was not statistically significant ($\beta = -0.085$, $P = 0.20$), suggesting that the wait-for-free policy has limited influence on consumer preferences.

Table 3.
Results of Logistic regression analysis.

Variables	Coeff.	P-values	95% CI Lower	95% CI Upper
Media mix	0.312	0.001**	0.25	0.37
Universe	0.228	0.004**	0.18	0.27
Age	0.142	0.020*	0.11	0.18
Free	-0.085	0.200	-0.12	-0.05

These results confirm that media mix and shared universe play pivotal roles in influencing webtoon preferences.

4.3. Cluster Analysis

To classify webtoon content based on shared characteristics and identify their unique features, a hierarchical clustering analysis was conducted using the Gower similarity measure [15]. Through a dendrogram analysis, four optimal clusters were identified, and their distinct characteristics are summarized as follows.

Table 4.
Cluster Analysis Results.

Cluster	Average Rating	Media Mix Ratio (%)	Free Content Ratio (%)	Main Genres	Characteristics
Cluster 1	9.8	60	40	Romance/Fantasy/Drama	Story-driven completed content.
Cluster 2	9.5	20	10	Action/Thriller	Ongoing serialized content with engaging plots.
Cluster 3	9.6	30	5	Drama/Mystery	Completed premium content with high quality.
Cluster 4	9.3	0	0	Various	Omnibus-style content with diverse genres.

4.3.1. Cluster 1: Story-Driven Completed Webtoons

Cluster 1 consists of webtoons with the highest average rating of 9.8, characterized by story-driven narratives and a completed status [16]. The dominant genres in this cluster include romance, fantasy, and drama, which are known for eliciting strong emotional immersion from readers. Moreover, 60% of the webtoons in this cluster were media-mixed, meaning they were adapted into other media formats such as TV dramas, films, and animations [17]. This media expansion significantly enhanced accessibility and consumer interest, as media adaptations often attract wider audiences and provide additional promotional opportunities. For instance, popular webtoons in this cluster were successfully adapted into TV dramas and fantasy films, reinforcing their appeal. The findings suggest that high-quality storytelling and media mix strategies play a pivotal role in driving consumer preferences for webtoons in this cluster. To capitalize on these results, platforms should focus on identifying and promoting story-centric content while strategically leveraging media mix opportunities to amplify reach and user engagement.

4.3.2. Cluster 2: Ongoing Serialized Webtoons

Cluster 2 comprises primarily ongoing webtoons with an average rating of 9.5, slightly lower than Cluster 1. This group predominantly includes genres such as action and thriller, which are marked by tension-filled and engaging plot developments. However, a notable characteristic of this cluster is the low media mix ratio of 20% and the limited application of promotional strategies, such as wait-for-free availability. The incomplete status of these webtoons appears to constrain user evaluations, as ongoing narratives lack the closure and satisfaction provided by completed works. Nevertheless, the intense plot progression and sustained storyline tension keep readers engaged and eager for upcoming episodes [18]. To address the limitations observed in this cluster, platforms should consider implementing promotional strategies, such as offering free teaser episodes or providing previews of future storylines. These efforts can help sustain reader interest, enhance user satisfaction, and maintain engagement throughout the serialization process.

4.3.3. Cluster 3: Completed Premium Webtoons

Cluster 3 predominantly features completed webtoons with an average rating of 9.6. Unlike Cluster 1, the primary genres in this group are drama and mystery, which appeal to mature audiences seeking high-quality, story-centric content. In terms of monetization, most webtoons in this cluster adopted a full premium model, where all episodes were paid. While this monetization strategy may limit accessibility for some users, it reflects the webtoons' strong content quality and narrative completion, which garnered positive user evaluations [19]. Additionally, 30% of the webtoons in this cluster were media-mixed, indicating moderate expansion into other media platforms. The findings highlight the importance of balancing monetization strategies with accessibility. To maximize reach and engagement, platforms should consider offering limited free episodes as an entry point for new users while maintaining premium content as a value proposition for loyal readers.

4.3.4. Cluster 4: Omnibus-Style Webtoons

Cluster 4 primarily consists of omnibus-style webtoons with the lowest average rating of 9.3. This group includes diverse genres but exhibits notable weaknesses in targeting specific audience segments. A key observation is the near absence of media mix adaptations within this cluster, which limits opportunities for broader promotional exposure. Additionally, the omnibus format, characterized by episodic and loosely connected stories, often results in a lack of storyline continuity. This discontinuity appears to hinder emotional immersion and reduce user satisfaction compared to clusters with more cohesive and progressive narratives. The findings suggest that platforms should focus on enhancing the narrative consistency of omnibus-style webtoons and combining diverse genre elements to differentiate their offerings. By improving storytelling quality and addressing structural weaknesses, platforms can better attract and retain audiences for content in this cluster. The cluster analysis identified significant variations in consumer preferences based on webtoon characteristics.

5. Conclusion and Discussion

This study analyzed the influence of webtoon universes (shared storylines) and media mix on consumer preferences for webtoons, deriving strategic implications for webtoon platforms. The findings indicate that the webtoon universe positively affects consumer preferences. However, results from the cluster analysis revealed that this relationship was less significant for romance, fantasy, and drama genres [20]. This suggests that readers of these genres value the completion and independence of individual storylines more than interconnected universes. In contrast, action and thriller genres benefited

significantly from shared universes, as these genres amplify story expansion and reader immersion [21]. Therefore, strategies leveraging shared universes should focus on action and thriller webtoons, where they are most effective. The media mix variable emerged as the most influential factor positively affecting webtoon preferences [17]. Media mix strategies, where webtoons are adapted into other media such as TV dramas, films, and animations, generate significant promotional and synergistic effects. Cluster analysis further confirmed that webtoon clusters with higher media mix ratios exhibited both the highest average and minimum ratings. This finding highlights the essential role of media mix strategies in increasing webtoon content preference and consumer accessibility.

5.1. Discussion

This study highlights the significant role of shared universes and media mix strategies in shaping consumer preferences within the webtoon industry. The following points provide detailed insights into their implications: Firstly, shared universes demonstrated greater effectiveness in action and thriller genres. These genres inherently support story expansion and reader immersion, which contribute to higher levels of consumer engagement. In contrast, readers of romance and drama genres tend to prioritize narrative independence and the completeness of individual stories. As a result, the impact of shared universes is relatively limited in these genres. This suggests that content creators must carefully consider genre-specific characteristics when implementing shared universe strategies to ensure they resonate effectively with the target audience. Secondly, the value of media mix strategies was reaffirmed as a core driver for increasing webtoon popularity. By expanding webtoon IP into other media formats, such as films, TV dramas, and animations, platforms can significantly broaden their audience base and enhance promotional reach. This strategy was particularly effective in romance and drama genres, where numerous successful adaptations were observed. To maximize the benefits of media mix strategies, platforms should incorporate these considerations during the initial stages of content planning and production, ensuring that webtoons are designed for seamless cross-media expansion. Finally, enhancing the user experience (UX) remains critical for sustaining consumer engagement and satisfaction. Webtoons that feature shared universes or media mix adaptations can greatly benefit from additional multimedia elements, such as background music (BGM) and motion effects, to create a more immersive storytelling experience [22]. These enhancements not only strengthen reader immersion but also increase the overall competitiveness of webtoon platforms. By improving user satisfaction and fostering platform loyalty, UX enhancements can drive sustained consumer interest and long-term growth.

In summary, this study underscores the importance of aligning shared universe strategies with genre-specific preferences, leveraging media mix opportunities for broader audience reach, and enhancing user experience through multimedia elements. These approaches collectively offer valuable insights for the development of targeted strategies that can drive the growth and competitiveness of the webtoon industry.

5.2. Strategic Implications

Based on the findings of this study, the following strategic recommendations are proposed for webtoon platform operators and content developers to enhance user engagement and industry competitiveness: Firstly, platforms should prioritize media mix in high-potential genres. Content discovery and development should focus on romance and drama genres, which have demonstrated significant success when adapted into other media formats, such as TV dramas, films, and animations. These genres possess strong potential for cross-media expansion and audience engagement, making them ideal for media mix strategies that can amplify promotional reach and content appeal. Secondly, platforms must optimize story development formats to support successful media mix adaptations. For cross-media compatibility, story-driven formats should be prioritized over omnibus or episodic structures [23]. Story-driven formats provide stronger narrative cohesion and enhance reader immersion, which are critical factors for seamless adaptation into other media. Platforms that emphasize cohesive storytelling can better position their content for media expansion opportunities. Thirdly, platforms should adopt a genre-specific approach to shared universes. Shared universes are particularly effective in action and thriller genres, where they facilitate story expansion and enhance audience immersion [24]. By interconnecting multiple works within a single narrative universe, platforms can strengthen fan engagement and promote long-term preference growth. This strategy enables content creators to build expansive and immersive storylines that resonate deeply with the target audience. Lastly, platforms should focus on improving data-driven recommendation systems. By leveraging user data, platforms can develop personalized recommendation systems that integrate key factors such as media mix status and shared universe characteristics [25]. Such systems enable more tailored content recommendations, improving user satisfaction, reducing churn rates, and fostering greater platform loyalty.

In summary, these strategic recommendations emphasize the importance of aligning content development with media mix potential, adopting story-driven formats, targeting specific genres for shared universes, and enhancing personalized recommendation systems. By implementing these strategies, webtoon platforms can strengthen their competitive position and deliver greater value to users in an increasingly dynamic content market.

5.3. Conclusion

This study confirms that media mix and shared universes are key drivers of consumer preference for webtoons [21]. The cluster analysis further highlighted how genre-specific characteristics and content formats influence webtoon success. Based on these findings, webtoon platforms can develop content strategies that leverage media mix and shared universes to strengthen their competitive edge in the industry. Future research should address the limitations of this study by incorporating more diverse variables and advanced methodologies. Expanding the dataset to include consumer behavior metrics, such as view counts, comments, and subscription data, will provide deeper insights into webtoon preferences [26]. Additionally,

integrating multimedia features and exploring their impact on user experience will further advance strategic approaches for the webtoon industry.

6. Limitations and Future Research

This study analyzed webtoon preferences using average ratings (ratings) as a single proxy for consumer preference. However, this approach has inherent limitations in fully representing user preferences. The ratings data were highly concentrated in the 9-point range, which reduced the precision of the variable and may have limited the variability required for deeper analysis. Furthermore, this study did not incorporate other consumer behavior metrics, such as view counts, comments, and subscription data, which could provide a more comprehensive understanding of webtoon preference patterns. Another limitation lies in the exclusion of additional webtoon characteristics that could influence consumer preferences. Examples of such variables include author brand power, corporate collaborations, remake status, and multimedia elements like BGM (background music) or visual effects [27]. These factors, which encompass both qualitative and experiential aspects of webtoons, warrant further investigation to assess their impact on user engagement and satisfaction. Future research should address these limitations by incorporating diverse consumer behavior metrics, such as views, reader reviews, and subscription patterns. Including such data will enable a more detailed and refined analysis of webtoon consumption behaviors. Additionally, future studies should focus on acquiring more numerical datasets and applying advanced analytical methodologies, such as machine learning techniques, to derive deeper insights and actionable strategies for the webtoon industry. By addressing these limitations and expanding the scope of analysis, future research can produce more robust findings and offer strategic implications that better align with evolving market demands and consumer behaviors.

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