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Understanding the Effects of Personalization Behavior on Content Aggregator Use and User Satisfaction

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To the Graduate Council:

I am submitting herewith a thesis written by Jared Sebby entitled "Understanding the Effects of Personalization Behavior on Content Aggregator Use and User Satisfaction." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communication and Information.

Barbara Kaye, Major Professor

We have read this thesis and recommend its acceptance:

Nicholas Geidner, Mark Harmon

Accepted for the Council:

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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

**UNDERSTANDING THE EFFECTS OF
PERSONALIZATION BEHAVIOR ON CONTENT
AGGREGATOR USE AND USER SATISFACTION**

A Thesis Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Jared Wesley Seby
December 2019

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Thank you.

ABSTRACT

Content aggregators have become pillars of the digital media space and provide new avenues through which entertainment content can be distributed. This research examines the role aggregation plays in directing Millennial and Gen-Z audiences to entertainment content through the lens of Media System Dependency Theory (MSDT). This research asks which content aggregators are most common within this demographic, how important the ability to personalize a content aggregator is to the user, how common personalization is within each group, and whether users feel satisfied by the content aggregators they use.

This study finds that student users are widely satisfied with content aggregators, and that dependence on aggregators and personalization of content are related as anticipated by MSDT, despite only moderate aggregator use among students. Using two combined indices, positive relationships are found between user satisfaction and session frequency, dependence, and personalization. Additionally, some students are identified as power users, or individuals who spend more time personalizing and using the services than others who prefer only limited personalization.

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CHAPTER ONE

Introduction and General Information

During the past two decades, the popularity of news aggregation services has increased significantly, becoming many users' primary method of obtaining and experiencing news content. In 2015, nearly two-thirds of U.S. adults used an aggregation service to access news content (Lee & Chyi, 2015). Aggregators such as *Google News* curate a stream of digital content from a range of sources, including large-circulation national publications, local and independent media, and niche publications to provide users with a personal news product catered to their unique interests. Content aggregation services, however, often create “filter bubbles” that limit the articles provided more narrowly than users may want. Further, human gatekeepers or search algorithms may misinterpret the desires of the audience (Nechushtai & Lewis, 2018).

Much of the research about content aggregation specifically has focused on the aggregation of “hard” news – defined as politics, economics, war, and crime, but today more generally considered to be up-to-the-minute coverage of significant events (Lee & Chyi, 2015). A wealth of content exists outside the realm of hard news reporting, such as feature stories and editorials found in magazines, e-zines, newsletters and other entertainment media. Additionally, while some research has explored the relationship between Millennial and Gen-Z media consumers and content aggregation services, the specifics of those relationships, especially regarding entertainment content, personalization, and satisfaction are ripe for further investigation in various settings.

Focusing on contemporary college students' use of, and personalization of, content aggregators, this study furthers knowledge about the relationships between personalization and satisfaction within this demographic. The results of this study could be useful to media

producers, especially those operating new and emerging entertainment outlets, and could provide insight on how to target these media consumers through aggregation services.

CHAPTER TWO **Literature Review**

Content Aggregators

Searching for content online is often a convoluted process with meaningful stories often lost in the torrent of noise and chaff that floods the internet. In the daily downpour of entertainment news, the likelihood of audiences finding new, original, or self-published content outside the major streams of information becomes increasingly difficult (Kang, Tintarev, Hollerer, & O'Donovan, 2016). Aggregation services provide a way to deal with excessive information by aggregating, either by republishing or linking, large amounts of entertainment and news content into one place. Content aggregators free users from the time-intensive task of sorting through a seemingly endless list of links as typically provided by search engines (Beam & Kosicki, 2014).

Content aggregators usually are packaged as independent websites, mobile apps, or newsletters. Familiar examples include *Google News*, *Yahoo! News*, *Apple News*, and *Flipboard*. All of these work a little differently, but generally share some of the same functions and utilities: providing content derived from many sources, vetting content by staff editor or by algorithm to ensure some general standard of quality, organizing stories by category, presenting an overall “digest” of the day’s topics, and in many cases, allowing users to customize or personalize some or all of the content they receive (Anderson, 2013). This personalization can happen manually through user input or automatically through tracking profiles, or by some combination of the two (Beam, 2013).

Widely thought to have first appeared in the mid-to-late 1990s, aggregation rose to prominence as a consumer product with *Yahoo! News*, which was designed to help legacy media

transition into the digital space. *Yahoo! News* partnered with newspaper publishers who did not want to develop their own websites, mirroring print content on its own servers and splitting the revenue (Lee & Chyi, 2015). *Google News* arrived in 2002 with a new structure. It had no human editors and instead relied on algorithmic content discovery systems, driven by user preferences and news value variables that are set by Google's software engineers. *Google News* pulls content from a broader range of topics, including news, science, and entertainment (Chyi, Lewis, & Zheng, 2016). *Huffington Post*, which was founded in 2005, is a hybrid between traditional publishing and aggregation, offering original stories and summaries of the day's events from other publishers. *Buzzfeed* began as a content aggregator but expanded to offer elements of traditional journalism such as in-house editorial, news, and entertainment content as well (Tandoc & Jenkins, 2016). Overall, content aggregators have proven popular with many media consumers with millennials being one of the most significant user demographics (Lee & Chyi, 2015).

Aggregators long have been looked at with skepticism by traditional media entities. Publishers have voiced concerns that aggregators were "skimming" profits from the work of their journalists by acting as a middleman between the publication being aggregated and the aggregator user. Companies specializing in aggregation technology rebuke these claims, asserting that driving traffic to the publishers' websites only helps maximize publisher ad revenue, and that by optimizing stories to be better delivered by aggregators, the traditional forms stand to gain greater readership and higher click-through rates (Chyi et al., 2016).

Reality is somewhere in the middle. Some aggregators republish content on their own sites through partnerships with traditional media outlets, but others simply link users to the original publication. While publications often get more views on individual stories that perform

well on aggregators, they often receive fewer clicks overall due to the wide variety of sources that aggregators draw from (Anderson, 2013). Additionally, some aggregators republish content rather than linking directly to the original source, which is thus obscured from the reader.

The content aggregator industry today is quite different than it was even a few years ago. The introduction of Apple's news publishing service, *Apple News*, and a slew of apps that focus more closely on user-driven personalization than editorially-curated digests, may mean the traditional news websites are at risk of being displaced, especially among younger users. Where Millennial and Gen-Z audiences are going online for entertainment could have implications for the future of aggregation. Thus, this study asks:

RQ1: What content aggregators do college students use most commonly?

RQ2: To what degree do college students use content aggregation services for entertainment news in terms of a) the frequency of aggregator use, and b) length of time spent per session.

Dependence

As aggregation has supplanted single-source publications among some groups of media consumers (Lee & Chyi, 2015), studies of content aggregators use existing media theories to explain how users interact with them. Media System Dependency Theory (MSDT) defines media dependence as a strong psychological relationship between audiences seeking information and outlets providing it, based on the importance of a medium to the individual, thus supporting the possibility of potential content effects. Within the original theoretical context, audiences are believed to become dependent upon single sources of information, as well as the mass media system overall (Ball-Rokeach & DeFleur, 1976). This concept forms the basis for an

understanding of audience-media relationships, and has been developed to more broadly apply to media-audience, audience-audience, and media-media interrelations (Ball-Rokeach, 1985).

Today, content aggregators represent a significant portion of the media-audience relationship, acting as a mediator between the publication and the audience. In a study of mediated relationships conducted referencing MSDT, when an intermediary publication, such as a content aggregator, emerges in a previously-existing media-consumer relationship, the original source becomes dependent on the intermediary to amass and deliver content, and the consumers become less dependent on the original source and more dependent upon the intermediary to access and consume republished content (Kim & Jung, 2016).

This dependent relationship can be seen in data collected by Pew Research Center, which demonstrates a loyalty-based relationship between audiences and the publications they read. Nearly 76% of adults in the United States turn to familiar sources when they receive news, and 51% classify themselves as “loyal” to a certain source. However, only 4 in 10 adults who receive their news from links on content aggregators and social media could recall the source of that information. Young adults prefer to get their news online, often through a multi-source platform, such as a content aggregator or social media service (Mitchell, Shearer, Gottfried, & Barthel, 2016).

Despite these connections, undergraduate college student dependence on content aggregators has not seen the same depth of consideration and study as social media or mass media dependence, and few existing studies have focused on this group. Understanding how college students use aggregators, with consideration to the types of content they seek, can provide greater insight into their relationship with media overall.

RQ3: How intensely do college students depend on content aggregators for entertainment news?

Personalization

Aggregators provide many unique benefits to their users that traditional news services cannot provide. Millennials are especially attracted to the wide variety of content available, often from multiple sources, to the ability to personalize their experience by focusing on a particular type of content, for the speed at which content is accessible, especially during important events, and for the inexpensive or often free access (Chan-Olmsted, Rim, & Zerba, 2013).

Personalization occurs in several ways. Personalization may be invisible to the users, such as when advertising tracking profiles generate recommendations based on the places they shop, the stories they read, and even the geolocation, usage and fitness data provided by their phones. Similarly, Aggregators may request permission to deliver stories from a local area based on the location of the user's computer. Users may also set multiple rules for story selection, accept or decline recommendations, and tailor content based on their goals. Some aggregators, like *Apple News*, use a mixture of these inputs, recommending automatically and permanently adding categories to a user's news feed if engagement is high enough, and offering personalization buttons to ask whether users like or dislike individual stories, topics, or even whole categories, all of which will bias the algorithm in a certain direction. Alternately, if users wish to build a feed without assistance, some aggregators allow them to disable entire sections of the recommendation system (Haim, Graefe, & Brosius, 2018).

To some extent, a degree of personalization is unavoidable within most of the largest content aggregation services. However, when audiences are offered a choice between automated and intentional personalization within an experimental setting, two user groups can be identified

based on their actions and reception to the type of personalization they are exposed to. Individuals who consider themselves “power users” are more likely to prefer, and be more satisfied by, content delivered after they have spent time personalizing the aggregator for themselves. Conversely, “non-power users” prefer the results of automated personalization to the results of personalizing the system themselves (Sundar & Marathe, 2010).

Referring to the relationship between college students and personalization, this study asks:

RQ4: How important is personalization to college students who use content aggregation services?

RQ5: To what degree are students who use a content aggregation service actively engaged in personalizing content?

Satisfaction

Satisfaction plays a large role in the success of any product. This is no less true for media products, including aggregators. Much like in traditional consumer relationships, if users are dissatisfied with their experience, they will often go elsewhere. Reader satisfaction correlates positively with readership of traditional media such as local newspapers, and aggregators have the potential to develop a similar relationship (Hansen & Hansen, 2011).

If dependence is the strength of a user’s relationship with media, satisfaction is the mechanism that creates that relationship. Within Media System Dependency Theory (MSDT), satisfaction builds dependent and interdependent relationships between media producers and media consumers, and these satisfaction-based relationships may also extend to aggregation services as well. MSDT places the study of media systems within a theoretical framework of sociological literature, which considers both the mass media and its audience to be part of a

“larger social system,” allowing for the operationalization of relationships that exist between audiences, media, and society (Ball-Rokeach & Defleur, 1976, p. 4). Mass media serves multiple roles: persuasion, entertainment, and information. Within MSDT, dependency is defined as “a relationship in which the satisfaction of needs or the attainment of goals by one party is contingent upon the resources for another party” (Ball-Rokeach & Defleur, 1976, p. 6).

Due to the prevalence of dependent and interdependent relationships between consumers and the media, MSDT can be used to address satisfaction that arises from the relationship between aggregation service users and the services they depend on for entertainment content.

Thus, this study asks:

RQ6: How satisfied are users with content aggregation services for entertainment news?

RQ7: Is there a relationship between satisfaction with content aggregation services and a) the number of times accessed per day, and b) length of time spent per session.

RQ8: Is there a relationship between satisfaction with content aggregation services and level of dependency on these services?

RQ9: Is there a relationship between satisfaction with content aggregation services and the degree of personalization?

CHAPTER THREE

Method

This study quantitatively analyzes data collected through a survey of users of content aggregators drawn from a sample of students at the University of Tennessee. The survey was online between March 28, 2019 and April 22, 2019, and completed by 239 students. Survey responses were gathered via convenience sampling of undergraduate students in the UTK College of Communication. Students accessed the survey in one of two ways: through the School of Communication Studies Research Participation System, a web portal allowing students to fulfill research participation requirements through the completion of surveys, or through direct links sent to a selection of classes throughout the college. This study was approved by the UTK Institutional Review Board. 2432 students registered for the Research Participation System during the Spring 2019 semester.

Survey data are appropriate for studies of media system dependency, as can be seen in Kim & Jung's 2016 study on social networking service dependency, in which a survey was used to determine dependency between a social networking service and its users. The responses from this study will further knowledge about the type of content aggregator used most frequently, how often such aggregators are used, how strongly students depend on such services, how much respondents personalize the news they receive, how satisfied they are with the services, and whether use and personalization correlate with user satisfaction.

Study Variables

Aggregation service use and frequency. Respondents were asked to select which aggregation service they used most often from the following list: *Google News, Yahoo News, Apple News, Bing News, Feedly, and Flipboard.* If respondents used another service that was not

listed, they were asked to name that service. Respondents were asked to reference the service they use most often in subsequent questions. Students also were asked how often they access the service and the approximate number of minutes they spend per session as open-ended fill in the blank responses.

Dependency. How intensely students depend on content aggregation services was measured on a scale that ranges from 1 to 10 with one indicating very low dependence and ten as very high dependence. When reporting frequencies, the scale is divided into three sections: “low” encompassing 1-3, “moderate” comprised of 4-7, and “high” between 8-10.

Importance of personalization. How important personalization is to the user is measured on a 10-point scale that ranges from 1 to 10 with one indicating very low importance and ten as very high importance. Responses are reported as “low” encompassing 1-3, “moderate” comprised of 4-7, and “high” between 8-10.

Engagement, frequency and degree of personalization. Respondents reported how often they change the categories or settings of the aggregator they use most often to personalize the content distribution, on a five-point Likert-type scale ranging from ‘never’ to ‘very frequently’ to measure perceptual frequency. They were also asked how often they personalize their searches by: 1) providing specific terms, keywords, or categories to the service; 2) using options, settings, or preferences; 3) how often these options, settings, or preferences were changed; and 4) how often they used personalization buttons using five-point Likert-type scales ranging from ‘never’ to ‘very frequently.’ Response categories are 1-2 representing “low,” 3 representing “moderate,” and 4-5 representing “high.”

User satisfaction. Respondents were asked three questions about their level of satisfaction: “How satisfied are you with the variety of personalization options provided by your

primary content aggregator,” “How satisfied are you with how closely the aggregator matches the content it delivers to your personalization goals,” and “How satisfied are you with the variety of entertainment content your aggregator provides.” The respondents marked their answers on a ten-point scale from 1) ‘not at all satisfied’ to 10) ‘very satisfied,’ which were further classified as “low” 1-3, “moderate” 4-7, and “high” 8-10.

Data Analysis

The content aggregator used most often is determined by a count of the aggregators selected from the provided list. Means, standard deviation, and range calculations assess the number of times per day student respondents access a content aggregation service (RQ1), length of time per session (RQ2), and degrees of dependence (RQ3), importance of personalization (RQ4), personalization habits (RQ5), and satisfaction (RQ6). Additionally, indices of personalization and satisfaction were created. The Index of Personalization was created by summing the four personalization variables ($\alpha = .781$) and the Index of Satisfaction was created by summing the three satisfaction variables ($\alpha = .834$). Correlations tested relationships among the two indices and level of dependency.

CHAPTER FOUR Results and Discussion

Results

The survey was developed to collect data in several areas: 1) content aggregator use habits among college students (RQ1, RQ2, RQ3), 2) engagement with and importance of personalization features on content aggregators (RQ4, RQ5), 3) satisfaction with the functionality and content provided (RQ6), 4) correlations between user satisfaction and time spent using content aggregators (RQ7), 5) relationships between satisfaction with a content aggregator and dependency (RQ8), and 6) relationships between satisfaction and personalization (RQ9). Results are drawn from a sample of 239 students at the University of Tennessee, collected between March 28 and April 22, 2018.

The first two research questions asked about general use habits. *Google News* is the most commonly used content aggregator (61.9% of respondents), followed by *Apple News* (15.5%), and *Yahoo! News* (6.3%). A small portion of respondents (12.3%) opted to write-in a response; of these, the largest group reported using Twitter (4.3%) in a similar capacity to a content aggregator.

The second research question asked students how often they access their preferred aggregator and the length of time they spend per session. Most students use a content aggregator once a week (22.4%) to once every few days (30.8%) ($M = 2.84$; $SD = 1.31$; range: 1-5). Slightly more than one-quarter (28.3%) are heavy users who access a content aggregator at least or more than once per day, while 18.6% are light users who go on only about once a month. Average session length is 36 minutes ($M = 35.9$; $SD = 29.0$; range: 1-120 minutes).

The third research question examines dependency on aggregators for entertainment news. Students are moderately dependent on content aggregators ($M = 5.11$; $SD = 2.56$; range: 1-10), which indicates they use other sources to learn about celebrities and popular culture.

The next research question examined the importance of personalizing content. That content aggregators provide tools to personalize content is only moderately important to the respondent ($M = 5.75$; $SD = 2.68$; range: 1-10), suggests that students are content to read what news they come across.

Levels of personalization is examined by the fifth research question. The respondents moderately personalize content. Use of personalization buttons is highest ($M = 2.65$; $SD = 1.07$; range = 1-5), followed by selecting terms, keywords, and categories ($M = 2.42$; $SD = 1.10$), and filtering content by options, settings and preferences ($M = 2.33$; $SD = 1.07$). Respondents are unlikely to change or reset their settings ($M = 2.05$; $SD = .977$).

This study next investigates satisfaction with content aggregation services (RQ6). Despite moderate levels of personalization, students appear are satisfied with content aggregators They are most satisfied with the variety of entertainment news provided ($M = 6.66$; $SD = 1.92$; range = 1-10), followed by the variety of personalization options provided ($M = 6.32$; $SD = 1.80$), and finally, how well content is matched to their personalization goals ($M = 6.23$; $SD = 1.71$).

The last three research questions examine the relationships among use, satisfaction, and dependency on content aggregators. A significant positive relationship was found between the Index of Satisfaction and the frequency of content aggregator sessions (RQ7), $r = .365$, $p = .000$. The correlation between the Index of Satisfaction length of time per session, however, is not significant, $r = .08$, $p = .247$.

For RQ8, a moderately strong and significant positive relationship exists between the Index of Satisfaction and the dependence of users upon their primary content aggregator, $r = .496, p = .000$. This correlation is the strongest among the three variables.

Lastly, RQ9 shows a significant and positive relationship between the two indices of satisfaction and personalization (RQ9), $r = .249, p = .000$, suggesting that though students do not heavily personalize their preferred content aggregator, personalization is related to their overall satisfaction.

Discussion

Content aggregators are web-based services or applications that use a combination of filtering algorithms, personalization tools, and sometimes human editors to deliver digital content to users in a way that attempts to match their preferences for such content. This research was developed to help understand to what degree these services were being used by younger audiences, specifically college students, and whether the ability to personalize these aggregators directly impacts their feelings of satisfaction.

To ascertain what effects content aggregator personalization has on user satisfaction among college students who regularly use a content aggregator, a survey was developed to answer nine research questions about usage frequency, dependence, importance of personalization, personalization behaviors, and satisfaction.

Results indicate that students are not using content aggregators as often as their peers were a few short years ago. In 2016, 50% of young adults considered themselves heavy users of online news services (Mitchell et al., 2016), and a year earlier, 65% of adults used at least one aggregator frequently (Lee & Chyi, 2015). However, this study only found that 28.3% of students were heavy users of aggregators, with most only engaging in moderate to low use. For

students who use an aggregator, personalization is perceived as moderately to highly important, but not regularly engaged with.

Students are not flocking to new aggregators; rather, a majority use one of the oldest content aggregation services -- *Google News* -- and of those who use other services, most use either *Apple News*, which is installed by default and only accessible on Apple computers, phones, and tablets, or *Yahoo! News* (6.3%). Twitter, though not a content aggregator per se, was written in as an “other” entertainment source by 4.3% of the respondents. However, they reported overall moderate levels of satisfaction, both with the tools provided for personalization, and with the function of the aggregators themselves.

Students only use content aggregators with moderate frequency, rather than the high levels of use among younger audiences that was expected (Lee & Chyi, 2015). Most users access a content aggregator only a few times per week or fewer, typically spending half an hour at a time using the service.

In addition, students are not strongly dependent upon aggregators, providing a possible reasoning for why they are less inclined to use these products. Moderate aggregator dependence also indicates that only a moderate intermediary relationship is present between the students surveyed and the aggregators. The lack of a strong relationship between these factors appears to contradict what might be expected from earlier research on mediated relationships under MSDT (Kim & Jung, 2016).

Students, however, feel that the ability to personalize is moderately to highly important, despite lower levels of dependence than expected. Nearly one-third of respondents consider the ability to personalize or change the content aggregator as highly important. One explanation could be the presence of “power users,” or individuals who are invested in optimizing the

software to become more effective at delivering the types of entertainment content they hope to find. The presence of power users also explains the otherwise ambivalent response to these features, as prior research establishes that only a small subset of users are power users (Sundar & Marathe, 2010).

Engagement with personalization features is low to moderate, although students are slightly more likely to use buttons for personalization than other personalization methods, like settings or keyword filters. Higher engagement with personalization buttons could be the result of their prevalence and ease of use over their counterparts, which on some aggregators may be harder to access.

Satisfaction with aggregators is moderate, being highest for the variety of entertainment news presented; indeed, variety of content is one of the areas in which content aggregators have been shown to excel, as they present large amounts of content that users may be unlikely to find on their own (Beam & Kosicki, 2014). The results from this study reinforce the understanding of content aggregators as a generally convenient and accessible one-site portal for up-to-the-minute content discovery and consumption.

Students are not heavy users, but a significant positive correlation was found between how often students use their preferred content aggregator and how satisfied they are with it. Satisfaction, however, is independent of how long respondents spend using the content aggregator per session, indicating some variability of efficiency across the user experience, or simply different individual circumstances.

Satisfaction is strongly correlated with dependence, which supports prior assumptions that satisfaction can build dependent relationships between intermediaries in a media-audience relationship, similar to audience relationships with traditional media such as newspapers (Hansen

& Hansen, 2011). A positive correlation also exists between the degree of personalization and overall satisfaction, which may indicate that giving users the ability to more effectively personalize the content they receive is instrumental in achieving higher rates of user satisfaction, and building stronger relationships between the user and the aggregator. The correlations indicate that MSDT is a viable model for understanding the relationship between audiences and content aggregators through analysis of user satisfaction (Ball-Rokeach & Defleur, 1976).

Some of the discrepancy between existing research and this study may be explained by the focus on entertainment news instead of hard news, as existing research has primarily centered around hard news-oriented users of content aggregators. Indeed, recent work has indicated a preference for hard news, rather than entertainment, social, or opinion pieces for users of these services across all demographics, and users of these services often replace traditional news formats with their primary aggregator (Lee & Chyi, 2015).

Overall, this study found that, although content aggregators may seem foreign in their operation and threatening to legacy media, the way users perceive and interact with them follows many of the same rules as legacy media. The similarities present between legacy media and content aggregators can be studied using adaptations of existing theoretical lenses in ways that are congruent with other studies on user relationships with digital media.

CHAPTER FIVE

Limitations and Future Research

These results are limited in their application, however, as this survey was distributed to a convenience sample of undergraduate students, who are more familiar with digital media systems and services than the general public (Edgerly, Vraga, Bode, Thorson, & Thorson, 2017). This study also did not assess students' technical ability or understanding of aggregators or personalization beyond screening for students who used an aggregator more than once a month, and asking which personalization features they used.

Future research should expand the scope to include a more representative population or address the wider range of digital media services, such as social media, which may be supplanting content aggregators among college students and Generation Z users. To address possible limitations of this research, future endeavors could utilize a checklist index of personalization items to determine how well respondents understand personalization.

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Appendix

News Aggregators, Entertainment News, and College Students

You are invited to participate in a web-based online survey of user behavior and satisfaction with digital news aggregation systems. This is a research project being conducted by Jared Sebby (jsebby@vols.utk.edu), a graduate student at the University of Tennessee, Knoxville.

You are asked to complete a 12-question survey through the QuestionPro software. This survey asks about your use of **news aggregation services** for entertainment news, in terms of how often you use them, how much you rely on them, how much you personalize the content and how satisfied you are with them. **News aggregators** collect news from various media outlets onto one site for one-stop news reading. By **entertainment news**, we mean news and stories about celebrities, movies, music, or other types of popular culture. **We ask that you complete this survey only if you use a news aggregation service at least once per month.**

Your survey answers will be sent to UT using the software program QuestionPro for data collection. Your responses will be stored in a password protected electronic format. No identifying information, such as your name, email address, or IP address, will be collected.

Therefore, your responses will remain anonymous and confidential. The information you provide for this study could be used without identifiers in future studies, or could be provided to another investigator for future research studies without additional informed consent. Contact information is provided at the end of this survey.

To take the survey, begin clicking on the response options. **Completion of this survey will be taken as your permission to participate in this research. You may withdraw from the survey at any time by clicking on the exit button.**

The survey should take less than 10 minutes to complete.

News Aggregators are websites that provide news from several sources in one place. The first question asks about which news aggregator you use most often **for entertainment news**.

Q1: Though you may often access several news aggregators, click the button next to the one that you **go to first and use more than any other for entertainment news**, not including social media.

Google News

Yahoo! News

Apple News

Bing News

Feedly

Flipboard

Other: [FILL IN]

When answering the rest of the survey please do so in reference to the News Aggregator you chose in Question 1, which will be considered your ‘primary’ news aggregator:

Q2: How often do you use your primary news aggregator?

1 = Once per month – 2 = Once per week – 3 = Every few days – 4 = Once per day – 5 = Several times per day

This next question asks about how much time you spend using your primary news aggregator. When answering, please consider ‘a session’ as each time you access the website or app, scroll through the headlines, read content in depth and then close or sign out.

Q3: Per session, how much time do you spend using your primary news aggregator? If less than one hour per session, type in the number of minutes and type 0 in the box labeled “Hours.”

(FILL IN) Hours + (FILL IN) Minutes

For the next question, dependence is defined as **how strongly you feel like you depend** on the news aggregator you use most often for entertainment news. Please mark on the following scale how **dependent** you are on your primary news aggregator for entertainment news.

Q4: How much do you **depend** upon your primary news aggregator for accessing news and stories about celebrities, movies, music, or other types of popular culture? The scale ranges from 1= not very dependent to 10 = very dependent.

1 2 3 4 5 6 7 8 9 10

The next questions ask about how you personalize or choose the types of content you are shown. Personalization can be done by changing settings, choosing specific categories to show or hide, and rating content that you like or dislike. Thinking about your primary news aggregator, which you chose in Question 1, please answer the following questions about your personalization habits:

Q5: How important is it to you that your primary news aggregator allows you to **personalize** (set preferences) for the types of entertainment news you like best?

The scale ranges from 1= not very important to 10 = very important

1 2 3 4 5 6 7 8 9 10

Q6: This question asks how much you have personalized your primary news aggregator using the settings it provides. How many **personalization options, settings, and preferences** have you set on your primary news aggregator?

1= none, 2= a few, 3= quite a few 4= many, 5 = very many

Q7: If you have set personalized settings, how often do you **change or reset** them?

1= Never 2= Not Very Often 3= Sometimes 4= Frequently 5= Very Frequently

Q8: Some news aggregators allow you to provide specific **terms, keywords, and categories** to personalize the content they deliver. When personalizing your primary news aggregator, **how often do you provide specific terms, keywords, or categories?**

1= Never 2= Not Very Often 3= Sometimes 4= Frequently 5= Very Frequently

Q9: Some news aggregators use **buttons** for personalization. When personalizing your primary news aggregator, **how often do you click “like”, “dislike”, “Show me more,” “Do not suggest this category again,” or other personalization buttons?**

1= Never 2= Not Very Often 3= Sometimes 4= Frequently 5= Very Frequently

The last set of questions asks about how happy/satisfied you are with the way your primary news aggregator delivers personalized entertainment news.

Q10. How satisfied are you with your primary news aggregator’s **variety of personalization options?**

(Not Satisfied at all) 1 2 3 4 5 6 7 8 9 10 (Very Satisfied)

Q11: How satisfied are you with how closely your primary news aggregator **matches** the content delivered with how you wanted it to be personalized?

(Not Satisfied at all) 1 2 3 4 5 6 7 8 9 10 (Very Satisfied)

For the next question, variety is defined as the number of different stories you receive, and can be either a wide range of topics, or a wide range of positions on a single topic, depending on how you have personalized your primary news aggregator.

Q12: As you have personalized your primary news aggregator, how satisfied are you with the **variety of entertainment news** you receive from your primary news aggregator?

(Not Satisfied at all) 1 2 3 4 5 6 7 8 9 10 (Very Satisfied)

Thank you for completing this survey. If you have any questions please contact the researcher, Jared Sebby, at (). If you have questions about your rights as a participant, contact the Office of Research Compliance Officer at (865) 974-3466.

Vita

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