

## Technological Affordance Based Gratifications and their Impact on Media Selection

Chun Yang<sup>a</sup> and Erica Bailey<sup>b</sup>

<sup>a</sup>Louisiana State University, Baton Rouge, Louisiana, USA; <sup>b</sup>Angelo State University,  
San Angelo, Texas, USA

Correspondence: cyang10@lsu.edu

**Peer review:** This article has been subject to a double-blind peer review process



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### Abstract

*This study explored whether technological affordances introduced new gratifications and whether those gratifications influenced media consumption. An online survey was conducted using MTurk to examine whether individuals perceived technological affordance-based gratifications for different devices (TV, laptops, tablets, and smartphones) and whether those gratifications affected individuals' media consumption behaviors. Results suggested that technological features did cultivate a variety of new gratifications. We also found individuals' device selection was significantly associated with affordance-based gratifications. Although perceived low in affordance-based gratifications, TVs were still generally preferred over other devices for media content consumption. These findings not only illustrated the power of communication technologies in cultivating individuals' psychological needs, but also broadened the gratification research by identifying new gratifications and demonstrating that these gratifications could influence individuals' media consumption. In addition, findings in this study offered insights for designing technological features that can better satisfy individuals' psychological needs.*

**Keywords:** affordance-based gratifications, media selection, uses and gratifications

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## **Introduction**

The uses and gratifications (U&G) approach suggests that individuals' media consumption is driven by social and psychological needs (Rubin, 2009). Mainstream U&G research has focused on social and psychological motivations and considered these motivations as the driving force for individuals' media selection. In a pre-computer and pre-internet environment, it is understandable that limited attention was given to the possibility of technology-related gratifications. After all, the "new" technology then was the television. However, today's media consumers can access the same media content via different electronic gadgets. Given that devices differ in terms of technological affordances, it is worth asking whether interacting with different technological features provides media consumers with technology-based gratifications. By pausing, fast forwarding, clicking on hyperlinks, and zooming in, do viewers gain gratifications by simply interacting with these technological features? Several studies suggest this possibility (Mitchell, Rosenstiel, Santhanam, & Christine, 2012; Smith, 2015; Sundar & Limperos, 2013; Wang, Yang, Zheng, & Sundar, 2016). To extend the current literature, this study investigated whether interacting with communication technologies on different devices offered individuals psychological gratifications that are different from the ones examined in traditional U&G research using Sundar's (2008) MAIN model. Specifically, we investigated whether/how four types of devices (televisions, tablets, laptops, and smartphones) would impact four technological gratifications (modality, agency, interactivity, and navigability gratifications) suggested by Sundar and Limperos (2013).

If media consumers do in fact perceive different technological gratifications for different devices, do they strategically utilize different devices to access different media content? In other words, can technological affordances be used to explain why one would prefer a TV to a smartphone when watching football, but choose an iPad over a TV for news viewing? For example, laptops offer more ways to interact with the device and the content than TVs. Meanwhile, it is possible that these different technological features are appreciated differently by people for different media content consumption. A movie watcher might prefer a TV over a smartphone given the better immersive experience with a bigger screen, but the same person might choose a smartphone for news viewing because it is easier to search for news-related information (e.g., background information). This potential effect is also investigated in this study.

## **Literature Review**

### [Media Selection and Uses and Gratifications.](#)

Media effects research suggests that individuals are rewarded with a variety of gratifications by consuming media (For a review, see Rubin, 2009). More importantly, media consumption is not simply a passive process in which individuals lay back and accept any content that is presented to them. Contrarily, media viewers actively seek media content that can potentially satisfy their psychological needs. For instance, the U&G approach assumes audience members are active media consumers, consciously aware of the possible gratifications (Rubin, 2009). U&G research typically focuses on social and psychological factors that satisfy individuals' needs when consuming media content. Various gratifications have been identified over the years (Rubin, 2009), many of which are associated with traditional media (Rubin, 1981) and a growing variety of which are related to new media (Papacharissi & Rubin, 2000; Wei & Lo, 2006).

Several scholars argue that new communication technologies yield new types of gratifications (Grellhesl & Punyanunt-Carter, 2012; Sundar & Limperos, 2013). Given that empirical investigations of these gratifications are sparse, it is beneficial to understand whether technological features cultivate new psychological gratifications for media consumption considering emerging technologies (Knobloch-Westerwick, Johnson, & Westerwick, 2015). Besides, by focusing on a specific category of gratifications (i.e., technological affordance-based) with a set of measures proposed and used in previous studies (Sundar & Limperos, 2013; Wang et al., 2016), this project contributes to the effort of comparing gratifications across technologies – a challenge recognized by many researchers, especially in their research on new media (Quan-Haase & Young, 2010; Vishwanath, 2015). While there are plenty of studies that have examined new media from the U&G perspective, few have researched gratifications of more emergent technologies (e.g., tablets and smartphones).

### [Technological Affordances and Gratifications.](#)

The concept of affordance was proposed by Gibson (1977) to describe available action possibilities in the environment surrounding animals and human beings. Researchers of design and human-computer interaction adopted the term to study the design aspect of objects (Norman, 1988). In communication technology studies, it is often conceptualized as a relationship variable that not only refers to the characteristics of the technology and how users perceive these characteristics, but also how the technology is used to fulfill those action possibilities it informs (See Evans, Pearce, Vitak, & Treem,

2017, for a review). For instance, an alarm clock application on a smartphone provides the possibility to interact with the technology. The affordance here is based on the physical object and the feature, the perception of the possibility to input data and interact with the technology via touch screen, and the materialization of the possibility. This interaction between an individual and the technological feature is impossible or even inconceivable before the alarm clock applications were developed and incorporated into smartphones.

Researchers have long recognized the possibility that gratifications can originate from technological affordances of the medium (Lichtenstein & Rosenfeld, 1983; Ruggiero, 2000). Sundar's MAIN model (2008) provides a useful framework to examine how technology can bring new gratifications to media consumers. The model focuses on four main types of technological affordances: modality, agency, interactivity, and navigability. Each of the four main types of affordances represents a set of action possibilities afforded by the technological features. The affordance of modality refers to the ways information presentation is associated with certain media technology (e.g., textual, audibly, visually, or a combination) and a human sense that can perceive that presentation method (e.g., sight). Agency refers to the different sourcing that media technologies offer. The affordance through which individuals interact with media is defined as interactivity. Lastly, navigability is the affordance that allows users to move through media space. The model holds that these four affordances provide cues for users, which triggers cognitive heuristics about media content.

Many of the heuristics cued by technologies not only play a role in information processing as cognitive shortcuts, but also function as gratifications that people seek when consuming media content (Sundar & Limperos, 2013). The modality gratification can trigger several heuristics including *realism*, *coolness*, *novelty*, and *being there*. The *realism* heuristic concerns the extent to which content seems to mimic real life. For example, the motion modality afforded by the emergence of motion picture photography triggers the heuristic of realism such that individuals deem a visual representation of a train approaching as more realistic than a textual description of the same event, as manifested in the reaction of audience exposed to the first film, *Arrival of a Train at La Ciotat*. Perceived realism has also been repeatedly shown to increase with screen size (Hou, Nam, Peng, & Lee, 2012; Lombard, Reich, Grabe, Bracken, & Ditton, 2000). Researchers have found this to be due in part to image quality (Bracken, 2005). Similarly, content presented in virtual reality might cue the *being there* heuristic such that it is easier

for media users to be immersed in the mediated environment when playing a first-person video game, compared to a 2-dimensional version. Likewise, features such as cover-flow<sup>1</sup> on an iPod could cue both the *coolness* and the *novelty* heuristics, which could result in a more favorable experience (Sundar, 2008). With regard to *novelty*, Cano and colleagues (2017) found that touch screens positively influenced user-engagement when browsing clothing products. Specifically, users reported higher levels of novelty when they were able to rotate and pinch the visuals on an iPad. Repeated interactions with different devices/interfaces could cultivate media users' expectations of their media consumption experience (Sundar & Limperos, 2013). For instance, when checking news on an iPad, people may not only aim for satisfaction of their information needs, but also seek for the gratifications of *coolness* by using the unique features (e.g., multi-finger gesture) equipped with the device.

The agency affordance could also cue a variety of heuristics (Sundar & Limperos, 2013). Certain new technologies allow users to act as gatekeepers or sources of media content (e.g., YouTubers), which is termed the *agency enhancement* heuristic. Technological features also make it possible for users to build communities, as manifested by virtual communities in online forums. Furthermore, the need to know others' opinions on an issue can be satisfied by agency-based affordances, as shown in the feature of peer reviews on websites such as *Amazon.com*. The more positive feedback an item receives, the more likely one thinks the item is good. This *bandwagon* heuristic can be perceived as a gratification by users. The customization affordance leads to a *filtering* or *tailoring* heuristic and gratification with which one can filter out or tailor information as they desire. The possibility of creating media content by agency affordances provides a sense of *ownness* – a feeling that one owns the content and is in control, which could have evolved as a gratification.

The increasing amount of customization tools within websites and entertainment interfaces such as *Netflix* allow agency to become a dominant affordance (Sundar, Oh, Bellur, Jia, & Kim, 2012). Given that customization and crowd-sourcing tools enable users to exercise agency, highly involved users are more engaged with the agency-related affordances (Sundar & Limperos, 2013). Therefore, these affordances can potentially introduce gratifications of *agency enhancement*, *community building*, *bandwagon*, *filtering*, and *ownness*.

Technology affordances also allow users to specify their needs and

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<sup>1</sup> Cover flow is a 3-D animated interface that was widely known to be a unique feature of *Apple* products. Users can flip through snapshots of pictures, documents, album covers, and other visuals.

preferences on an ongoing basis, which can be categorized as *interactivity* affordances. Sundar (2008) argues these affordances can trigger heuristics related to interaction with media technology, a greater level of activity and responsiveness, and more dynamic control. Technologies that make it possible for easy movement through an interface (*navigability*) may trigger the *browsing* heuristic that allows users to check out various information on a media platform (e.g., different links on the Internet), or trigger the *scaffolding* heuristic to understand the availability of all the navigational tools, or cue the *play* heuristic – where users experience the positive feeling state resulting from moving through spaces or levels (e.g., in a video game).

### Affordance-based Gratifications of Devices

If different affordances foster a new variety of gratifications, we should anticipate behavioral changes in media selection based on the expectation of these new gratifications. Televisions, laptops, tablets, and smartphones are found to be the four ubiquitous media equipment in the current media environment (Dearman & Pierce, 2008; Fleury, Pedersen, Bo Larsen, 2013). In terms of content, news, sports, movies, and short entertainment are asked about in this study. To avoid risking respondent fatigue, asking about specific genres was avoided in lieu of broader categories that could encompass education, humor, suspense, etc. Although the same content can be accessed on each of these devices, the affordances provided by them differ. For example, watching a news program on television is different from viewing it on a laptop. Whereas the bigger screen of a television could potentially offer more details of a scene than a laptop, the latter allows people to filter out or skip certain content and obtain related information by accessing hyperlinks about the same or related news stories – possibilities that are not available on a television set. Although from the designer's perspective, it is obvious that different devices are equipped with different technological features and thus could potentially provide different gratifications for users, it's unclear to what extent users themselves perceive these differences and anticipate different gratifications. In this study, we examined how these four devices differed in modality, agency, interactivity, and navigability, and whether these differences influenced the perceived gratifications among media users.

As part of modality, screen size has been examined by researchers in terms of its psychological effects. Prior research suggests that screen size is positively associated with media consumer's perception of realism of the media content (Detenber & Reeves, 1996; Hou, et al., 2012; Lombard, 1995; Reeves, Detenber, & Steuer, 1993). Thus, we predicted that:

**H1:** The bigger the screen size of a device, the more *realism* gratifications an individual would perceive.

Given the positive relationship between perceived realism and engagement (i.e., being part of the media narrative world) in the content suggested by a whole body of literature (Busselle & Bilandzic, 2008; Cho, Shen & Wilson, 2014; Green & Brock, 2000 & 2002), it is reasonable to expect a similar relationship between device type and the *being there* heuristic.

**H2:** The bigger the screen size of a device, the more *being there* gratifications an individual will perceive.

As for *coolness* heuristic and gratifications, new technologies have been incorporated into each of four devices in recent years (e.g., multi-finger touch technology has been widely used in smartphones, tablets, and laptops whereas Ultra HD technology is a new feature for new generations of televisions). Therefore, it is hard to tell which one is perceived as cooler and more novel than the others. Thus, a research question was proposed:

**RQ1:** Do devices differ in providing gratifications of *coolness* and *novelty* to users?

Newer generations of televisions such as smart TVs allow users to take control of the content viewing process to a certain extent. For example, online applications (e.g., YouTube) are pre-installed and incorporated into many smart TVs. However, it is still not as convenient as other mobile devices to maneuver and switch between different tasks on a TV. Although viewers can surf online on a smart TV, the absence of a keyboard and mouse/multi-touch keyboard does not give users the same level of ease and convenience to navigate and explore. Therefore, televisions are lower in *agency-based* affordances (e.g., become the source of information, enhance agency, build community, view majority opinions, etc.) than the other three devices. Thus,

**H3:** TVs would be perceived as lower in any of the *agency-based* gratifications than the other three devices (smartphones, laptops, and tablets).

Smartphones, tablets, and laptops make customization of media experiences simple and are therefore similar in affordances that cue the *agency-based* heuristics. This makes it difficult to make directional predictions. Thus, we asked:

**RQ2:** Do devices differ in levels of *agency-based* gratifications?

A third type of affordance-based gratifications is *interactivity* gratifications, which dictates to what extent media consumers are rewarded with different levels of interaction, activity, responsiveness, and dynamic control. To media consumers, the main options for them to interact with TVs are remote controllers and control panels, whereas smartphones, tablets, and laptops offer media consumers more options for interaction such as typing on a keyboard (virtual or physical), clicking, scrolling, zooming, voice controlling, etc. Therefore, we predicted that:

**H4:** TVs would be associated with a lower level of *interactivity-based* heuristics/gratifications than smartphones, tablets, and laptops.

Given that smartphones, tablets, and laptops offer similar features that allow for interactivity, it is unclear whether participants will view them significantly differently with regard to their *interaction-based* gratifications.

**RQ3:** Do TVs, laptops, tablets, and smartphones differ in perceived *interactivity-based* gratifications?

Communication technologies also enable media consumers to browse and explore, obtain information, and experience fun during interaction with media. These *navigability-based* gratifications could also differ between devices. Obviously, compared to other devices, TVs provide fewer opportunities for viewers' exploration.

**H5:** TVs are lower in *navigability-based* gratifications than smartphones, tablets, and laptops.

It is unclear whether smartphones, tablets, and laptops differ in *navigability-based* gratifications, given no theory or prior research offers any guidance. Therefore,

**RQ4:** Do smartphones, tablets, and laptops differ in expected *navigability-based* gratifications?

### **Affordance-based Gratifications and Device Selection for Media Consumption**

If people do perceive new gratifications originated from interaction with technological affordances, one may wonder if these gratifications can predict what device people will use for different media content. Research shows that people use different devices to access the same media content (Blodget, 2013; Mitchell et al., 2012). There is evidence suggesting that the selection of devices may have been driven by the anticipation of different gratifications afforded by different technological features equipped on different devices



(Blodget, 2013). However, this proposition awaits further empirical testing (Sundar & Limperos, 2013).

The selection of devices is not only affected by the affordance-based gratifications, but also depends on the type of media content. When it comes to movie watching, it could be the *realism* and *being there* gratifications that motivate some people to use TVs rather than other devices (smartphones, tablets, or laptops). However, for those who have both TVs and mobile devices around but still choose to watch movies on their laptops or tablets, the *interactivity-based* gratifications might have played a role in addition to other factors (e.g., convenience). For instance, one can use reviews to make a decision on which movie to watch, open a browser and search for information on the character or plot, or search for tips and discussions online to help figure out a complex storyline. Similarly, people might choose mobile devices (e.g., smartphones) for video news viewing with the expectation of higher levels of *interactivity* and *navigability*, compared to televisions. On the other hand, a TV's larger screen or other features (e.g., Ultra HD) might make it more attractive than other devices.

Nonetheless, it is unclear how affordance-based gratifications affect device selection for different media content. Research suggests news viewing might be positively associated with *agency-based* gratifications (Jang, 2014; Knobloch-Westerwick et al., 2015; Knobloch-Westerwick & Kleinman, 2012). Whether this holds for other devices remains a question. Additionally, for other affordance-based gratifications, we know little about whether they affect device selections for different media content.

**RQ5:** How are affordance-based gratifications associated with media consumption of different types of media content on different devices?

In the current study, we focused on four types of media content: news, sports, movies, and short entertainment (30-minute to one hour-long shows).

## **Methods**

### **Design, Participants, and Procedures**

An online survey was conducted between April 24<sup>th</sup> and 27<sup>th</sup> in 2015 with respondents recruited from *Amazon Mechanical Turk*. They were paid \$0.70 in exchange for completion of the questionnaire. Among the 203 respondents who completed the questionnaire, one failed the validation question and was therefore dropped from analyses. The resulting sample ( $N = 202$ ) had 53% males, 80%

white, with ages ranging from 18-70 ( $M = 34$ ,  $SD = 11.79$ ).

Respondents were asked to indicate whether they had a smartphone, laptop, tablet, and television. Then, they reported the extent to which they believed their personal devices afforded them with modality, agency, interactivity, navigability, and mobility (they could skip the corresponding questions if they did not own the device). The next set of questions were almost identical except the perceived level of affordances reported were not about respondents' own devices, but the four types of devices in general.<sup>2</sup> Participants also indicated how often they viewed short media entertainment, movies, sports, and news on each of the four devices as how desirable they thought it was to access the content on each device.

### Measures

All variables were scored on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) unless specified otherwise. Means and standard deviations can be found in Table 1 and 2. There were two sets of questions measuring the five categories of gratifications. The wording of these two sets were identical except one asked the perception about respondents' own devices and the other about the type of device in general.

Table 1. Means and Standard Deviations of Affordance-based Gratifications by Devices

		Type of Devices				
		TVs	Laptops	Tablets	Smartphones	
Gratifications	Modality	<i>Realism</i>	5.49 (1.48)	5.96 (.98)	5.77 (1.12)	5.87 (1.02)
		<i>Being there</i>	5.59 (1.28)	5.83 (1.31)	5.50 (1.39)	5.20 (1.50)
		<i>Coolness</i>	4.86 (1.61)	5.22 (1.52)	5.53 (1.24)	5.58 (1.31)
		<i>Novelty</i>	4.45 (1.62)	5.27 (1.43)	5.51 (1.34)	5.50 (1.33)
	Agency	<i>Agency enhancement</i>	2.23 (1.61)	5.69 (1.28)	5.19 (1.53)	5.45 (1.36)
		<i>Community building</i>	2.41 (1.68)	5.93 (1.06)	5.46 (1.36)	6.15 (.87)
		<i>Bandwagon</i>	3.78 (1.92)	6.14 (.98)	5.70 (1.19)	5.79 (1.09)
		<i>Filtering</i>	4.66 (1.77)	5.53 (1.39)	4.95 (1.56)	4.88 (1.47)
	Interactivity	<i>Ownness</i>	3.13 (1.82)	5.99 (1.10)	5.51 (1.35)	5.75 (1.18)
		<i>Interaction</i>	3.34 (1.75)	5.84 (1.10)	5.51 (1.27)	5.58 (1.11)
		<i>Activity</i>	2.43 (1.61)	6.27 (1.02)	5.44 (1.38)	5.42 (1.44)
		<i>Responsiveness</i>	4.80 (1.64)	6.07 (1.07)	5.72 (1.23)	5.76 (1.09)
	Navigability	<i>Dynamic control</i>	4.22 (1.83)	5.98 (1.13)	5.58 (1.24)	5.76 (1.08)
		<i>Browsing</i>	3.88 (1.92)	6.43 (.81)	6.16 (1.03)	6.03 (1.22)
		<i>Scaffolding</i>	4.53 (1.67)	6.02 (1.05)	5.82 (1.13)	5.82 (1.20)
Mobility	<i>Play</i>	4.45 (1.72)	6.14 (1.11)	6.04 (1.22)	5.77 (1.41)	
		2.65 (1.28)	5.22 (.98)	5.15 (1.11)	6.20 (.73)	

Note:  $N = 202$ . Standard deviations are in parentheses.

<sup>2</sup> This is a measure of the perceived modality of a certain type of device in general rather than one's own device.

Table 2. Frequencies and Perceived Desirability of Accessing Content on Devices

Devices	Media Content							
	Movies		Sports		News		Short Entertainment	
	How	How	How	How	How	How	How	How
TVs	4.25	5.35	2.94	4.45	4.19	6.40	5.17	6.09
Laptops	2.98	4.41	1.86	2.89	3.85	4.73	3.83	4.86
Tablets	1.85	3.61	1.44	2.27	2.38	3.53	2.45	3.80
Smartphones	1.55	3.39	1.47	1.94	2.97	2.25	2.56	3.11

Note:  $N = 202$ . Standard deviations are in parentheses.

#### Device Ownership

Device ownership was assessed with a single item measure for each of the four devices. Most respondents (88%) reported owning a television, 88% a laptop, 61% a tablet, and 81% a smartphone.

#### Modality-based Gratifications

Four statements were adapted from Sundar and Limperos (2013) to assess the four types of gratifications. The *realism* gratification was measured by indicating to what extent the content presented on devices looks real and not made up. The gratifications of *coolness*, *novelty*, and *being there* were assessed by reporting the extent to which devices were stylish, innovative, and helped respondents to immerse themselves in places that they cannot physically experience, respectively.

#### Agency-based Gratifications

Five items were adapted from Sundar and Limperos (2013). Respondents indicated to what extent they perceived each device makes it easy for them to broadcast to people (*agency-enhancement*), to connect with others (*community building*), to avoid viewing content that they do not want to see (*filtering*), to access the opinion of others (*bandwagon*), and to customize so that they can make it their own (*ownness*).

#### Interactivity-based Gratifications

The interactivity-based gratifications were measured with four items (Sundar & Limperos, 2013) that asked respondents to assess whether the devices would allow them to specify their needs and preferences on an ongoing basis (*interaction*), whether they could do a lot of things on the devices at once (*activity*), whether the device was responsive to their commands (*responsiveness*), and whether they were able to influence how the device works (*dynamic control*).

#### Navigability-based Gratifications

Participants reported their perceived navigability gratifications with three adapted items (Sundar & Limperos, 2013): “On my [device], I

can easily surf for things I'm interested in" (*browsing*), "My [device] offers a number of visual aids for more effective use" (*scaffolding*), and "It's fun to explore on my [device]" (*play*).

#### Mobility-based Gratifications

Mobility is an affordance that separates television from smartphones, tablets, and laptops. This feature might help explain why people use these devices to access different media content (e.g., viewing news on smartphone when on the subway). To tease out the confounding impact of mobility, we added a measure of mobility and statistically controlled for its effects in related data analyses (RQ5). Device mobility was a 4-item measure adapted from Wei and Low (2006). Items included: "My [device] allows me to be accessible to anyone no matter where I am," "My [device] allows me to have immediate access to people," "My [device] allows me to have immediate access to information," and "My [device] is easy to transport." The scales were reliable with values of Cronbach's  $\alpha$  ranging from .77 to .81 for the four devices.

#### Media Consumption

Frequencies of viewing each type of content on each device was assessed on a 7-point scale ranging from 1 (*never*) to 7 (*several times a day*). Other anchors were *once a month*, *several times a month*, *once a week*, *several times a week*, and *once a day*.

#### Desirability of Accessing Content on Devices

Perceived desirability of accessing the content on the device was crafted to capture the attitudinal assessment that may have contributed to the actual device selection decision (for owners) or to help with potential behaviors (for those who didn't own the device). Respondents indicated how desirable it would be to access media content on the device with a 7-point scale ranging from 1 (*not at all desirable*) to 7 (*very desirable*).

## Results

#### Modality-based Gratifications for Devices

H1, H2, and RQ1 focused on the potential difference among devices in modality-based gratifications. Specifically, H1 and H2 anticipated the positive relationships between screen size and the gratifications of *realism* (H1) and *being there* (H2). Two repeated measures ANOVAs<sup>3</sup> employing a multivariate approach were conducted to examine these potential differences among the four devices. Devices differed in *realism* gratifications, Wilks'  $\Lambda = .92$ ,  $F(3, 117) = 3.53$ ,  $p < .05$ , partial  $\eta^2 = .08$ . TVs provided the least amount of *realism*

<sup>3</sup> In all the repeated measures ANOVAs, only those who indicated owning all four devices were included ( $N = 120$ ) because they had to report to what extent their own devices satisfied each type of gratifications.

gratifications among the four devices. No other differences were yielded in other comparisons. Thus, H1 was not supported. Differences were also revealed for *being there* gratifications, Wilks'  $\Lambda = .84$ ,  $F(3, 117) = 7.20$ ,  $p < .001$ , partial  $\eta^2 = .16$ . Contrary to the prediction, TVs were lower in *being there* gratifications than laptops, and laptops were the highest with  $p$ -value ranged from .001 to .012. Our data failed to support H2. RQ1 and RQ2 asked whether devices differed in *coolness* and *novelty* gratifications respectively. Differences were detected for both gratifications: for *coolness*, Wilks'  $\Lambda = .85$ ,  $F(3, 117) = 6.69$ ,  $p < .001$ , partial  $\eta^2 = .15$ ; and for *novelty*, Wilks'  $\Lambda = .79$ ,  $F(3, 117) = 10.43$ ,  $p < .001$ , partial  $\eta^2 = .21$ . Smartphones and tablets did not differ but were both higher than other devices on *coolness* ( $p$ -values ranged from .001 to .03). TVs were lower in *novelty* than any other device with  $p$ -values all less than .001. No other difference was found.

### Agency-based Gratifications for Devices

A second set of repeated measures ANOVAs were conducted to examine whether devices differed in the five different *agency-based* gratifications; analyses to test H3 (TVs lower than others) and RQ2 (whether other devices differ). The ranges of statistics were: Wilks'  $\Lambda$ s from .18 to .72,  $F(3, 117)$  from 15.19 to 176.51,  $p$ -values all less than .001, partial  $\eta^2$  from .28 to .82.

In support of H3, TVs were found to be lower than any other device in all five *agency-related* gratifications.<sup>4</sup> RQ2 asked whether other devices differed in the five *agency-based* gratifications. Laptops were the highest in *agency enhancement* among the four and smartphones were higher than tablets. Smartphones were believed to provide more *community building* gratifications than any other devices ( $p$ -values all equal or less than .001), and laptops more than tablets ( $p = .003$ ). For both *filtering/tailoring* and *bandwagon* gratifications, laptops were perceived as a better provider than any other devices. Lastly, for *ownness* gratifications, smartphones and laptops were significantly higher than tablets but were not different from each other. No other significant findings were identified. These results suggested that differences did exist in the several *agency-based* gratifications among smartphones, tablets, and laptops.

### Interactivity-based Gratifications for Devices

Repeated measures ANOVAs testing whether devices differed in *interactivity-based* gratifications returned the following: Wilks'  $\Lambda$ s from .18 to .68,  $F(3, 117)$  from 18.43 to 177.39,  $p$ -values all less

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<sup>4</sup> Hereafter, all the significant findings were at  $p < .05$  unless otherwise indicated and were not included given the space constraint. Statistics are available upon request.

than .001, partial  $\eta^2$  from .32 to .82. TVs offered the least amount of *interactivity-based* gratifications than all other devices, supporting H4. RQ3 concerned the potential differences of *interactivity-based* gratifications among other devices. Laptops were superior to tablets in *interaction* gratifications. For *activity* and *responsiveness* gratifications, laptops were a better source than tablets and smartphones. Lastly, for *dynamic control* gratifications, smartphones and laptops performed better than tablets. Therefore, differences did exist in the several *interactivity-based* gratifications among smartphones, tablets, and laptops.

#### Navigability-based Gratifications for Devices

Repeated measures ANOVAs were conducted to examine whether devices varied in navigability-based gratifications. Indeed, differences were identified: Wilks'  $\Lambda$ s from .41 to .62,  $F(3, 117)$  from 24.27 to 56.36,  $p$ -values all less than .001, partial  $\eta^2$  from .38 to .59.

Specifically, in support of H5, TVs were associated with lower values on the four *navigability-based* gratifications than other devices. RQ4 focused on the potential differences of *navigability-based* gratifications among devices. For *browsing* gratifications, respondents considered laptops a better source than tablets and smartphones. No differences were yielded among laptops, smartphones, and tablets in *scaffolding* and *play* gratifications. Therefore, smartphones, tablets, and laptops differed in some of the *navigability-based* gratifications.

#### Effects of Affordance-based Gratifications on Device Selection for Different Content

RQ5 asked whether affordance-based gratifications could predict media consumption of different content on different devices. Eight hierarchical regression analyses were conducted. Control variables of age, gender, and income formed the first block while all the affordance-based gratifications consisted of the second. Mobility was also placed in the second block, serving as a control. Half of the analyses used respondents' self-reported frequencies of using each device to access different types of media content. In the other half, dependent variables were the perceived desirability of using devices for different media content. Given we have four devices and four different media content, the following discussion of the results is broken down to four parts, based on device types. Statistics are shown in Tables 3 to 6.

Table 3. Impact of Affordance-based Gratifications on Media Consumption for TV

Type of Gratification		Type of Media Content							
		Short Entertainment		Movies		Sports		News	
		How often R <sup>2</sup> change = .31	How desirable R <sup>2</sup> change = .27	How often R <sup>2</sup> change = .30	How desirable R <sup>2</sup> change = .35	How often R <sup>2</sup> change = .42	How desirable R <sup>2</sup> change = .34	How often R <sup>2</sup> change = .37	How desirable R <sup>2</sup> change = .26
Modality	<i>Realism</i>	0.02	0.01	-0.05	-0.12	-0.01	0.15	-0.08	-0.02
	<i>Being there</i>	.40**	.33*	.31*	.26*	.34**	0.15	0.21	0.07
	<i>Coolness</i>	-0.07	-0.03	-0.01	0.17	-0.08	0.04	-0.02	0.14
	<i>Novelty</i>	-0.06	-0.12	-0.03	-0.04	0.10	0.18	0.09	0.07
Agency	<i>Agency enhancement</i>	-0.33	-0.12	-.41*	-0.16	-0.12	-0.34	-0.06	0.09
	<i>Community building</i>	0.03	0.23	0.29	0.14	0.003	0.22	0.10	0.08
	<i>Bandwagon</i>	0.09	-0.11	0.11	-0.20	0.12	-0.08	-0.06	-0.10
	<i>Filtering</i>	-0.19	-0.05	-0.01	0.05	-0.14	-0.18	0.07	-0.08
	<i>Ownness</i>	0.07	0.07	-0.09	-0.11	0.11	0.11	-0.07	-.22*
Interactivity	<i>Interaction</i>	0.23	0.23	0.15	0.14	0.03	0.02	0.23	0.18
	<i>Activity</i>	0.08	0.09	0.12	0.16	0.19	0.06	0.24	0.15
	<i>Responsiveness</i>	-0.07	0.02	-0.10	-0.10	0.04	0.04	-0.16	-0.22
	<i>Dynamic control</i>	0.12	-0.04	0.10	-0.09	0.03	-0.02	0.01	0.03
Navigability	<i>Browsing</i>	-0.21	-0.08	0.01	0.18	-0.13	0.18	-0.19	-0.11
	<i>Scaffolding</i>	-0.14	-0.15	0.07	-.26*	0.04	-0.06	0.10	0.01
	<i>Play</i>	0.02	0.04	0.03	.29*	0.03	0.08	-0.04	0.12

Note: N = 202.

\* p < .05, \*\* p < .01, \*\*\* p < .001.

Table 4. *Impact of Affordance-based Gratifications on Media Consumption for Laptops*

Type of Gratification		Type of Media Content							
		Short Entertainment		Movies		Sports		News	
		How often R <sup>2</sup> change = .38	How desirable R <sup>2</sup> change = .38	How often R <sup>2</sup> change = .42	How desirable R <sup>2</sup> change = .41	How often R <sup>2</sup> change = .22	How desirable R <sup>2</sup> change = .33	How often R <sup>2</sup> change = .31	How desirable R <sup>2</sup> change = .22
Modality	<i>Realism</i>	-0.17	0.05	-0.13	0.05	-0.03	0.02	-0.05	0.15
	<i>Being there</i>	0.11	0.24	0.28	0.17	0.07	0.01	-0.01	0.04
	<i>Coolness</i>	0.07	-0.10	-0.27	-0.06	0.03	0.13	0.12	0.11
	<i>Novelty</i>	0.02	0.07	0.14	0.07	-0.12	0.03	-0.25	-0.15
Agency	<i>Agency enhancement</i>	0.19	-0.02	0.17	0.08	0.18	0.05	0.06	0.07
	<i>Community building</i>	-0.06	-0.03	-0.22	-0.26	-0.12	0.08	-.08	-0.16
	<i>Bandwagon</i>	-0.03	0.16	0.03	0.21	-0.08	-0.03	-0.03	0.17
	<i>Filtering</i>	-0.04	-0.09	-0.02	-.24**	-0.05	-0.02	-0.03	-0.13
	<i>Ownness</i>	0.02	0.01	0.03	0.04	-0.82	0.11	-0.25	-0.002
Interactivity	<i>Interaction</i>	-0.11	-0.14	-0.12	-0.06	-0.14	-.28*	0.11	0.11
	<i>Activity</i>	0.04	0.03	0.002	0.03	-0.10	-0.02	0.28	0.08
	<i>Responsiveness</i>	0.07	0.09	.34**	0.17	-0.07	0.07	-0.03	0.10
	<i>Dynamic control</i>	0.01	-0.13	-0.24	-0.14	0.04	-0.11	0.18	-0.11
Navigability	<i>Browsing</i>	-0.22	-0.02	0.07	-0.004	0.05	-0.01	-0.25	-0.04
	<i>Scaffolding</i>	-0.06	0.02	-0.002	-0.13	0.22	0.20	-0.15	-0.04
	<i>Play</i>	0.15	0.21	0.13	.30*	-0.08	0.13	0.04	0.18

Note: N = 202.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .



Table 5. Impact of Affordance-based Gratifications on Media Consumption for Tablets

Type of Gratification		Type of Media Content							
		Short Entertainment		Movies		Sports		News	
		How often R <sup>2</sup> change = .40	How desirable R <sup>2</sup> change = .30	How often R <sup>2</sup> change = .35	How desirable R <sup>2</sup> change = .39	How often R <sup>2</sup> change = .34	How desirable R <sup>2</sup> change = .33	How often R <sup>2</sup> change = .23	How desirable R <sup>2</sup> change = .26
Modality	<i>Realism</i>	-0.02	-0.05	0.004	-.23*	-0.15	0.01	0.06	-0.15
	<i>Being there</i>	0.27	-0.03	0.08	-0.25	-0.15	-0.14	0.03	0.07
	<i>Coolness</i>	0.05	0.14	0.06	0.24	-0.07	-0.15	0.06	-0.04
	<i>Novelty</i>	-0.04	-0.04	-0.01	0.07	0.11	0.06	-0.08	0.09
Agency	<i>Agency enhancement</i>	-0.13	0.08	-0.07	0.25	0.07	-0.05	0.04	0.05
	<i>Community building</i>	0.28	0	0.16	0.03	-0.06	0.13	0.01	0.18
	<i>Bandwagon</i>	0.15	-0.002	0.19	-0.04	-0.02	0.03	-0.004	0.07
	<i>Filtering</i>	0.07	0.002	0.10	-0.07	0.13	-0.04	-0.05	-.29**
	<i>Ownness</i>	-0.05	0.09	0.003	0.10	0.02	0	-0.08	0.06
Interactivity	<i>Interaction</i>	-0.08	-0.11	0.01	-0.01	-0.06	-0.01	0.16	0.06
	<i>Activity</i>	0.08	0.05	0.03	-0.15	0.09	0.27	0.15	0.10
	<i>Responsiveness</i>	0.08	0.01	0.18	0.19	-0.08	-0.12	-0.02	0.10
	<i>Dynamic control</i>	-0.09	-.26*	-0.23	-0.21	-0.02	-0.24	-0.20	-.39**
Navigability	<i>Browsing</i>	-0.12	0.19	0.28	0.22	.61**	0.07	0.21	0.19
	<i>Scaffolding</i>	0.02	-0.13	-.50*	-0.11	0.05	0.06	0.23	0.14
	<i>Play</i>	0.29	0.23	0.26	0.12	0.10	0.21	0.05	0.11

Note: N = 202.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 6. Impact of Affordance-based Gratifications on Media Consumption for Smartphones

Type of Gratification		Type of Media Content							
		Short Entertainment		Movies		Sports		News	
		How often R <sup>2</sup> change = .32	How desirable R <sup>2</sup> change = .34	How often R <sup>2</sup> change = .32	How desirable R <sup>2</sup> change = .28	How often R <sup>2</sup> change = .27	How desirable R <sup>2</sup> change = .26	How often R <sup>2</sup> change = .23	How desirable R <sup>2</sup> change = .15
Modality	<i>Realism</i>	0.06	0.05	0.18	0.12	-0.08	-0.02	0.08	0.03
	<i>Being there</i>	.39**	0.16	0.13	0.06	0.19	-0.01	0.15	0.14
	<i>Coolness</i>	-0.24	-0.10	-0.03	-0.02	-0.22	0.04	0.20	-0.001
	<i>Novelty</i>	0.13	.34**	0.06	0.02	0.08	0.16	-0.02	0.02
Agency	<i>Agency enhancement</i>	-0.06	0.04	-0.17	-0.03	-0.06	0.03	-0.05	-0.02
	<i>Community building</i>	-0.17	0.01	0.01	-0.09	.29*	0.12	-0.06	0.05
	<i>Bandwagon</i>	-0.09	-0.14	-0.11	0.12	-0.08	-0.10	0.15	0.20
	<i>Filtering</i>	-0.06	-0.03	0.06	-0.04	0.03	-0.05	0.05	0.004
	<i>Ownness</i>	0.04	0.11	0.13	0.07	-0.08	0.11	-0.10	0.07
Interactivity	<i>Interaction</i>	0.16	0.08	0.28	-0.03	0.06	0.13	.35*	0.09
	<i>Activity</i>	0.02	0.02	-0.04	0.25	0.06	0.01	-0.02	0.04
	<i>Responsiveness</i>	0.08	-0.08	-0.14	-0.10	-0.09	-0.14	-0.02	-0.07
	<i>Dynamic control</i>	0.05	0.14	0.10	-0.01	0.06	0.08	-0.24	-0.12
Navigability	<i>Browsing</i>	-0.35	0.24	-0.07	0.26	0.02	0.16	-0.21	0.16
	<i>Scaffolding</i>	0.12	-.39*	-0.06	-0.18	0.12	-0.03	0.07	-0.31
	<i>Play</i>	0.25	0.13	0.01	0.13	-0.003	-0.02	0.26	0.19

Note: N = 202.

\* p < .05, \*\* p < .01, \*\*\* p < .001

### Televisions

For short entertainment, the *being there* gratifications was significantly associated with both respondents' actual behaviors ( $\beta = .40, p < .01$ ) and their perceived desirability of watching ( $\beta = .33, p < .05$ ). Other affordance-based gratifications were not significantly related to either the actual viewing behavior or the perceived desirability of viewing on TVs.

For movie viewing, the *being there* gratifications were significantly related to both respondents' actual behaviors ( $\beta = .31, p < .05$ ) and the perceived desirability of viewing on TVs ( $\beta = .26, p < .05$ ). The gratifications of *agency-enhancement* predicted actual movie viewing on TVs. *Scaffolding* ( $\beta = -.25, p < .05$ ) and *play* ( $\beta = .29, p < .05$ ) gratifications were associated with desirability of watching movies. No other significant predictors were identified.

For sports viewing, again, the *being there* gratifications significantly predicted respondents' actual behaviors of watching ( $\beta = .34, p < .01$ ). No other significant relationships were found. Lastly, for news, only the *ownness* gratifications ( $\beta = -.22, p < .05$ ) were related to the desirability of accessing news on TV.

### Laptops

For short entertainment, none of the affordance-based gratifications were significantly associated with either the actual behavior or perceived desirability of this behavior. For movies, the higher the *responsiveness* gratifications, the more respondents watch movies on their laptops ( $\beta = .34, p < .05$ ). As for perceived desirability of watching movies on laptops, *filtering* ( $\beta = -.24, p < .05$ ) was a negative predictor and *play* ( $\beta = .30, p < .05$ ) was positive. No other significant relationship was found. For sports, only the *interaction* gratifications were a significant predictor ( $\beta = -.28, p < .05$ ) of actual behavior. No significant predictors were identified for news.

### Tablets

For short entertainment, *dynamic control* gratifications were perceived to be undesirable because they were negatively related to the perceived desirability of watching ( $\beta = -.28, p < .05$ ). No other significant predictors were identified. For movies, the *scaffolding* gratifications discouraged individuals to use tablets ( $\beta = -.50, p < .05$ ), and people did not perceive the *realism* gratifications as desirable for movie viewing on tablets ( $\beta = -.23, p < .05$ ). People enjoyed the *browsing* gratifications when viewing sports ( $\beta = .61, p < .01$ ) and news ( $\beta = .61, p < .05$ ) on tablets. In contrast, respondents did not deem *filtering* ( $\beta = -.29, p < .01$ ) or *dynamic control* ( $\beta = -.39, p < .01$ ) as desirable gratifications for news consumption on tablets.

### Smartphones

For short entertainment, respondents appreciated the *being there* ( $\beta = .39, p < .01$ ) gratifications for the actual viewing behaviors and perceived the *novelty* ( $\beta = .34, p < .01$ ) and *scaffolding* ( $\beta = -.39, p < .05$ ) gratifications as desirable. No significant predictors were found for movie watching on smartphones. For sports, the only significant predictor was *community building* gratifications ( $\beta = .29, p < .05$ ). As for news, only *interaction* gratifications ( $\beta = .35, p < .05$ ) were significantly associated with the actual behavior of accessing news.

### Discussion

Focusing on the gratifications afforded by technological features, this study found that media users did perceive affordance-based gratifications for different devices. Preliminary evidence revealed that individuals' device selection for different media content was affected by these gratifications. Specifically, H1 and H2 predicted that *realism* and *being there* gratifications would be positively associated with the screen size of devices. However, our data did not support these predictions. Devices differed in other modality-based gratifications (*coolness* & *novelty*). Consistent with our predictions, TVs provided the least amount of *agency-based*, *interactivity-based*, and *navigability-based* gratifications among the four devices. H3, H4, and H5 were supported. Meanwhile, several differences were identified in affordance-based gratifications among smartphones, tablets, and laptops. We now turn to our discussion of these findings.

#### Different Amount of Affordance-based Gratifications for Different Devices

Consistent with the literature (Sundar & Limperos, 2013), the data suggested that media users were awarded psychological gratifications by interacting with technological affordances on different devices. In addition, devices differed in levels of affordance-based gratifications. TVs provided the least amount of these gratifications. In contrast, laptops offered the most. Smartphones and tablets were associated with moderate to high levels of psychological rewards. The sheer mobility of these devices may enhance their appeal. Though mobility was not tested as a mediator between device and gratifications, future research would benefit from such investigations. Laptops offered more rewards than smartphones and tablets, which could be attributed to their bigger screens. Some of the technological affordance-based gratifications were positively associated with screen size. With a bigger screen, laptops could afford more gratifications than other mobile devices. This is consistent with theoretical frameworks and literature on

technological affordance research (Schrock, 2015).

### Is TV Still in the Game?

Contrary to the screen size literature and the prediction, the data suggested that TVs provided the least amount of *realism* gratifications among the four devices. However, the differences between TVs and other devices were small, as evidenced in 1) the small effect size (partial  $\eta^2 = .08$ ); and 2) the small mean differences (can be calculated with means shown in Table 1).

TVs were regarded as generally low in all types of affordance-based gratifications, as can be seen in Table 1. On average, TVs' score on gratifications was 1.69 lower than other devices on a 7-point scale. However, the data suggested that people still preferred to access different content on TVs than on laptops, tablets, and smartphones. As shown in Table 2, respondents deemed TVs as more desirable for consuming all four different media content than other devices. Their actual behaviors matched this pattern – all the means of actual viewing behaviors for TVs were higher than other devices.

These findings suggest that although individuals are using other devices to access different media content more frequently than before (Blodget, 2013), TVs are still their favorite. The fact that televisions allow for easy co-viewing (i.e., viewing media content with others) might serve as an explanation for this finding given co-viewing on a television is common (Cohen & Lancaster, 2014; Connell, Lauricella, & Wartella, 2015).

As Metzger and Flanagin (2015) point out, the growth of digital media has complicated the process by which we determine the credibility of the information we receive. It follows that devices associated with internet access offer inconsistent cues. Perhaps TVs offer the most simplistic and familiar viewing experience, minimizing the need to harmonize those conflicting heuristics. Another possibility concerns a characteristic of the sample. Around 64% of the respondents in the sample reported a lower-than-median household income (Guzman, 2017). Research has found that low income families tend to watch more TV than other families (Drenowatz et al., 2010), which might have accounted for this TV effect. More research is needed to uncover the exact reasons for this favorable attitude.

### Affordance-based Gratifications and Device Selection for Different Media Content

The data suggested that some technological affordance-based gratifications affected device selection for different media content. We discuss these findings by content types in the following paragraphs.

### Short Entertainment

For short entertainment, *being there* was the only type of gratifications related to the preference for devices. Specifically, the greater the gratifications, the more likely people use smartphones and TVs to view short entertainment. Given little is known on what technological features afford the *being there* gratifications, more research is warranted to understand the relationship between technological affordances and gratifications. Technological features that afford *dynamic control* (i.e., control the nature of interaction with technologies) and *scaffolding* (i.e., availability of all the navigational tools that can guide users through) gratifications discouraged short entertainment consumption on tablets and smartphones. It is unclear why these rewards were not appreciated. Sundar and Limperos (2013) stressed the importance of *scaffolding* for commercial sites. The step-by-step process that scaffolding entails might disrupt the engagement experience during media entertainment viewing. Also, given both gratifications deal with interactivity and navigability, perhaps they were deemed unnecessary for a short program.

### Movies

Consistent with prior research (Detenber & Reeves, 1996; Sundar & Limperos, 2013), technological features that cue *being there* rewards predicted people's attitude and actual behavior, but only for TVs. This is consistent with the literature on screen size and perceived realism research (Busselle & Bilandzic, 2008; Detenber & Reeves, 1996). As discussed earlier, some technological features that invite or give freedom to people to interact with the technology were found to be disruptive when viewing movies. Specifically, the greater the gratifications of *agency enhancement* (i.e., users contributing to the content) on TVs, *browsing* (i.e., navigating freely on a media platform) on tablets, and *filtering* (i.e., filter out information for customization) on laptops, the less likely people watch movies on these devices. However, people seem to be interested in the features that trigger the *play* heuristic – the sense of play and fun derived from navigability features. They deemed laptops and TVs with such features to be more desirable for movie viewing. For laptops, perhaps many people multitask (Carrier, Cheever, Rosen, Benitez, & Chang, 2009), especially when they are searching for movie-related information during the viewing process. As for TVs, this may be explained by the popularity of smart TVs that allow people to search for movie-related information. However, these are speculative and thus awaits further research.

### Sports-related Content

For this content, it seems that people strategically use media to

satisfy their different needs. Echoing prior research (Sundar & Limperos, 2013), TV sport viewing was partly motivated by the expectation of the *being there* experience. When accessing sports content on tablets, individuals were drawn by the *browsing* gratifications that provide opportunities for them to check a variety of related information. Interestingly, smartphones rewarded people with *community building* gratifications – the rewards derived from connectedness with others. This perhaps taps into the challenge of separating effects of media content from device features. People predominantly engage in community building/connecting activities on their smartphones. This habitual association may result in a misattribution of the characteristic of the content to the device.

#### News

For news, the ability to browse freely and interact with technology seem to be important for tablets and smartphones, respectively. However, too much freedom in controlling the affordances was not preferred for news viewing on tablets. Interestingly, people did not enjoy the ability to filter out information when accessing news on their tablets. Given that 1) around one-third of Americans get their news via news apps on their mobile devices (Mitchell, Gottfried, Barthel, & Shearer, 2016); and 2) these apps are often already tailored to reflect individual user's preference (filtered out information that individuals are not interested in), this finding is not that surprising. It could also reflect the nature of the sample – approximately 30% of older respondents who did not appreciate the feature were the driving force of this finding. In either case, more research is needed.

It should be noted that this study concerned perceived affordances. As Norman (2013) points out, “an affordance is a relationship between the property of an object and the capabilities of the agent that determine just how the object could possibly be used” (p. 11). If users are not aware of the capabilities of a device, they cannot anticipate utilizing that function effectively.

These findings not only contribute to the research on U&G and technological affordances but also provide industry leaders a more nuanced understanding of the relationship between content and device selection and the reasons behind those relationships. This combined with future research could help marketers make informed decisions about where to place advertisements for their entertainment content. For example, our data show that people are using smartphones and tablets only half as often as they use TVs to watch movies, short entertainment, news, and sports. Therefore, concentration on television advertising might be more beneficial than advertising within smartphone applications.

A major limitation of the current study is that the data is correlational and does not warrant causation. We carefully ordered the questions in the questionnaire such that the respondents were asked the perceived affordance-based gratifications before they reported their usage of different media devices. However, future research should test causation with experimental designs.

All the affordance-based gratifications were measured with single-item scales. This was a decision to ward off potential fatigue and to retain respondents. Although it is optimal to have multiple-item measures, there is evidence suggesting single-item scales show equally good predictive power (Bergkvist, 2015; Bergkvist & Rossiter, 2007). Nonetheless, multiple-item scales would be useful in future studies.

This study did not examine other factors that could affect individuals' media device selection, like the nature and setting of the media consumption. Individuals might select different devices when watching a movie with family or friends, compared to viewing alone. Situational factors could also impact device selection (e.g., mobile device preferred for on-the-go). Additionally, features of different online platforms could impact gratifications (Ezumah, 2013).

Participants were recruited from MTurk, thereby limiting the external validity of the study. For example, MTurk workers are less extraverted than other samples (Goodman, Cryder & Cheema, 2012) while extraversion positively predict media selection behaviors (Hall, 2005). Therefore, research with other populations is warranted to test whether findings in this study would hold. On the other hand, although the sample is not truly random, data collected from MTurk have been shown to be as reliable on many aspects as data collected elsewhere (Goodman et al., 2012; Mason & Suri, 2012). In fact, MTurk samples are more demographically diverse than the often-utilized undergraduate student sample (Buhrmester, Kwang, & Gosling, 2011) and community sample (Goodman, Cryder & Cheema, 2012), and thus are considered to be more representative of the general population (Buhrmester et al., 2011).

## **Conclusion**

This study is among the scarce empirical studies that tested the theoretical argument that psychological gratifications could be cultivated by communication technological affordances (Sundar & Limperos, 2013). A variety of different technological affordance-based gratifications were identified and confirmed, which has broadened the U&G research. The data suggested that devices differ in terms of the amount and types of the affordance-based



gratifications. In addition, expectations on the affordance-based rewards could potentially impact the decision on which device to use for certain media content consumption.

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Chun Yang is an assistant professor in the Manship School of Mass Communication at Louisiana State University. His research interests include emotional and cognitive effects of media messages, media narratives, and persuasion.

Erica Bailey (Ph.D. Pennsylvania State University) is an Assistant Professor of Communication at Angelo State University. Her research interests include media effects and new media technology.

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## References

- Bergkvist, L. (2015). Appropriate use of single-item measures is here to stay. *Marketing Letters*, 26(3), 245–255. doi: 10.1007/s11002-014-9325-y
- Bergkvist, L. & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research*, (2), 175 – 184. doi: 10.1509/jmkr.44.2.175
- Bilandzic, H., & Busselle, R. W. (2011). Enjoyment of films as a function of narrative experience, perceived realism and transportability. *Communications: The European Journal of Communication Research*, 36(1), 29-50. doi: 10.1515/COMM.2011.002
- Blodgett, H. (2013, March 21). More people now watch TV and movies on tablets in bedrooms than on TVs! Retrieved May 7, 2015, from <http://www.businessinsider.com/people-watch-tv-on-tablets-in-bedrooms-2013-3>
- Bracken, C. C. (2005). Presence and image quality: The case of high-definition television. *Media Psychology*, 7(2), 191–205. doi:10.1207/s1532785xmep0702\_4
- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data?. *Perspectives on psychological science*, 6(1), 3-5.
- Busselle, R., & Bilandzic, H. (2008). Fictionality and perceived realism in experiencing stories: A model of narrative comprehension and engagement. *Communication Theory*, 18, 255–280. doi: 10.1111/j.1468-2885.2008.00322.x
- Cano, M. B., Perry, P., Ashman, R., & Waite, K. (2017). The influence of image interactivity upon user engagement when using mobile touch screens. *Computers in Human Behavior*, 77, 406-412. doi:10.1016/j.chb.2017.03.042
- Cho, H., Shen, L., & Wilson, K. (2014). Perceived Realism: Dimensions and Roles in Narrative Persuasion. *Communication Research*, 41(6), 828-851. doi: 10.1177/0093650212450585
- Cohen, E. L., & Lancaster, A. L. (2014). Individual differences in in-person and social media television coviewing: The role of emotional contagion, need to belong, and coviewing orientation. *Cyberpsychology, Behavior, and Social Networking*, 17(8), 512-518. doi:10.1089/cyber.2013.0484
- Connell, S. L., Lauricella, A. R., & Wartella, E. (2015). Parental co-use of media technology with their young children in the USA. *Journal of Children and Media*, 9(1), 5-21. doi:10.1080/17482798.2015.997440
- Detenber, B., & Reeves, B. (1996). A bio-informational theory of emotion: Motion and image size effects on viewers. *Journal of Communication*, 46, 66-84. doi: 10.1111/j.1460-2466.1996.tb01489.x
- Drenowatz, C., Eisenmann, J. C., Pfeiffer, K. A., Welk, G., Heelan, K., Gentile, D., & Walsh, D. (2010). Influence of socio-economic status on habitual physical activity and sedentary behavior in 8- to 11-year old children. *BMC Public Health*, (10), 214 – 224. doi: 10.1186/1471-2458-10-214
- Evans, S. K., Pearce, K. E., Vitak, J., & Treem, J. W. (2017). Explicating Affordances: A Conceptual Framework for Understanding Affordances in Communication Research. *Journal of Computer-Mediated Communication*, 22(1), 35–52. doi: 10.1111/jcc4.12180

- Ezumah, B. A. (2013). College students' use of social media: Site preferences, uses and gratifications theory revisited. *International Journal of Social Science*, 4(5), 27–34.
- Fleury, A., Pedersen, J. S., & Bo Larsen, L. (2013). Evaluating user preferences for video transfer methods from a mobile device to a TV screen. *Pervasive and Mobile Computing*, 9, 228–241. doi:10.1016/j.pmcj.2012.05.003
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, 79(5), 701–721. <http://doi.org/10.1037/0022-3514.79.5.701>
- Green, M. C., & Brock, T. C. (2002). In the mind's eye: transportation-imagery model of narrative persuasion. In M. C. Green, J. J. Strange, & T. C. Brock (Eds.), *Narrative impact: social and cognitive foundations* (pp. 315–341). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Grellhesl, M. & Punyanunt-Carter, N. (2012). Using the uses and gratifications theory to understand gratifications sought through text messaging practices of male and female undergraduate students. *Computers in Human Behavior*. 28. 2175–2181. doi: 10.1016/j.chb.2012.06.024.
- Guzman, G. G. (September, 2017). Household income 2016: American community survey briefs. U.S. Census Bureau. Retrieved from <https://www.census.gov/content/dam/Census/library/publications/2017/acs/acsbr16-02.pdf>
- Hou, J., Nam, Y., Peng, W., & Lee, K. M. (2012). Effects of screen size, viewing angle, and players' immersion tendencies on game experience. *Computers in Human Behavior*, 28, 617–623. <https://doi-org.libezp.lib.lsu.edu/10.1016/j.chb.2011.11.007>
- Jang, S. M. (2014). Seeking congruency or incongruency online?: Examining selective exposure to four controversial science issues. *Science Communication*, 36(2), 143-167. doi:10.1177/1075547013502733
- Knobloch-Westerwick, S., Johnson, B. K., & Westerwick, A. (2015). Confirmation Bias in Online Searches: Impacts of Selective Exposure Before an Election on Political Attitude Strength and Shifts. *Journal of Computer-Mediated Communication*, 20(2), 171-187. doi:10.1111/jcc4.12105
- Knobloch-Westerwick, S., & Kleinman, S. B. (2012). Preelection Selective Exposure: Confirmation Bias Versus Informational Utility. *Communication Research*, 39(2), 170-193. doi:10.1177/0093650211400597
- Lichtenstein, A., & Rosenfeld, L. B. (1983). Uses and misuses of gratification research: An explication of media functions. *Communication Research*, 10, 97-109. doi: 10.1177/00936 5083010001005
- Lombard, M. (1995). Direct responses to people on the screen: Television and personal space. *Communication Research*, 22, 288-324. doi: 10.1177/009365095022003002
- Lombard, M., Reich, R. D., Grabe, M. E., Bracken, C. C., & Ditton, T. B. (2000). Presence and television. The role of screen size. *Human Communication Research*, 26(1), 75-98. doi:10.1111/j.1468-2958.2000.tb00750.x
- Mitchell, A., Gottfried, J., Barthel, M., & Shearer, E. (2016, July 14). How Americans get their news. Retrieved from <http://www.journalism.org/2016/07/07/pathways-to-news/>
- Mitchell, A., Rosenstiel, T., Santhanam, L. H., & Christine, L. (2012, September 30). Mobile Activity: News Ranks High. Retrieved from <http://www.journalism.org/2012/10/01/mobile-activity-news-ranks-high/>

- Metzger, M. J., & Flanagin, A. (2015). Psychological approaches to credibility assessment online. In S. S. Sundar (Ed.), *Handbook of the psychology of communication technology*. New York: Wiley-Blackwell.
- Norman, D. A. (1988). *The psychology of everyday things*. New York : Basic Books.
- Norman, D. A. (2013). *The design of everyday things: Revised and expanded edition*. Basic books.
- Papacharissi, Z., & Rubin, A. (2000). Predictors of Internet use. *Journal of Broadcasting & Electronic Media*, 44, 175-196. doi: 10.1207/s15506878jobem4402\_2
- Quan-Haase, A., & Young, A. L. (2010). Uses and Gratifications of Social Media: A Comparison of Facebook and Instant Messaging. *Bulletin of Science, Technology & Society*, 30(5), 350–361. doi: 10.1177/0270467610380009
- Reeves, B., Detenber, B., & Steuer, J. (1993). New televisions: The effects of big pictures and big sound on viewer responses to the screen. Paper presented at the annual meeting of the International Communication Association, Washington, D.C.
- Rubin, A. M. (1981). An examination of television viewing motivations. *Communication Research*, 8, 141-165. doi: 10.1177/009365028100800201
- Rubin, A. M. (2009). The uses-and-gratifications perspective on media effects. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* 3rd ed. (pp. 165-184). New York, NY: Routledge.
- Ruggiero, T. E. (2000). Uses and gratifications theory in the 21<sup>st</sup> century. *Mass Communication & Society*, 3, 3-37. doi: 10.1207/S15327825MCS0301\_02
- Schrock, A. R. (2015). Communicative affordances of mobile media: portability, availability, locatability, and multimodality. *International Journal of Communication*. 9. 1229-1246.
- Smith, A. (2015, April 1). U.S. Smartphone Use in 2015. Retrieved May 8, 2015, from <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/>
- Sundar, S. S., & Limperos, A. M. (2013). Uses and grats 2.0: New gratifications for new media. *Journal of Broadcasting & Electronic Media*, 57(4), 504 - 525. doi: 10.1080/08838151.2013.845827
- Sundar, S. S., Oh, J., Bellur, S., Jia, H., & Kim, H. S. (2012). Interactivity as self-expression: A field experiment with customization and blogging. *Proceedings of the 2012 Annual Conference on Human Factors in Computing Systems (CHI'12)*, 395-404. doi: 10.1145/2207676.220773
- Sundar, S. S. (2008). The MAIN Model: A heuristic approach to understanding technology effects on credibility. In M. J. Metzger & A. J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 72-100). Cambridge, MA: The MIT Press.
- Vishwanath, A. (2015). Habitual Facebook Use and its Impact on Getting Deceived on Social Media. *Journal of Computer-Mediated Communication*, 20(1), 83–98. doi: 10.1111/jcc4.12100
- Wang, R., Yang, F., Zheng, S., & Sundar, S. S. (2016). Why do we pin? New gratifications explain unique activities in Pinterest. *Social Media + Society*, 2(3), 1-9. doi:10.1177/2056305116662173
- Wei, R., & Lo, V. (2006). Staying connected while on the move: Cell phone use and social connectedness. *New Media & Society*, 8(1), 53-72. doi:10.1177/1461444806059870

**To cite this article:**

Yang, C., & Bailey, E. (2020). Technological affordance-based gratifications and their impact on media selection. *Journal of Communication Technology*, 3(1), 1-29. DOI: 10.51548/joctec-2020-002