

ENGAGING YOUTH IN THE HYBRID MEDIA ENVIRONMENT: MEDIA
TECHNOLOGICAL ATTRIBUTES' EFFECTS ON YOUNG PEOPLE'S INTERNET
POLITICAL EFFICACY DURING SECOND SCREENING

by

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ABSTRACT

Young people's political engagements are important to the development of democracy. Though described as reluctant to engage in politics, when young people are invited to participate in politics on their own terms, they are more willing to participate. Second screening - using a supplement device alongside TV watching - is assumed to be a potentially effective tool to engage young people. Enabled by communication technology such as portable digital devices, wireless Internet accessibility, and extensive operating systems which make the portable devices "smart" (facilitating wider software, Internet, and multi-media functionality), second screening creates a hybrid media environment. This study aims to explore whether and what media technological attributes potentially work on young people's sense of political efficacy during second screening activities.

Incorporating Eveland's "mix-of-attributes" framework, a mixed-method design was developed to examine media effects through media technological attributes. Two focus group interviews were conducted to develop a set of perceived technological attributes of the convergent media use during second screening. Seven attributes were developed: easy access, recency, user control, hypertextuality, meantime manner, convenience, and lack of hierarchy. These attributes are expected to have potential influences on people's political efficacy. The direct and indirect relationships among perceived technological attributes, second screening, and Internet political efficacy were tested through a survey. The measurement items of perceived technological attributes were examined. This paper 1) develops technological

attributes potentially influencing youth political efficacy, 2) generates measurement items to represent the construct, 3) assesses the validity of the items, and 4) tests the direct relationships between technological attributes and Internet political efficacy, as well as their indirect relationships through second screening.

Understanding media effects through its technological attributes not only advances media effect theory by addressing the challenge of understanding continuous media convergence and hybridization, but also provides practical implications for media users and creators. Besides, communicators can develop better media strategies to engage and mobilize the public once we understand what specific technological attributes are at play. However, this study by no means downplays the importance of social and human factors. This paper takes a middle route between technology determinism and social constructivism.

Keywords: second screening, mix-of-attributes, technological attributes, Internet political efficacy

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INTRODUCTION

In current times, young people live in an almost completely digital world, and second screening is one representative phenomenon. When people watch live content on TV or any other device (e.g., computers, laptops), an increasing number of them choose to enrich the experience by using a second device. These TV audiences gain additional information or express their opinions and feelings about the TV content on the second device, and such behavior is commonly known as “second-screening”. In their seminal study, Gil de Zúñiga et al. (2015) defined second screening as “a process in which individuals watching television use an additional electronic device or ‘screen’ to access the internet or social networking sites to obtain more information about the program or event they are watching or to discuss it in real time (p. 5).” Ran and Yamamoto (2019) divided second screening activities into “task-related” (related to TV content) ones and “task-unrelated” (unrelated to TV content) ones. Given the purposes of this study, only “task-related” second screen use is examined. According to a recent Nielsen nationwide survey (2018), 45% of the participants reported “always” and “very often” use of a second device while watching TV, and 71% of them admitted their second screening activities are related to the TV content, which indicates active engagement.

Enabled by communication technology such as portable digital devices, wireless Internet accessibility, and extensive operating systems which make the portable devices “smart” (facilitating wider software, Internet, and multi-media functionality), second

screening creates a hybrid media environment. The interplaying between television and digital media, as well as mass and interpersonal communication, creates real-time public spheres where individuals interact based on thematic topics. In political settings, this amalgam of media use is a crucial phenomenon for understanding the process of political participation (Chadwick et al., 2017; Gil de Zúñiga et al., 2015), especially among young people (Gil de Zúñiga & Liu, 2017).

Young people's political engagements are important to the development of deliberative democracy (Kahne & Westheimer, 2006). However, young people's low level of political involvement has been a universal concern. Often displaying low interest in democratic engagement, young generations are described as politically apathetic (e.g., Snell, 2010) and lacking civic responsibility (e.g., Henn et al., 2016). Discussions of this issue revolve around low turnout at elections (File, 2014), cynicism (Dimock et al., 2014), low level of political knowledge (Snell, 2010), and disengagement (Yamamoto et al, 2015). Besides, such tendencies of disaffection and apathy against politics have no national boundaries. In China, Japan, Russian, Canada, United Kingdom, and other European countries, surveys revealed similar disengagement and lack of interest in political or civic activities among young people (Chan & Guo, 2013; Henn et al., 2016; Norris, 2011; Stetsenko, 2002). However, Henn et al. (2016) reported that when young people are invited to participate in politics on their own terms, they are more willing to participate. For example, social media use, which is favored by young people (Pew Research Center, 2021), is evidenced to increase political knowledge (Kim et al., 2013), promote participation (Xenos et al., 2014), and decrease apathy (Yamamoto et al., 2016) among young adults. Also being

prevalent among young adults (Nielsen, 2015), and largely overlapping with social media use (Gorkovenko & Taylor, 2016), second screening is presumed as a positive predictor of youth political engagement through an indirect route via political efficacy in this study.

We are experiencing a dramatically different information era from the time when communication research and theories originated, especially the diverse media formats and complexity of information (Bennett & Iyengar, 2008). Delli Carpini (2000) asserted at the beginning of the 21st century that new Internet-based communication technology provides easier and more effective access for organized interests to reach the young population, and increase the ability of already politically engaged young people to participate more efficiently. While individuals' psychological factors and social environments are indeed crucial and important, merely considering personal and social aspects is insufficient to explain the origins and nature of media effects (Dylko, 2013). Besides, the continuously developing information and communication technology (ICT), particularly Internet-based media technology, brings about constantly emerging novel communication behaviors. As the phenomenon of modern communication is susceptible to rapid technological transformations, more technological aspects should be included as objects in media effects research (Bennett & Iyengar, 2008). In political communication, more scrutiny should be given to ICTs when we inquire as to what roles do communication technologies play in the development of citizens' sense of citizenship, and eventually, our democracy.

Although the significant role of new communication technology is repeatedly stated in citizenship development, little has been understood what specifically about the technology is bringing psychological and behavioral outcomes. Similarly, among studies of second

screening and its political effects, researchers have discovered a fair amount of evidence supporting positive effects of second screening on cognitive, behavioral, and affective political outcomes (Anstead & O'Loughlin, 2011; Chadwick et al., 2017; Gil de Zúñiga & Liu, 2017). However, there is still a lack of examinations of what it is about the media itself that is causing these effects. This study aims to explore whether and what technological attributes of the media potentially work on young audiences' sense of political efficacy during second screening (including television watching, use of Internet-based mobile devices, and the real-time convergence of the two), and eventually lead to political engagement. Following Eveland's mix-of-attributes framework (2003), a mixed-method approach was used. Two focus group interviews were conducted to develop a set of technological attributes of the convergent media use during second screening. These attributes are considered to have potential influences on people's political efficacy. The relationships between media technology attributes, second screening, and young people's Internet political efficacy were tested through a survey.

LITERATURE REVIEW

Political Engagement in the Digital World

Under the ICT developments on both the hardware (e.g., portable digital devices) and software (e.g., interactive social media), a growing amount of TV audiences tend to use two or even more “screens (devices)” while watching TV. In political communication, second screening occurs most during TV political campaigns, debates, elections, and breaking news (Giglietto & Selva, 2014). Scholars believe the live nature of television and the immediacy of the Internet and social media together generate this new type of instant communication activity. The psychological and behavioral outcomes of second screening merit various levels of scrutiny (Giglietto & Selva, 2014).

The political influences of Internet use and social media use are well documented. For instance, Bond et al. (2012) found out exposure to social media news increases people’s openness to political persuasion. Gil de Zúñiga et al. (2014) proposed positive relations between social media use and political expression and discussion. In addition, scholars also demonstrated how social media use enhances political learning (Bode, 2016; Chen & Chan, 2017), plus both online and offline political engagements (Chen & Chan, 2017; Hyun & Kim, 2015; Skoric et al., 2016). Second screening, as a matter of fact, mostly occurs on social media sites or mobile applications such as Facebook and Twitter (Giglietto & Selva, 2014; Pond, 2016). Vaccari et al. (2015) even defined second screening (or as they name it, “dual screening”) as “a bundle of practices that involve integrating, and switching across and

between, broadcast media and social media (p.1044).” It is reasonable to assume the similar political outcomes of second screening as social media use.

Though the research exploring political influences of second screening is still in its infancy, scholars have keenly exhibited its potential positive impacts on pro-democrat factors. Gil de Zúñiga et al. (2015) explored different motivations of second screening and reported two major motivations: seeking for more information and need to discuss. They also found out second screening positively mediates TV news consumption’s effect on online political participation (Gil de Zúñiga et al., 2015). Similarly, Chadwick et al. (2017) reported three motivations of people using a second Web-connected device during TV watching: acquiring information, sharing information and opinions, and influencing others. In their study, second screening also positively impacts users’ sense of political agency and both their short-term and long-term political engagement. Chen (2019) reported second screening for news and for expression positively influence citizens’ political knowledge, political efficacy, and political participation. Lin and Chiang (2017) conducted a survey among Taiwanese second screeners. They found out three predictors positively impacting second screening - bridging social capital, perceived sociability, and perceived social presence (Lin & Chiang, 2017). They also reported positive correlations between second screening and both online and offline political participation (Lin & Chiang, 2017). Gil de Zúñiga and Liu (2017) collected representative survey data from 20 countries and discovered that more intensive second screeners tend to express and participate more in politics. McGregor and Mourão (2017) also described how second screening positively mediates between TV news exposure and political engagement, but only under the condition that individuals possess an attitude in favor of the news subjects.

The Indirect Effects of Media Use

In current literature, political effects of second screening are usually examined directly. Little attention has been paid to the mediated and contextual mechanisms, albeit the great complexity of second screening activities theorized in the literature (Van Cauwenberge et al., 2014). It has been demonstrated that the effects of media use on pro-democracy outcomes are strong but mostly indirect. As Bandura (2001) pointed out in his social cognitive theory, external environment mostly influences behavior indirectly through cognitive processes. This indirectity applies to different types of media use, including traditional mass media (e.g., Kim & Han, 2005), news media (e.g., Jung et al., 2011), the Internet (e.g., Shah et al., 2007), and social media (e.g., Gil de Zúñiga et al., 2014). McLeod et al. (2001) proposed the communication mediation model integrating interpersonal communication and mass communication. The model explains how information seeking and interpersonal discussions mediate the relations between news consumption and political outcomes. The campaign communication mediation model brought up by Cho et al. (2009) also demonstrates that political news exposure positively influences political participation through political discussion and online messaging. Similarly, Eveland's (2001) cognitive mediation model points out that the self-reflecting process should be regarded with important mediating effects underlying the mechanism of news exposure influences, especially in terms of cognitive outcomes such as learning.

Determined by its nature – the use of digital devices during TV watching, second screening is a complex media use experience. Scholars have put major efforts into exploring the connection between TV consumption and what people do with their “second screens”. For

example, Giglietto and Selva (2014) analyzed the tweets posted during 11 political talk shows and found out that the typology of scenes broadcasted on TV has significant influences on the content of tweets and the form of people's online political participation. Shah et al. (2016) coded the detailed information sent out by TV in presidential debates using content analysis. They reported that the non-verbal communication behaviors of candidates on TV (e.g., facial expressions, physical gestures) also affect the volume and valence of public expression on Twitter when people are second screening. In addition to the specific TV contents, Gil de Zúñiga et al. (2015) also reported a positive relationship between the magnitude of TV consumption and the frequency of second screening. However, so far most studies have focused on the "television to the second screen" end but the "second screen to the individual" part remains underdeveloped. What effects does second screening have on individuals' cognition and behavior? What are the mechanisms of these effects? These questions are still largely unexplored.

Efficacy, Political Efficacy, and Internet Political Efficacy

This study focuses on one richly documented mediator between media use and political behavioral outcomes, political efficacy (e.g., Jung et al., 2011; Kenski & Stroud, 2006). Aiming to extend the current research on the political effects of second screening, this study explores how the special technological attributes of second screening work on users' political efficacy.

Self-efficacy refers to the belief in one's capability in accomplishing and achieving certain goals. According to Bandura (1977), efficacy determines "whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the

face of obstacles and aversive experiences (p.191)”. In political communication, the efficacy examined is usually specifically related to political participation. It is a belief that one's political actions actually could work on the current politics towards one's intentional goals or hopes (Campbell et al., 1954), which is defined as "political efficacy". The level of political efficacy is evidenced to be closely positively correlated with the level of political engagement (e.g., Jung et al., 2011). Therefore, when exploring media's political effects, abundant efforts are made on whether or how a certain type of media use increases users' political efficacy, assuming that media use is less likely to influence one's political behavior directly but indirectly through a series of cognitive and psychological processes (Jung et al., 2011).

Political efficacy is further divided into two sub-categories: internal and external political efficacy. Internal political efficacy describes the self-evaluation of one's competence to understand and participate in politics effectively to reach the desired outcomes. Meanwhile, external political efficacy indicates to what extent an individual believes the government and political figures respond to his/her demands and cooperate with people's requirements (Morrell, 2003). Since this study mainly focuses on cognition during second screening, whether and how the technological features of this unique media use affect users' efficacy, internal political efficacy will be examined.

The concept of Internet political efficacy is adapted from both political efficacy (Campbell et al., 1954) and self-efficacy (Bandura, 1977, 1997). Social cognitive theory (Bandura, 2001) states that efficacy beliefs do not occur contextlessly. Instead, as the environment and demands vary, efficacy varies accordingly (Bandura, 1997). When measuring efficacy in different activities, it is suggested by scholars that specific types of

efficacy should be developed instead of using one set of measurements (Bandura, 1997).

Wollman and Stouder (1991) echoed Bandura's idea and proposed that in a political context, efficacy is mostly accurate in predicting behaviors when specific modes of participation are taken into consideration. In some early studies of Internet use's political effects, scholars brought up that putting political efficacy in the specific context of Internet use (adding "when I am using the Internet" to each measurement item of political efficacy) makes the results more accurate (Lee, 2006). Ognyanova & Ball-Rokeach (2015) also suggested using medium-based (which was the Internet in their study) measures of efficacy could be a way to address the discrepancy in the literature studying Internet use and political efficacy. The concept of "Internet political efficacy" was developed by Shen et al. (2009). It refers to the confidence level an Internet user has in whether the Internet empowers him/her politically. After the proliferation of social media, scholars also proposed the concept of social media political efficacy, which is "individuals' perceived capabilities to use social media effectively to achieve their political objectives (Velasquez & LaRose, 2015, p.457)". Evidence suggests that compared to general political efficacy, Internet political efficacy is a more reasonable variable explaining Internet-related political outcomes (e.g. Hoffman & Schechter, 2016; Shen et al., 2009). So is social media political efficacy when explicating social media political use (e.g., Hocevar et al., 2014; Velasquez & LaRose, 2015).

In this study, although second screening mainly occurs on social media (Gil de Zúñiga & Liu, 2017), it still involves other Internet use such as searching for information and visiting certain websites. Hence, the Internet political efficacy will be examined as a potential result of second screening use and perceived as a predictor of following political

participation. Internet political efficacy refers to one's belief of his/her competence in effectively using the Internet to attain his/her desired political goals.

Digital Media Use and Political Efficacy

In the history of media effects research, every form of media (from printing media to digital media) has been scrutinized to understand whether and how it brings escalated political participation and how it develops democracy. As stated above, the effects of media use are usually indirect and entail a series of mediators and moderators. What is commonly agreed is while it could be considered reductive to assert that communication technology produces expanded democracy, the technology does non-negligibly work on individuals' cognition and psychological mechanisms which lead to greater engagement (e.g., Kenski & Stroud, 2006; Ognyanova & Ball-Rokeach, 2015). The relationship between media use and users' political efficacy has been considered as a key factor leading to political engagements and activism.

Lee (2006) examined different types of Internet use and reported that online news site use and interacting with public sector agencies significantly increases people's internal political efficacy. Kenski and Stroud (2006) asserted online exposure to presidential election news significantly bolsters political efficacy, knowledge, and participation. In addition to online news exposure, political social media use has similar effects on users' political efficacy. Jung et al. (2011) contended that online political messaging positively affects political efficacy, both directly and indirectly through political knowledge. Hsiao (2018) reported a direct positive relationship between social media use and political efficacy in a specific collective protest context, as well as the mediating effect of political efficacy

between social media use and actual participation.

Researchers have been making endeavors to explain potential sources of political efficacy and how new communication technologies may contribute. Two most frequently discussed attributes are the easy access to political information (e.g., Hsiao, 2018; Kenski & Stroud, 2006) and the ability to interact with others (e.g., Jung et al., 2011; Yamamoto et al., 2015). For example, Tedesco (2011) investigated Internet's political effects during the 2008 presidential election and found out evidence suggesting Internet exposure to political information and interaction leverage users' political efficacy and participation.

Buehler (1975) divided contributors to attempts to understand the origins of political efficacy into three categories: cultural determinism, structural determinism, and pluralism. Cultural determinism puts the development of political efficacy into the process of socialization. It holds that the unique social group (with high or low political efficacy) a person has socialized into determines his/her level of political efficacy. Structural determinism mainly emphasizes the power of socioeconomic status on one's political efficacy. Pluralism, similar to Bandura's idea of "enactive experiences" (1977, 1997), brings attention to one's own successful previous political participation and political efficacy as a product of it. Lee (2006) borrowed Buehler's (1975) cultural and pluralistic perspectives and argued that since the Internet is one of the most powerful media constituting our symbolic cultural world, it could affect positively or negatively one's political efficacy depending on how the group one socializes into is depicted online. Besides, from the pluralistic view, the Internet betters users' political participation experiences by providing easy and effective means, and thus increases their sense of political efficacy.

In addition, Ognyanova & Ball-Rokeach (2015) argued that Internet dependency and specific perceived utility of the Internet - as a comprehensive and credible news source, and a source of political similarity - are possible explanations of political efficacy enhancement. Though very little empirical evidence exists, the special technological attributes of new media are potentially essential in building efficacy.

Understanding Media Effects through Technological Attributes

Researchers have long linked ICTs and their implications to media effects (e.g., Salomon, 1979), especially Internet-based technologies (e.g., Dylko & McCluskey, 2012; Hsiao, 2018). Eveland (2003) pointed out that in the context of media effects, limitations exist when explicating what media is from ontological perspectives. Dylko and McCluskey (2012) also brought up three challenges about theory building in an era characterized by rapid ICT developments. First, media convergence and hybridization create substantial overlaps of technological features, obstructing systematic classification. The second challenge lies in the generalizability of theory building in a “cross-sectional” sense for the media effects of existing groups of media. When a specific form of media (e.g., social media) is treated as a discrete and homogenous group, the fact is the content, structure, and uses vary markedly across different platforms (e.g., Facebook, Twitter, Instagram). It is a challenging attempt to find universal patterns and rules of how their effects work. The third challenge is the difficulty in building theories that could effectively predict media effects of future media forms in a “cross-time” sense. Scientific theories are expected to describe, explain, and predict certain phenomenon in a concise and condensed manner. To achieve this goal, the technological piece of the puzzle should not be missed.

Eveland (2003) proposed a “mix-of-attributes (MOA)” approach to enhance communication effects theories, especially in an era when ICTs are evolving at an unprecedented speed. Key statements of the mix-of-attributes approach include: 1) Each form of media consists of multidimensional technological attributes such as interactivity, modality, and so on. 2) Instead of defining different forms of media with discrete or qualitative distinctions, the differences should be considered as “concrete operationalizations along an abstract continuum that is best examined quantitatively (p. 397)”. 3) Any “new” forms of media are not qualitatively "new" as containing technological features never existed before, rather, they are new combinations of technological attributes scoring differently on the continuums. 4) Attribute-specific theorizing is a more effective approach in media effects research than medium-specific theorizing. 5) Attribute-specific perspectives facilitate the theory-building by enabling clearer media effects explications.

According to Eveland (2003), treating different types of media as distinct could be insufficient when examining media effects. Dylko (2014) inspected different political user-generated content (UGC) (e.g., blogs, wikis, discussion forums, etc.) and found that those media overlap significantly in terms of their technological functionality. The technological-attribute-based theorizing framework emphasizes investigating media effects of different technological attributes instead of different media. This could provide possible answers to the myth of similar effects produced by various media, contradicting effects generated by the same media, and clarify the mechanisms of media effects to a certain degree.

To make the MOA approach empirically applicable, Dylko & McCluskey (2012) suggested the following specific procedures: 1) identify technological attributes, 2) conduct

content analysis on the media of interest to establish which attributes exist in the media, and 3) design experiments to examine the effects of attributes of interest on desired outcome variables. Due to the lack of relevant research in current literature, this study puts most efforts on step one – identifying perceived technological attributes that may work on people’s sense of political efficacy during second screening. This step helps researchers gain a basic understanding of what attributes the targeted media pertains. This is necessary when building up to step two, establishing existing attributes by conducting content analysis. Moreover, to examine which attributes impact particular outcomes, for example, Internet political efficacy in this study, developing perceived attributes by directly asking users is a critical step. The perceived attributes generated in the inductive phase were preliminarily tested through a survey.

Research Inquiries and Theoretical Assumptions

One thing that needs to be made clear is that this study does not follow the arguments of technological determinism. Two major viewpoints of technological determinism are: 1) technology is developing based on some inherent and unavoidable logic, and 2) such development is the determining cause of social, political, economic, and other important changes at a variety of levels (Leonardi, 2009). This view is considered relatively simplistic and extreme. One almost opposite argument comes from social constructivism. From social constructive perspectives (Williams & Edge, 1996), the inherent logic of technology development does not exist. Instead, it is the choices made by technology designers that shape the technology. The choices of the designers, then, are shaped by their social-economic status, social circumstances, cultural norms, interactions between assorted actors, and so

forth. These choices and how they are molded, rather than the technology itself, are the real and more accurate explanations of how technology impacts the history of our society.

However, as stated above, technology itself should not be neglected when examining media effects. This study chooses a standpoint somewhere in the middle to examine individual-level political communication effects.

While social constructivism mainly focuses on the behaviors and beliefs of technology creators, there are also other theories focusing on how users use and see technology. In the history of how technology has been defined, the metaphors of “tool” and “mirror” have been occurring repeatedly (Papacharissi, 2009). Being a “tool” means the technology itself cannot create social changes, and meanwhile, being a mirror points out the fact that technology is not neutral but reflects users’ behaviors rooted in social and historical contexts. But in both senses, the significance of technology does not lie in itself but in how we perceive and use it. As Kranzberg (1990) asserted, technologies do not by themselves elicit revolutionary sociocultural effects.

Nonetheless, the interaction between technology and its users is never a one-way route. Evidence does suggest different features of technology potentially influence people’s behaviors, thoughts, attitudes, and so on. For example, after investigating functions of social media during massive street demonstrations, Hsiao (2018) discovered: 1) the fast and instant information transmissions enabled by social media generated grievance sharing; 2) the multi-media facilitating interface (contains words, pictures, videos, and audios at the same time) of social media instigated anger; 3) the user-generated-content mechanism helped participants to bypass censorship and express freely; 4) functions like hashtags helped orientating

participants. Similarly, Penney & Dadas (2014) interviewed 17 participants of the Occupy Wall Street movement to explore how Twitter was used during this civic activity. Beyond social media's well-known functions such as extending and magnifying the reach of information and effectively organizing like-minded people, respondents particularly described how Twitter's setting of 140-character limit condensed their communication. The succinctness and piquancy bolstered the capacity for the velocity of texts.

As stated above, with increasing evidence signifying positive relationships between social media use (second screening activities as well) and political outcomes (e.g., Chadwick et al., 2017; Gil de Zúñiga et al., 2015; Jung et al., 2011), scholars have moved to try to unravel the specific mechanisms. This study asks the users to reflect on and report their experiences and focuses on how they adopt certain technology and how the technology affects them. However, this study by no means underestimates the human factors, as well as interactions between technological attributes and human factors.

The importance of the technological piece in the whole media effect mechanism has long been addressed (Eveland, 2003). Yet the conceptualization of related concepts, such as attributes and affordances, is inconsistent and operationalization is rare, making it difficult to measure and compare studies (Rice et al., 2017). In current literature, there is no clear distinction between "attributes" and "affordances", both focused on the technological features of media platforms, and sometimes the two terms are even used interchangeably.

The idea of affordance was adapted from Gibson (1979) in the natural environmental context. According to Gibson, affordance means an "action possibility available in the environment" (McGrenere & Ho, 2000, p.1). In the media setting, "media affordances are

relationships among action possibilities to which agents perceive they could apply a medium (or multiple media), within its potential features/capabilities/constraints, relative to the agent's needs or purposes, within a given context (Rice et al., 2017, p.109).” Affordance is the mutuality of actions intentions and technology capabilities that potentially enables an action (Faraj & Azad, 2012). This concept stresses the function of media technology/design that enables the possibility of a certain action. For example, the comment section of social media allows users to interact on the media platform, so interaction is one of social media's affordances.

While the idea of "function" is the essence of affordances, attribute, on the other hand, describes the "characteristics" of media technology or platform that distinguishes it from other media. There is no clear and specific definition of media attributes in the literature. In this study, media attribute refers to a quality, character, or characteristic ascribed to a specific media device or media platform. When we recognize social media has the function of interaction, "interactivity" is one character of social media. This character delineates a unique feature of social media, which is found absent or low-leveled from other media platforms. Attributes are also used to describe devices. For instance, portability renders a quality of cellphones, laptops, and other digital devices that can be easily carried around.

The findings of Dylko and McCluskey's study (2012) could be used as possible examples of digital media's technological attributes that impact users' political efficacy and eventually political engagement. Using UGC as an example, Dylko and McCluskey (2012) demonstrated the usefulness of the MOA framework, extracted the salience of five technological attributes from three focus group discussions -- greater search efficiency,

greater customizability, greater manipulability, greater cost reduction, and greater community orientation -- and explicated how they are useful for examining effects of UGC.

Another theoretical framework the current research incorporates is the social cognitive theory. Bandura (2001) believes that psychological mechanisms mediate symbolic communication's influences on human thought, affect, and action. Self-efficacy, as one major psychological factor, plays an important role in how individuals achieve their goals. Efficacy beliefs function as proximal determinants of human actions (Bandura, 1989). Since social cognitive theory stresses the context of social interactions and experiences (Bandura, 2001), it is necessary to examine the impact of specific technological environments when testing efficacy beliefs during media use. As explained above, this study takes a standpoint somewhere between technological determinism, which credits social development 100% to technological innovations, and social constructivism, which asserts technology has zero credit on social changes. Instead, this study believes technological and human factors work in combination with individuals. The current research also seeks to sort out how human and technological features intertwine in the process of media effects.

To accomplish research inquiries, the following research questions are posed:

RQ1: What are the main motivations of young adults' second screening during political TV watching?

RQ2: What do young adults do specifically on their second screens during political TV watching?

RQ3: What are young peoples' main reasons for using a second screen in a real-time manner during TV watching (compared to conducting the same activities online at other times)?

RQ4: How do young people describe the special and specific attributes of second screening?

RQ5: How do young people think the special and specific attributes of second screening fulfill their media use goals and motives?

RQ6: During second screening, are there perceived media technological attributes (main focus lies in the real-time combination of TV and Internet/social media) that increase young people's Internet political efficacy? If so, how do they work?

METHOD

Among the studies analyzing second screening's political effects, survey is the most frequently used method. Researchers usually develop several hypotheses based on existing theories and test them by measuring related variables. However, in this study, due to the lack of pre-existing studies examining similar research inquiries, especially the absence of a widely accepted list of media's technological attributes that may affect individuals' political efficacy, an inductive study was conducted first to break down how the communication technology works on people's political efficacy. The primary goal was to determine how participants used a second device during political TV watching and why they "second screened" in such ways. These questions help to identify the technological attributes of second screening. For example, in Dylko and McCluskey's study (2012), they conceptualized the information efficiency attribute based on participants' statements that UGC helped them gain information efficiently. A set of technological attributes and measurement items were developed from two focus group interviews of college students. These attributes were expected to be potential attributes of the unique media milieu created by second screening. The second part of the study was a deductive survey testing the measurement items of attributes and relationships among technological attributes, second screening, and Internet political efficacy.

Focus Groups

The researcher recruited 13 participants by sending out invitation emails from a

major southern public university. Participants were pre-screened by their level of political interest and activeness of engaging in second screening activities during political TV program consumption. Only active second screeners with a high interest in politics were recruited. Due to current study's exploratory nature, this purposive sampling guarantees that participants have abundant experiences in second screening and political learning/engagement. There were four males and nine females. Six of the participants majored in Communication and seven of them majored in Political Science. These participants were randomly divided into two groups. The first group (PA1 – PA6) was asked to watch the ninth 2020 Democratic Party presidential debate on Tuesday, February 25, 2020 at home. They were asked to journal their second screening activities as specifically as they can. They were also informed that they need to attend a focus group discussion to address their second screening experiences. Their notes were not used for data analysis. The requirement of journal was designed to assist the participants to reflect on their activities while second screening and recall their experience during the discussion. On the following workday (Wednesday, February 26, 2020), a focus group discussion was conducted (85 mins).

The second group (PB1 – PB7) was asked to watch the ninth Democratic Party presidential debate (the first 30 minutes) on Tuesday, February 25, 2020 together in the college laboratory. The researcher observed participants' second screening behaviors and conducted a focus group discussion after TV watching (107 mins in total). When participants were asked to watch the debate at home and journal their activities by themselves, it was expected that their notes would not be specific enough. When they came to the discussion,

part of their memories could be lost. The design of the second focus group was to ground students' responses to their "lived" experience and to avoid abstract answers and platitudes.

Both discussions followed a semi-structured form (Barbour, 2008). For both discussions, a discussion guide was used and the researcher served as the moderator. Please see Appendix A for the discussion topic guide. After proposing a question, the moderator asked each participant in turn to provide his/her answer. However, other participants were free to join in at any point. To guarantee an equal participation level, during free discussions, less active participants were addressed by the moderator and encouraged to express their opinions. Both sessions were video recorded with participants' consent. The researcher transcribed the video recordings and used the transcriptions for data analysis.

The qualitative part of this research used the phenomenological lens, which aims to find patterns from individuals' lived experiences (Creswell, 2013). This research lens focuses on what all individuals have in common when they experience a phenomenon to grasp the essence and nature of the thing. Interpretation of the data follows the postpositivism framework (Creswell & Poth, 2017). This framework controls researchers' bias and requires objectivity as much as possible. Abstract coding and concrete coding were used during data analysis to identify salient themes and patterns. Specifically, the researcher adapted Moustakas' (1994) data analysis approach for phenomenological studies: 1) develop a list of significant statements, 2) group the statements into broader units of information, 3) create a description of "what" the participants experienced, and 4) draft a description of "how" the experience happened. This approach resembles a pragmatic version of grounded theory (Glaser & Strauss, 1967; Melia, 1997), which relies on themes generated by participants, but

recognized the need for certain focus and intent. For example, when coding discussions on whether there were qualities or attributes of the media technology that made participants feel easier to engage with politics, whenever a new attribute was brought up, a new category was created. Other statements describing the same attribute were allocated to this category. This process was repeated until an exhaustive list of mentioned attributes was developed. The coding frame was revisited and revised several times to ensure the categories were mutually excluded.

Adapted from Dylko and McCluskey's research (2012), three criteria were used while identifying media technological attributes: 1) Attributes must come from the technology, not the human factors. For example, the design, interface, modality, and so on. 2) Attributes must have the potential to contribute to our understanding of the nature and mechanism of second screening, which is using a second device to conduct activities about the TV content. 3) Attributes must have influences on people's Internet political efficacy. This study is not designed to list all the technological attributes of the media involved in second screening activities, but to identify the most salient attributes rooted in technology that help explaining how using a second screen during political TV watching may leverage efficacious beliefs. After the salient attributes were developed, their direct and indirect relationships with Internet political efficacy through second screening were tested using a survey.

Survey

A survey questionnaire was developed based on the data analysis of focus group discussions. The researcher used Amazon Mechanical Turk and distributed the survey to people aged 18 – 25 years in the United States. Eight salient technological attributes with

potential influences on people's Internet political efficacy were developed. Other variables included second screening activities, Internet political efficacy, mass media use, social media use, and demographical factors. Measurement items of technological attributes were developed based on focus group discussions, and items of other variables were adapted from the literature. Regression analyses were conducted to test paths from technological attributes to second screen use to Internet political efficacy. Please see Figure 1 for the proposed direct and indirect relationships among perceived technological attributes, second screening, and Internet political efficacy.

[Figure 1 about here.]

FOCUS GROUPS RESULTS AND DISCUSSION

Using a Supplemental Device during TV Watching

When asked to describe their second screening activities during presidential debate watching and the reasons for conducting those activities, respondents pointed to a wide range of activities. Among those, three second screening activities were mentioned significantly more frequently than others: Fact-checking when having doubts about the TV content, searching for information when feeling lack of knowledge related to the TV content, and using personal communication tools (e.g., text, phone call, etc.) to interact with friends, family members and so on (people they know in real life). While some of these behaviors were discussed in more detail than others, each describes a significant type of activity that TV audiences conducted as a means of engaging with certain topics online in a meantime manner. Together, these activities help to elucidate the complex and inter-correlated ways in which TV audiences use communication technology in the service of multi-tasking.

One popular second screening activity while watching political debates is fact-checking. When participants had doubts about the correctness of the TV content, they utilized the Internet to check. PA1 said he would definitely do research online when he questions the information he encounters on TV, "Sometimes I will look at facts that are related to the discussion that don't sound right. Like, Is that correct?" PB4 illustrated the specific scenarios in which she engaged fact-checking,

I used the device mostly to fact-check the candidates, and make sure what they're saying is right. Like Biden said that he wrote a lot of bills, so I looked up if he actually wrote those bills and also to get more understanding of them. When I wasn't sure about what the candidates were saying. If they are making claims that sound a little bit off, I would do some research into that.

This particular type of second screening activity is triggered by cognitive discrepancy. When TV audiences encounter information that does not align with their previous knowledge, they are very likely to use a supplementary device to sort out the right from the wrong. The natural process of elaboration along with the fact-checking behavior is a potential factor contributing to increased knowledge and efficacy.

Another equally frequently discussed reason which motivates participants' search for information is lack of knowledge. For example, PA2 mentioned she mainly used a second device during political TV watching "looking up things I haven't heard of before, and to see how they are related to something else that I've heard of." PB2 chose to use a second device "to look up what's being said if I don't know exactly what it is, like particularly last night there was a certain law that they mentioned. I hadn't quite been up-to-date with it, so I looked it up just to gain a better understanding of what's being said". In addition to unknown words/terms or topics, participants researched unrecognized figures as well. PB3 said: "I used my devices just to look up the candidates I didn't know...like Amy. I googled her a lot and ended up looking at her pages."

Participants mostly use search engines to gain information, however, some social media platforms are used as information sources as well. Twitter is a representative platform functioning not only as a "social" media but also as an "information" media. For example,

PA3 described himself as a heavy Twitter user, especially when engaging with politics. He mainly used Twitter as a news and information source and only went to Google and other websites to “double fact-check” when he was "skeptical about certain things on Twitter".

Besides searching for knowledge and facts, participants also read other people’s opinions. For example, in addition to friends in real life, PA3 followed "lots of" journalists and politicians and he thought "it's nice to see what they say". During second screening, PA3 also preferred Twitter. When there was no need to search for information, PA3 would simply scan through Twitter "like a live feed having people giving live commentary, either from a journalist or just from political entities". Several other participants also confirmed similar second screening activity -- reading other people's comments on TV content. PA5 said: "I'll read articles about what I'm watching at the same time I'm watching it. I just feel like seeing other people's opinions as I'm watching something."

Many participants also identified private communication as a central aspect of their second screening engagements. Family members and/or friends who share the same interests and have similar political opinions were the main people participants had conversations with. For example, PA4 called her grandfather and her mom while watching the debate because "they're really into politics". PA4 called them "to discuss what I'm hearing and what's happening with them, and say how I feel about it, and to hear how they feel about it too". PB6 described her usage of a second device during the debate watching in detail,

I used my cell phone device as a means to communicate with other people ... like my boyfriend last night. I was like hey Bernie Sanders said this, let's talk about it. Because I like to debate a lot, so I like to talk to him about his views and stuff. It was

a chance for me to socialize in a way too.

There were several notable patterns when participants communicate with other people on a second screen. First, most participants only chose to talk to people they know in their offline lives, especially individuals having close relationships. For example, PB3 explained her motive of contacting people while watching the debate,

I ended up texting a bunch of friends, my parents as well, to ask them if they are actually watching, because I want to see who cared ... I know my family and my friends, like their political stance. I want to see people's interests especially for the debate. It was important.

In most cases, participants communicated with close members in life when the TV content was associated with the member's life/career. PA4's grandfather and mother both served in the army and her grandfather also worked as a teacher. When the debate turned to military or education topics, PA4 would call or text her grandfather and mother to "exchange opinions".

Another noteworthy phenomenon was that most participants only used texts and/or phone calls to interact with others, as opposed to social media like social networking sites or masspersonal media technologies like Twitter. A fair portion of the participants read or watched social media content to gain information or "to see what people post about it [the debate]", but they rarely interacted with other social media users. The main reason was communicating politics in a private setting was perceived as "safer".

PB6: Social media is very public, and a lot of people can see what you put up there. Politics can get very heated really fast. Texting is more intimate. You can do with one or two people you really want to [talk to], especially with the intimacy as well as the secrecy of it ... [Social media] is a lot more risky, so I think texting is a go tool for many people.

In addition to the three main activities, participants also discussed several other second screening behaviors during debate watch. First, using social media as a "soapbox" and expressing their own perspectives and feelings. For instance, PB7 mentioned he used a second device to "contribute my [his] views on Twitter". Secondly, very few participants still interacted with other social media users whom they do or do not know on social media platforms. PA3 and his friends "gave each other stuff back and forth on Twitter ... so that even if we were not in the same room it was like we were still on the same page." PA4 said she would argue with people holding different views on the Youtube comment section because she did not have a channel, so she did not "really care if they were gonna come after" her. Lastly, a very unique example would be PB7, he brought up receiving campaign emails and making donations as part of his second screening activities. Rather than happening in isolation, the multiple ways in which the supplementary devices were utilized during TV watching thus appeared to reinforce each other in several critical respects.

Attributes of the Hybrid Media Environment during Second Screening

Based on the focus group participants' discussion, surveillance activities took up the main part of second screening exercise. When the need for information occurs, TV audiences turn to a supplementary device and search for needed information simultaneously. Search efficiency is the primary precedent factor impacting online learning efficacy for second screeners. Whether or not the desired information can be located easily, quickly, and precisely

determines the level of second screeners' perceived capability of gaining information online.

Search efficiency, as operationalized here, is presented by the presence of several criteria:

easy access, user control, and abundance of information.

Easy access. When being an information source is considered one of the Internet's "traditional" functions, quick and easy access to information set the premise of information gaining efficiency. The speed with which the system responds to users is salient both physically and psychologically (Sundar, 2008). The instancy of attained information directly relates to increased knowledge and audiences' perceived ability to gain needed information, which inherently leads to higher political efficacy (Hocevar et al., 2014; Velasquez & LaRose, 2015). While multitasking, TV audiences expect the least consumed time and effort during information search. A large proportion of the focus group participants asserted how "easy and quick" the whole searching process triggers the will of engagement and the sense of efficacy.

PA4: One main thing is how quick you have access to the information. That's like a main feature that's helpful... You're not going to sit there and research when it takes you 20 minutes ... When things are faster you tend to be more engaged.

The portability of the communicational devices also contributed to the sense of easiness of information gaining during second screening. The prevalence of second screening activities is enabled by affordable second screen capable devices. PB5 indicated that "even with high-speed Internet, if I have to go to a desktop to do it (second screening activities), I won't do it". Portable devices enable the cue of readiness. As PB4 described it, "it's just right there by your hand, go ahead and do it". The belief of one's ability to gain needed knowledge

weighs heavily in efficacy development (Bandura, 1997).

Recency. The recency of information plays a pivotal role in second screening activities as well. When TV audiences acquire information from the Internet, live updates are the primary expectation. Intuitively, the recency of information can be represented by the elapsed time between the time at which the event occurs and the time when the corresponding online information is posted. As Sundar (2008) suggests, "More complex examples of autogenerated cues appear in the form of navigational aids offered by algorithms used in search-engine and aggregator sites such as Google News, which transmits cues about the relative recency of the information, among other attributes. These appear as part of—or surrounding—the central content of the site, and emit 'information scent' helpful in making quick decisions about the quality of the information available for consumption" (p. 78).

When second screeners make queries online, they expect the information to be both topically relevant and fresh. PB3 claimed that she would check the recency of information for almost every query because "if [information] is not the most up-to-date one, there is no use reading it". PB4 also indicated that when the TV content is fast-paced, such as the debates, more frequently updated information is expected "so that I [PB4] can keep up". Recency outlines the time-sensitive nature of news and is perceived as a crucial benchmark for news media publication (Xu, 2013). More recent information also implied higher perceived news worthiness (Xu, 2013).

In addition to knowledge and facts related to TV content, second screeners also seek fresh feedback from other TV audiences. This mainly happens on social media. Social media seems designed to cater to the need for "real-time" information. Recency of information has

long been described as one critical impact factor of news websites and the crucial criterion of websites' recommendation systems (Chakraborty et al., 2019).

PB7: On my phone I have a hashtag #demdebate on Twitter, and I'm looking at the top and the latest post just to see what people are thinking as the candidates are saying things. There are a lot of points throughout the debate, people had a lot to say, and Twitter is kind of the good place to go. It was good getting different insights from different people in real time.

PA3: Sometimes on my computer I'll watch the live feed from people. Live commentary either from a journalist or just from political entities.

When discussants talked about gaining information on a second device during TV watching, they displayed a coherent emphasis on the clear, succinct, and timely manner of information composition. One specific platform attribute considered as an advantageous design is the 140-character limit on Twitter. Participants believed this "constraint" compels content creators with "rhetorical velocity", which means "rhetorical concerns about what might motivate a third party to redistribute and/or recompose the text, or what might give the text future velocity" (Sheridan et al., 2012, p. 79), to condense and frequently update their communication. Short bursts of content fulfill the urgent need for information of second screeners.

Recency as a well-documented variable in communication effects models has a direct impact on learning. Information access in human memory is mainly influenced by past usage frequency, recency, and the current semantic context (Kowald & Lex, 2016). Recency of information triggers timeliness heuristic which promotes attention and stimulates the immediate need to evaluate the information (Sundar, 2008). Timely updates potentially yield

levered cognitive elaboration (Westerman et al., 2014), which leads to increased knowledge and efficacy (Jung et al., 2011; Kenski & Stroud, 2006).

User control. Different types of TV programs arouse diverse second screening behaviors (Doughty et al., 2012). Second screening in conjunction with political TV, especially fast-paced live political events such as debates and elections, are mostly active "lean-forward" TV-content-related activities (Vaccari et al., 2015). As discussed above, purposive information-seeking is one of the main second screening activities. The level of user control over what information to intake characterizes "information-seeking", differentiates it from "information-receiving" as well. As the "gate-watching" era (elite media content producers decide what information can audiences get) transformed to the "gate-selecting" era (audiences selectively choose what information to get), the centrality of user interface design is reflected by to what extent can users control and manipulate both the information to gain, and the content to compose. A large portion of focus group discussants agreed on the fact that they could choose and seek actively what information to gain extended efficacious belief in political learning. PA4 indicated "the fact that you can go straight to whatever source you want is very helpful", PB1 liked the fact that "we don't have to waste time on the things we're not interested in". PA1 held a similar opinion as well.

PA1: I think it's [information searching using new technology] more efficient. People say our generation has a very short attention span, but I am willing to listen to an hour of the news. It's just I'm looking for specific stories. I can't just sit there and watch CNN or Fox News or whichever Channel and hope that they're going to talk about the story I want to listen to, when I can just go to my phone, look up whatever story I want to look up ... this is what I need.

PA4: I think it's easier for you to go. I follow a bunch of people that are running on Instagram. I can find out their policy from a post and read it like a paragraph. It's much easier for me to understand than [watching news]. It's much more likely that I'm going to go to their Instagram and find out information for myself.

Another factor associated with to what extent a user can control his/her search is the accuracy of his/her search. Search accuracy, referring to a good match between users' expectations/requirements and the system's responses, impacts the sense of user control and search efficiency. When participants described the technology enabling them to "go straight to" information needed, search accuracy was incorporated. Operationalized by an algorithm combining relevance and recency (Chakraborty et al., 2019), search accuracy and specificity affect users' sense of compatibility, consistency, and reliability of information and its source. For tasks pertaining to information seeking, perceived website accountability is directly related to Internet self-efficacy (Hong, 2006). PA2 also pointed out the high level and precise control over "what to read" prevented distracted attention and improves knowledge learning and overall engagement. High user control of a device indicates to what degree users can understand and interpret the information, thereby enhancing users' efficacy.

Hypertextuality. A hyperlinked information environment is the hallmark of information seeking in the Web 2.0 age. Knowledge nodes are interwoven into a massive information net, where users create unique cognitive paths that are theoretically infinite. The computational power, mass information storage, and bandwidth improvements have exponentially fortified the magnitude of potential information learning.

PA5: One thing that I like is that it [information online] includes links inside the

article so I can just go down and pull up other information. When there's one specific point that I'm really interested in, I can follow that point all the way down to the beginning and learn a lot about one subject in a very short amount of time.

Besides, hyperlinks create task cycles in which repeated information-seeking tasks take place. Following hyperlinks, the cyclic cycles of initiating an inquiry for new information, following the hyperlink to seek for information, learning about the information, and integrating the new information into one's knowledge system do not simply repeat and reoccur without increment. The success in meeting information goals in one cycle increases self-efficacy and reduces the perceived difficulty in achieving information objects in the upcoming cycles (David et al., 2007). When second screeners follow hyperlinks to explore more related information, as successful information gaining accumulates, efficacious belief in learning competence elevates.

The connectedness between information nodes also provides easy access to diverse information sources. Exposure to heterogeneous information sparks elaboration as individuals compare, evaluate, and make judgments on the credibility of varied information sources.

Elaboration, again, adds weights to self-efficacy (Jung et al., 2011; Kenski & Stroud, 2006).

PA4: I like the Internet not just having a single source, and you can follow the links to different sources ... because especially now it is so much about how you can't trust a newspaper or a certain news outlet ... there is so much conflict. So being able to see so many other sources and finding the one that you want to get your information from is very helpful.

Meantime manner. Political debates are considered as high-stakes media events (Dayan & Katz, 1992) amid which second screening takes place more frequently (Giglietto &

Selva, 2014). High-task events are events filled with uncertainty, as they involve intensive discussion on multiple topics, scrutinized candidate traits, a wide range of narratives and interpretations in a real-time setting, all driven by the broadcasting media logic (Vaccari et al., 2015). Enabled by the Internet and portable digital devices, political events are now accompanied by the panoply of media forms, creating a hybrid media environment.

When TV audiences, driven by various motives, orient themselves using supplemental communication tools, engaging in public conversations in a real-time manner helps them process information transmitted on TV (Barnidge et al., 2017; Shah et al., 2007). Studies have found that recent exposure to media content primes viewers and etches short-term memories of the media information (Riddle et al., 2011). Participants also provided answers aligning with the findings. Besides enhanced memory, engaging in real-time helps individuals maintain a high level of interest and attention. Focus, interest, and memory are all crucial premises of successful learning (Moeller, & de Vreese, 2019).

PA1: In debates, you are getting so much information. If I work on it later, I would forget what they said.

PA4: I agree with what's been said. I definitely think it's coming at you so fast and so much information and once they move on to the next topic you want to move on too. ... Everyone's moving so fast. You want to fact-check immediately and you want to understand what they're talking about immediately. You don't want to wait until after because you may forget. You just want to know what's happening while it's happening.

PA3: If we aren't discussing the debates in real-time, if they [people PA3 communicated with] don't respond in 5 minutes, then my moment has passed. I don't care. I mean we are onto something else.

PA6: My immediate focus matters ... I'm more likely to get a large amount of

discussion and research done while it's in front of me and while I'm focused on it, and not like later when I like doing things for classes.

Moreover, participants indicated that being able to conduct the supplemental activities (e.g., information searching, fact-checking, discussing) in a real-time manner alongside political TV watching (instead of proceeding after TV watching or at other times) prompts engagement level. Second screening encapsulates the “timeless time” of information reception, response, and production in a networked environment (Castells, 1996). The simultaneity of a battery of information practices requires TV audiences to be highly mentally functioning, which encourages engagement.

PB7: I think reactions in the moment are different than reactions after. When I immediately follow the debates, there are hundreds of brand new articles about political reactions ... When you see all these views, you are not gonna escape from what you are doing. It's a supplement. You are more engaged when you are in the process.

PB1: It makes me want to listen more because if you're watching something and you don't understand fully what they're talking about you are just clueless. Why do I want to listen to what they are saying if I don't understand what is being said.

PB5: It [second screening in real-time manner] makes you more interactive.

Convenience. Mass media has brought great convenience to human communication. However, the cost reduction on money, time, and effort for political engagement is significantly more extensively presented in Web 2.0-based media platforms (Dylko & McCluskey, 2012). In addition to the lower monetary cost using the Internet compared to Cable service, Internet-based media platforms exceed traditional media forms in terms of the magnitude of information, speed, user control and manipulation, and multi-functions including the ability to interact with

other users, as demonstrated above. As to participatory political behaviors such as voting, hyperlinks also provide easy, time-saving, no-cost or low-cost approaches functioning sufficiently for individuals to complete political tasks.

Operationally, adapted from Zukin et al. (2006), some features represent this attribute: A hyperlink with an e-mail address (of a public official, agency, etc.) that users can utilize to voice themselves in front of elite political figures or organizations, a hyperlink to a donation site, a hyperlink to a site where individuals can purchase products in support or opposition to some political cause, ability to download, display, and distribute e-paraphernalia from the site, comment sections, and so forth.

The portability of hardware contributes to time and effort reduction as well by enabling segmented engagement. When engaging on portable devices, neither long-time commitment or full-attention is acquired. This is a cue that makes individuals perceive easiness in finishing the task, which levels up efficacy. Jumping out of the second screening scenario, this attribute is still a major efficacy builder to users.

PA5: When I am just watching TV, I usually have my phone close by, or my computer close by ... When I'm urged to look something up it's really easy to go ahead and do it because I don't need to go somewhere to do that. It is just right there.

PA6: I haven't played any form of TV since probably winter break, because I've been too busy. But I still feel like I do have time, like between classes, to go to social media.

PA3: You can do it when you workout, you can do it like while you're walking to class. It's about what you want to hear about, not just about whatever CNN wants you to know.

Lack of hierarchy. Technologically, Internet-based platforms provide every user an

equal chance to gain, transmit, create, and publish information. The hierarchy amongst traditional media has been shattered. The dichotomy of "sender-receiver" has been fluidized into interchangeable, collaborative, two-way conversations among networked nodes. For the traditional elite information creators and senders (e.g., news agencies, political officials and institutes, journalists, etc.), the interface of user-generated media platforms populizes them. As PA4 described it, "[checking elites' accounts on the Internet] feels like inviting them to sit on your couch and discuss the topics with you". Populization of those who traditionally occupy the dominant communication position converts the power relationship in conversations, equalizes both ends, and therefore increases efficacious belief of the "minor" group in a traditional communication setting. For example, PA6 said she was more willing to "listen" to candidates or political celebrities she followed on social media than on TV, because via their daily social media posts she knew about their lives that couldn't be known otherwise. This made her feel that she knew them better, so "when they say something, I'm willing to know what they have to say".

PB3: Second screening on social media allows me to engage with some more activist sides of politics ... you get to see what people are doing on the ground and it makes policy for engaging in more real life. and also it connects you with people that you don't actually get to see in your regular life.

On the other hand, platforms allowing user-generated content volume up ordinary people's voices. Wells et al. (2016) found out in the hybrid media system during second screening, elite expression still contributes to a significant amount of social media spurs. However, individuals' voices are capable of making their own ways. Humor is one of the

most observed ways (Wells et al., 2016). On Twitter, joke tweets indicate the continuing conversation among users, especially hardcore users -- those who keep turning back to follow the developing content established alongside the debate even if they previously shifted attention (Wells et al., 2016). Internet-based interface technologically provides theoretically equal access for all users, while in the real hybrid environment, humor weaponizes average individuals to mark their discourse territory against elite discussion.

PA6: Something I like about second screening on social media in terms of politics is that it can bring in humor to stuff that's not necessarily funny. We might not like someone but we'll make jokes about him so it doesn't have to necessarily be super serious like the regular news is ... I can just be generally interested and engaging in politics in a different way than news.

The biobehavioral cues on TV - candidates' or other figures' facial expressions, body gestures, along with their words - spurs social media content creation and circling, usually in the form of memes (Wells et al., 2016). Though this type of social media engagement may not please deliberative democratic theories largely, memes do represent composers' political stances and attitudes towards certain political figures. The choice of the words, sentences, and moments to create memes also demonstrates composers' understanding of ongoing political topics. As memes circle among users, intentional and unintentional elaboration potentially occurs as users decipher the humor.

PA3: A lot of times when I see really funny memes that relate to the candidates I know something about. Like I'm not a particularly large fan of Michael Bloomberg and I know none of my friends like him either, so we'll just make a lot of rage memes and make fun of him essentially together.

SURVEY

A survey questionnaire was deployed to test the relationships among media technological attributes, second screening activities, and Internet political efficacy. Please see Figure 1 for the proposed direct and indirect relationships.

Sampling

This study employed an online survey on young adults (18-25 years old) within the United States ($N = 411$). 171 reported males and 235 reported females took the questionnaire. The average age of the sample was 23.7. 68.1% of the sample were White people. 85.4% of the sample had a college-level or higher education background. The annual family income of almost half of the sample exceeded \$50,000. Please see a complete sample demographic description in Table 1. Respondents were also asked to indicate their political stance on a 7-point scale (1 = very liberal, 7 = very conservative) and the average score was 3, $SD = 1.74$. A 5-point scale was used to measure participants' second screening frequency while watching political TV (1 = never, 5 = always), and the current sample indicated a moderate use ($M = 2.54$, $SD = 1.06$).

[Table 1 about here.]

Measurements

In this survey, media technological attributes were measured as perceived attributes instead of observed attributes. Measurement items of the hybrid media system's technological attributes during second screening were developed based on the data analysis of previous

focus group studies. The researcher asked focus group participants to describe as specifically as they can on how a certain attribute made them feel more capable to learn and engage in politics using media technology. Similar statements were grouped to create one measurement item of this attribute. The researcher ensured an exhaustive and list of mutually exclusive measurement items was generated. This process was repeated upon every attribute mentioned in the focus group discussions.

Some attribute constructs were altered for the questionnaire's conciseness and clarity. For example, only one measurement item was developed for "easy access", so this construct and "recency of information" were combined into one attribute named "immediacy". Also, "Lack of hierarchy" was divided into three sub-constructs, "equality", "popularization of elites", and "entertaining". While "equality" describes the perceived level of equality when individuals try to express their own opinions online, "popularization of elites" focuses on how much individuals believe the elites are not "above" them during online communication. "Entertaining" stems from the use of humor to weaken the sense of hierarchy. According to focus group participants' discussion, it was also perceived as an effective attribute of online content that attracts young people. In total, eight constructs were generated to measure perceived media technological attributes while second screening: immediacy, meantime manner, hypertextuality, user control, equality, convenience, entertaining, popularization of elites. Respondents were asked to think of the communication technology they use (e.g., Internet, portable devices, social media, texting/calling service, etc.) when they were second screening while watching politics-related TV, and on a scale from 1 to 5 (1 is strongly disagree and 5 is strongly agree), indicate how much they agree or disagree with the

following statements describing a technological attribute. Measurement items of second screening and Internet political efficacy were adapted from the literature.

Immediacy. Immediacy included the quick and easy access and recency of information on the Internet. Items included "It provides easy and quick access to information I need", "It provides the most up-to-date information", and "It helps me solve my questions/problems immediately so that I can engage better". Items were averaged to create an indicating score ($M = 4.11$, $SD = .81$, $\alpha = .78$).

Meantime manner. This was measured by two items, "It helps me to engage in the political affairs/topics before I lose interest/attention/focus/memory" and "It helps me to gain information, do my own thinking, and get feedback in a real-time manner". Items were averaged ($M = 3.74$, $SD = .94$, $a = .65$).

Hypertextuality. Two items were used, "I can learn a lot about one subject in a very short amount of time using functions such as hyper-links", and "It helps me to see a variety of news sources and perspectives". Items were averaged ($M = 3.97$, $SD = .93$, $a = .76$).

User control. Two items were included, "It helps me to go straight to the information I need (using keywords, hashtags, etc.)", and "It helps me to focus on the information I'm interested in without getting distracted". Items were averaged ($M = 3.82$, $SD = .98$, $a = .72$).

Equality. Two items were created, "It gives everyone more equal opportunities to express themselves", and "It enhances the chance for my voice to be heard". Items were averaged ($M = 3.27$, $SD = 1.02$, $a = .64$).

Convenience. This referred to deducted time/effort/money using new

communication technology. Two items were utilized, “It helps me reduce time/effort to learn about and engage in politics”, and “It helps me reduce my cost to learn about and engage in politics”. Items were averaged ($M = 3.65$, $SD = 1.04$, $a = .80$).

Entertaining. Two items were developed, “It is more fun to read news and information about politics this way”, and “It is enjoyable to see news and information other users post”. Items were averaged ($M = 3.60$, $SD = 1.08$, $a = .80$).

Popularization of elites. Three items were entailed, “It helps me to know more about the political figures and celebrities that I wouldn’t know otherwise”, “It helps the political figures to develop closer relationships with ordinary people like me”, and “It helps the political figures and celebrities to appear more real so I am more willing to listen to them”. Items were averaged ($M = 4.75$, $SD = 1.64$, $a = .82$).

Second screening. Frequency of second screening activities were tested. Combining focus group discussion and previous studies (Gil de Zúñiga et al., 2015, Giglietto & Selva, 2014; Vaccari et al., 2015), respondents were asked when they watch political TV programs (e.g., political news, campaigns, debates, etc.), how often do they conduct the following activities using a second screen (1 = never, 5 = very often). 14 items were developed to measure second screening activities (please see Appendix B). Items were averaged ($M = 2.52$, $SD = .92$, $a = .94$)

Internet political efficacy. Adapted from internal political efficacy and social media efficacy (Hocevar et al., 2014; Velasquez & LaRose, 2015), Internet political efficacy was measured by asking respondents how much do they agree with these 4 statements (1 = Strongly disagree, 7 = Strongly agree), “I am certain that I am capable of obtaining a political

objective using the Internet”, “I am certain that I am capable of gaining the political information I need using the Internet”, “I am certain that I am capable of expressing my political views using the Internet”, and “I am certain that I am capable of making changes to current politics using the Internet”. Items were averaged ($M = 4.78$, $SD = 1.21$, $\alpha = .76$).

Results

Pearson’s correlation test was firstly conducted to examine the correlations between technological attributes, second screening, and Internet political efficacy. Results show that all variables were significantly correlated ($r = [.12, .82]$, $p < .01$). Please see Table 2 for correlation results.

[Table 2 about here.]

To assess the validity of the measurement items of technological attributes, a confirmatory factor analysis was conducted in AMOS. Results indicated survey measurement items were consistent: $\chi^2(107) = 269.4$, $p = .000$, $CMIN/DF = 2.51$, goodness of fit (GFI) = .93, adjusted goodness of fit (AGFI) = .89, comparative fit index (CFI) = .96, Tucker–Lewis index (TLI) = 0.94, root-mean-squared error of approximation (RMSEA) = .06; standardized root mean of the residual (SRMR) = .06. Please see Figure 2.

[Figure 2 about here.]

To test whether media technological attributes had direct and indirect impacts on Internet political efficacy via second screening activities, linear regressions were run to test the direct relationships and PROCESS tests were conducted to test the indirect effects. Please see Figure 3 and Table 3 for estimates of all proposed direct and indirect relationships. All direct and indirect relations were significant in this study. The assumption of new media

technological attributes' indirect effects on individuals' perceived efficacy of using the Internet to learn and engage in politics was supported. Immediacy ($b = .57$), meantime manner ($b = .51$), hypertextuality ($b = .52$), user control ($b = .48$), and equality ($b = .51$) demonstrated relatively high direct effects on Internet political efficacy. Direct effects of convenience ($b = .44$), entertaining ($b = .39$), and popularization of elites ($b = .24$) on Internet political efficacy were lower. Overall, the direct effects of perceived attributes on second screening were low to median ($b = [.17, .39]$). Equality ($b = .39$) had the highest effect on second screening and immediacy had the lowest ($b = .17$). The indirect effects of perceived technological attributes on Internet political efficacy were also relatively low ($b = [.10, .15]$).

[Figure 3 about here.]

[Table 3 about here.]

CONCLUSION

This study attests to the continuing growing significance of communication technology in youth political efficacy. Young people are eager to try out new formats and functions of media. All media users, instead of merely young adults, are impacted by the technology-generated heuristics cues, both positively and negatively (Molina & Sundar, 2019). The lack of citizen participation should not be simply seen as a failure of civic virtue but understood in terms of social structural features, as well as individuals' psychological and cultural reasons (Dahlgren, 2009). Dahlgren (2009) believed people's feeling of powerlessness is among the oft-cited reasons. When inequalities among different groups of people impact their resources, it hinders democracy. Whether new communication tools level up the sense of power still needs more scrutiny, but new communication technology makes media users more "nomadic" and mobile (Dahlgren, 2009). Instead of being the "sitting ducks" of mass media, they make more individual choices and have more technological capacities (Dahlgren, 2009). By focusing on media technological attributes, this paper offers an exploratory theoretical grounding in the relationships between users and technology, therefore a middle path between technology deterministic and social constructivist stances.

This paper provides initial attempts to measure and explain new media technology's effect on young people's Internet political efficacy via the "mix-of-attributes" approach. Specifically, this paper 1) develops salient technological attributes potentially influencing youth political efficacy, 2) generates measurement items to represent the constructs, 3)

assesses the validity of the items (Mackenzie et al., 2011), and 4) tests the direct and indirect relationships between technological attributes and Internet political efficacy through second screening.

Based on our focus group discussions on what participants did on their second devices, second screening activities contain two major sub-categories, information seeking and creating. Information seeking happens when individuals purposely change their status of knowledge to stay attuned to reality. It is a complex process in which information seekers orientate attention, adapt to stimuli, reflect on knowledge, and evaluate the efficacy of continuation. It is also an interactive procedure between humans and technology. Findings in this study indicate that salient attributes such as easy access to and recency of information, user control, hypertextuality, meantime manner, and convenience all contribute to TV audiences' information search efficiency. According to Moeller and de Vreese (2019), the relationship between news exposure and political knowledge is reciprocal. Pre-existing political knowledge helps Individuals to make sense of media news, and the refreshed information abstracted from media news builds up the level of political literacy. While second screening, enabled by the new media technology, the reciprocal process takes place easily, repeatedly, speedily, and swiftly. Information gaining, comprehending, additional news taking inter-prompt each other as an ascending spiral, or a virtuous circle (Norris, 2000).

Additionally, this phenomenon is exceptionally prominent among young people, as they are still developing their political diet (Moeller & de Vreese, 2019). As PB1 described it: "There are usually a lot of references [when second screening]. It helps me as I go through debate. I gain better comprehension [conduct second screening activities] during TV

watching compared to after [TV watching].” This study provides evidence of the positive effects TV-related second screening activities have on political learning. Political knowledge is the key factor of becoming engaged citizens (Moeller & de Vreese, 2019). A sufficiently informed citizenry is the foundation of a healthy democracy and political knowledge indicates the competence of democratic citizenship (Delli Carpini & Keeter, 1996). As a matter of fact, “no other single characteristic of an individual affords so reliable a predictor of good citizenship, broadly conceived, as their level of knowledge (Delli Carpini & Keeter, 1996, p. 6)”.

Information creating, on the other hand, takes place when TV audiences develop the desire to express their own attitude, feelings, and opinions. The technology of Web 2.0 offers technologically equal access to every user and theoretically equal chance for every user to express and to be heard. Besides the salient attributes endowing information searching and learning simultaneously, findings in this study show that one attribute contributes to information creating in particular – lack of hierarchy. Though the elite privilege still exists in the virtual political sphere (Wells et al., 2016), Web 2.0 and social media still realize a much higher possibility for individuals to express themselves "in public" and conduct direct conversations with political officials compared to the traditional media era. The perceived possibility invokes higher belief in both internal and external political efficacy. As Easton and Dennis (1967) put it, to be politically efficacious an individual must be able "to construct a psychic map of the political world with strong lines of force running from himself to the places of officialdom (p. 26)". Besides, based on the technological support, individuals are indeed capable of making their expression noticeable or even phenomenal on the Internet by

deploying proper strategies such as using humor (Wells et al., 2016). Observing other people's success enhances one's vicarious experience, which is one of the main constructs of efficacy (Bandura, 1997). Creating content itself builds up one's belief in his/her understanding and competence of engaging in the topic (Bandura, 1997).

Given the main purposes of the survey were 1) access the validity of technological attributes' measurement items and 2) test the direct relationships between technological attributes and Internet political efficacy, as well as their indirect relationships through second screening, second screening was included as one variable instead of being divided into two sub-constructs (information searching and creating). Survey results show that immediacy, hypertextuality, user control, and equality demonstrated relatively high direct effects on Internet political efficacy. This aligns with previous studies illustrating the strengths of the Internet and social media (e.g., Barnidge et al., 2017; Delli Carpini, 2000). Although convenience, entertaining, and popularization of elites showed relatively lower impacts on Internet political efficacy, their direct effects were still significant. The fact that when second screening, one can gain and create information online easily, precisely, sufficiently, and in a low-pressure mode helps TV audiences build higher efficacy. Meantime manner is considered as a hallmark attribute of second screening (Vaccari et al., 2015). It also had a relatively high impact on individuals' efficacy. Being able to search and create information while receiving prompts TV audiences to reflect and elaborate before they lose memory or interest. This contributes to their knowledge and efficacy. Interestingly, most of the direct effects of attributes on second screening and the indirect effects of attributes on Internet political efficacy via second screening were relatively low. The reason could be this study did not

examine the existing attributes of media used during second screening. Instead, this study asked the focus group participants to describe their perceived salient attributes which they believe affect positively on their efficacy. To address this issue, content analysis is suggested to examine the existing attributes of a targeted media, and experiments are required to establish causal relationships.

Internet political efficacy refers to individuals' self-evaluated ability to learn about and engage in politics via the Internet. Since some unique media attributes generated by the hybrid media environment during second screening make TV audiences feel more capable to gain and create information online, which leads to political learning and engaging respectively, audiences' Internet political efficacy is increased. Political efficacy is structured by "confidence-building devices", which traditionally alludes to direct practical political actions (Coleman et al., 2008). However, Coleman et al. (2008) found out that symbolic expression and affective mobilization, the easily overlooked factors, are also important in forming judgments of responsiveness of the political world. Scholars found out that media users are particularly impacted by cues embedded in and transmitted by the structure of digital technologies rather than content (Sundar, 2008). Technological affordances can function as peripheral indicators, especially when individuals are faced with a large amount of information (Sundar, 2008). User-centered designs of digital devices and media interfaces in current times provide users with a sense of autonomy. Technological cues help users identify the potential possibilities embedded within the interface. Moreover, Technological attributes equipping users to fulfill certain purposes or obtain certain objectives help increase media dependency. For example, people rely heavily on the Internet to gain information due

to the easiness and swiftness of the Internet as an information source. Dependence on the Internet then predicts Internet efficacy (Ognyanova & Ball-Rokeach, 2015).

Web-2.0-based Internet media platforms prompt users' political efficacy by providing a) plethora of messages and b) easy and low-cost access to political discussion and other forms of participation, so that users can attain confidence in gaining an understanding of the current political environment, and the capability of political participation when they want to. Second Screening, empowered jointly by the portability of digital devices and Web 2.0 facilitated media interface, converts the information gaining and political topic engaging experience into a meantime fashion, which presumably upgrades TV audiences' efficacious beliefs.

The valence of second screening as a novel arena reconfiguring communication power is not lost among political strategists. The critical question is how the hybrid media constellation empowers the actors, or young actors in the milieu of the current study, to define political meaning.

In *The Hybrid Media System* (2017), Chadwick urges researchers to scrutinize the inter-relations between older and newer media logics from a holistic perspective, and examine the flux, in-betweenness, and the liminal. According to Chadwick's "ontology of hybridity", media history has convincingly illustrated that involved media selectively combine antecedent media's characteristics, and hybrid media is articulated as systems through which individuals mobilize logics that are both competitive and interdependent to exercise power. The logic of hybrid media is not hegemonic. Instead, it is a force co-produced by media, political actors, and the public as they intersect to influence democracy.

Wells et al. (2016) defined hybrid media events as events where there is a real-time convergence of “(i) the coverage of broadcast and journalistic media; (ii) the strategic messaging and spin of interested actors (that is, campaigns and parties); and (iii) the commentary and debate of citizens using various social platforms (p. 209)”. Second screening during fast-paced political events such as political debates or elections meets the criteria of hybrid media events. Hybrid media events operate where the logic of older and newer media interact and distinctions between older and newer media dissolve (Chadwick et al., 2015). To develop the holistic approach to examine media behaviors in a hybrid media environment, the flow of power is the key (Chadwick et al., 2015). By examining how media technology comes to shape the exchanges between actors, political elites, and news institutes we can get inside the power flows in a hybrid media system.

In power relations, attempts to dissociate and forms of resistance always exist between people exerting power and people striving for it (Foucault, 1982), and the central question around which power struggles is “Who are we? (p.781).” Part TV audience, part Internet searcher, part social media producer, part interpersonal communicator, second screeners’ use of supplemental devices alongside TV watching creates a complex, interdependent, and fluxional hybrid media system. Second screening’s impact has been attained through intertwined power relations built upon the hybridization and integration of traditional and new media activities: the infusion of professional journalism, online elaboration, interpersonal discussion; of substantiated institutional power and distributed Internet power (Chadwick, 2017). Participatory media technology has altered the dynamics of influence between elite media institutions and ordinary media users (Benkler, 2006). As

Vaccari et al. (2015) assert, "technological objects—both software and hardware—shape and constrain, though never fully determine, human behavior (p.1044)." Young people carry out twofold power struggles through second screening during political events: the struggle as audiences against the formerly unidirectional, authoritative mass media as they endeavor to take the initiative in the process of communication; and the struggle as citizens against political hierarchy as they try to vocalize their demands and opinions (Giglietto & Selva, 2014). As the struggles unfold, second screening serves the possibility of becoming one precondition of developing more politically efficacious citizens.

Limitations and Future Suggestions

First, only perceived technological attributes were tested in this study. To examine existing attributes of a certain media, content analysis is suggested (Dylko & McCluskey, 2012). Eveland's MOA approach (2003) also requires attributes to be measured quantitatively instead of qualitatively. Moreover, to establish causal relationships between an attribute and the targeted outcome variables, experiments controlling the level of the attribute are required. However, this study is an exploratory study aiming to identify which salient technological attributes are potentially impacting young people's Internet political efficacy. This is the first step of developing a technological attribute list. Future researchers are encouraged to conduct several more rounds of inductive studies to revise and refine the current list. For example, only active second screeners with high interest in politics were invited to current focus groups. Comparable studies between individuals with low and high interest in politics are recommended to investigate the magnitude of technological attributes' effects between groups.

We also need to examine the listed attributes quantitatively through content analysis on a targeted media, and then design experiments to establish possible causal relationships. As can be seen from current CFA results, some of the attributes were highly correlated with each other. Since the current study only tested direct and indirect relationships between each attribute individually and Internet political efficacy, the multicollinearity did not impede the findings. But this will be an issue for integrated path models. Examining existing attributes via content analysis is also expected to help avoid the multicollinearity issue among attributes.

Also given the exploratory nature of this study, the quantitative analyses on the direct and indirect relationships among proposed variables were preliminary. Another suggestion for future quantitative attribute-based testing is to incorporate more relative cognitive, psychological, and behavioral factors and develop integrated models. Variables for consideration include motivations, elaboration, discussion, knowledge, participation, etc. This study by no means excludes human and social factors in media effects. Scholars studying similar concepts, like media affordances' effects, stress the interaction between affordances and media users (e.g., Zhou et al., 2021). Complex systems in connectedness with human perception cannot be understood absent of the perceiver and the context (Zhou et al., 2021).

Several other limitations are worth notice. As stated above, the direct relationships between attributes and Internet political efficacy were stronger than their indirect relationships mediated by second screening. The direct effects on attributes on second screening were also relatively low. This could be because the attributes were perceived salient attributes the participants believed contributing to their Internet political efficacy instead of

existing attributes. Again, quantitative examinations on the attributes and empirical experiments are suggested to address this issue. Another objective limitation of this study is that it was conducted during the COVID-19 pandemic. Individuals' political activities were restricted. This may cause them to rely on technology more than usual. Testing integrated models in normal environments could help adjust our understanding of technological attributes' effects. Also, the survey sample of this study was skewed to the left (liberal) in terms of political stance, more rounds of nationwide surveys are suggested to improve the sample representativeness.

The current study could be used as a foundational study and future studies are encouraged to build upon it. While future research is needed to quantitatively measure and distinguish media's technological attributes, more clearly establish relationships between attributes and human and social factors, and build integrated models, this study has contributed to our understanding of second screening's political effects by finding that particular salient technological attributes are perceived as positively affecting TV young audiences' Internet political efficacy. Findings indicate that putting the technological piece into the whole media effects puzzle is important. It is a fruitful research area to scrutinize how media technology and its heuristic cues impact people's cognition, psychology, and behavior, especially among young adults, as young people are susceptible to ICTs. Examining media effects in terms of technological attributes also assists us to sort out the sources of both a media's positive and negative effects on a targeted pro-democracy variable. Practically, communicators also can develop more effective strategies based on how each attribute affects media users differently.

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Table 1
Descriptive Data of the Survey Sample

Gender	
Male	41.6%
Female	57.2%
Prefer not to answer	1.2%
Average Age	23.7
Current Education Level	
High school or lower	14.6%
Junior college	10.7%
University/College or bachelor's degree	61.6%
Master program or master's degree	9.7%
Doctoral program or doctoral degree	1.9%
Other	1.5%
Family Income	
Less than \$10,000	6.1%
\$10,000 - \$19,999	10.5%
\$20,000 - \$29,999	11.2%
\$30,000 - \$39,999	10.9%
\$40,000 - \$49,999	11.4%
\$50,000 - \$74,999	20.4%
\$75,000 - \$99,999	12.7%
\$100,000 - \$149,999	11.4%
\$150,000 or more	5.4%
Ethnicity	
White	68.1%
Black or African American	10%
American Indian or Alaskan native	1.9%
Asian or Asian American	10.2%
Hispanic	7.5%
Other	2.2%

Table 2

Pearson Correlations among Perceived Technological Attributes, Second Screening, and Internet Political Efficacy

	Aa	Ab	Ac	Ad	Ae	Af	Ag	Ah	SS	Effi
Aa	1									
Ab	.62**	1								
Ac	.74**	.65**	1							
Ad	.65**	.69**	.69**	1						
Ae	.36**	.54**	.46**	.48**	1					
Af	.51**	.55**	.57**	.53**	.49**	1				
Ag	.50**	.60**	.55**	.55**	.54**	.52**	1			
Ah	.32**	.46**	.41**	.44**	.58**	.41**	.56**	1		
SS	.20**	.40**	.26**	.31**	.55**	.27**	.44**	.55**	1	
Effi	.40**	.44**	.43**	.41**	.46**	.40**	.39**	.38**	.41**	1

Note. Aa = immediacy, Ab = meantime manner, Ac = hypertextuality, Ad = user control, Ae = equality, Af = convenience, Ag = entertaining, Ah = popularization, SS = second screening, Effi = Internet political efficacy. * $p < .05$, ** $p < .005$, *** $p < .001$

Table 3

Indirect Effects of Perceived Technological Attributes on IPE via Second Screening

Indirect Paths	b	SE	95% Bootstrap CI	
			Lower limit	Upper limit
Immediacy → Second Screening → Efficacy	.10	.03	.05	.16
Meantime → Second Screening → Efficacy	.14	.03	.09	.21
Hypertextuality → Second Screening → Efficacy	.11	.03	.07	.17
User Control → Second Screening → Efficacy	.12	.03	.07	.17
Equality → Second Screening → Efficacy	.15	.04	.08	.22
Convenience → Second Screening → Efficacy	.10	.02	.06	.15
Entertaining → Second Screening → Efficacy	.15	.03	.09	.21
Popularization → Second Screening → Efficacy	.12	.02	.07	.17

Note. IPE = Internet Political Efficacy. Estimates were calculated using the PROCESS macro developed by Hayes (2013). CI = confidence interval. CIs are based on the bootstrapping of 5,000 samples. $N = 411$.

Figure 1
Proposed Direct and Indirect Relationships among Perceived Technological Attributes, Second Screening, and Internet Political Efficacy

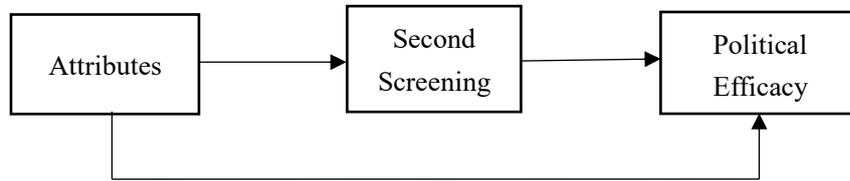
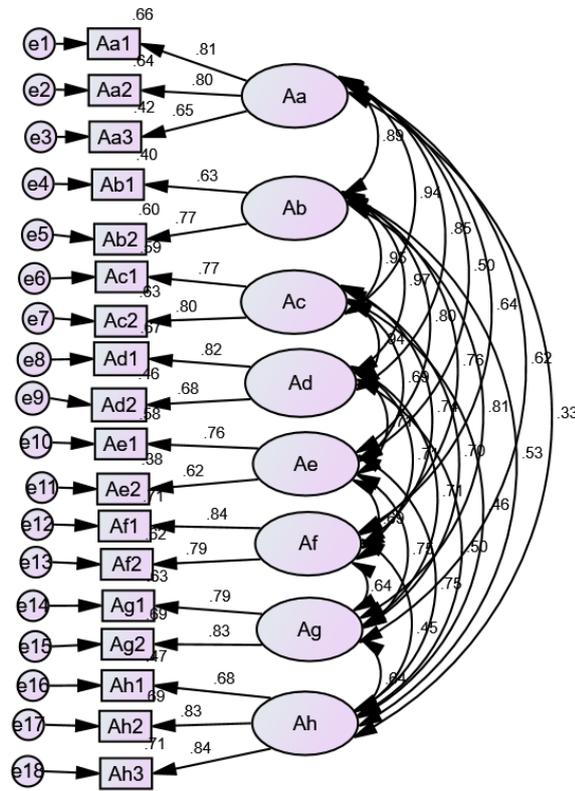
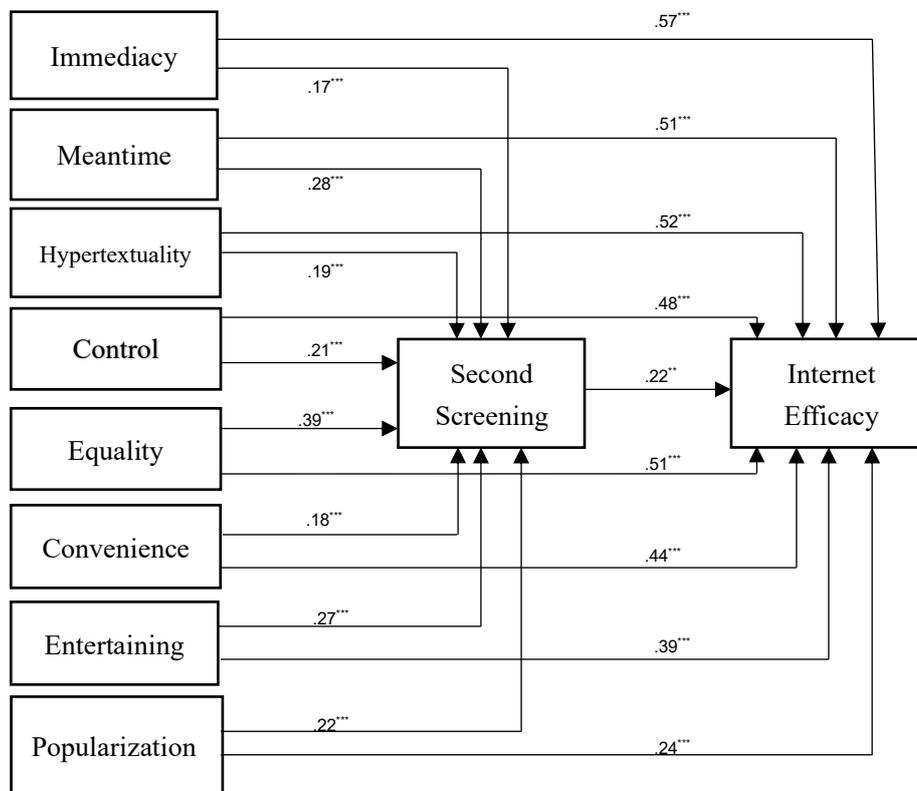


Figure 2
Confirmatory Factor Analysis on Measurement Items of Perceived Technological Attributes



Note. Aa = immediacy, Ab = meantime manner, Ac = hypertextuality, Ad = user control, Ae = equality, Af = convenience, Ag = entertaining, Ah = popularization

Figure 3
Direct Relationships among Perceived Technological Attributes, Second Screening, and Internet Political Efficacy



Note. *p < .05, ** p < .005, ***p < .001

APPENDIX A

Focus group discussion questions:

1. What are your main reasons/purposes of using a second screen when you were watching the debates?
2. When you were second screening during political TV watching, what did you do on the second screen? (Please be as specific as you can)
3. Do you think you were doing different things on your second screen across different parts of the debate? If so, can you describe those activities as specific as you can?
4. Why do you feel like using a second device to do those while watching the debate instead of after TV watching (or at other times)?
5. Do you think second screening makes it easier/make you more capable to learn/engage in politics?
6. If so, what specific reasons can you think of?
7. Are there qualities or attributes of the technology you're using that make it easier to engage with politics and political discussion? If so, can you describe these?

APPENDIX B

Measurement items of second screening:

Now we'd like to ask about your second screening behaviors. Think about when you watch politics-related TV programs (e.g., political news, campaigns, debates, etc.). Please indicate how often you do the following activities using a second screen (e.g., smartphone, tablet, laptop, etc.) while watching politics-related TV programs (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often)

- 1) Search for information about what I'm watching using search engines (e.g., Google, Firefox, Safari, etc.)
- 2) Search for information about what I'm watching using social media platforms (e.g., Twitter, Facebook, Snapchat, etc.)
- 3) Read what official accounts (e.g., political figures, celebrities, news agencies, journalists, etc.) post that are related to what I'm watching
- 4) Read what people I know in my real-life (e.g., friends, family members, etc.) post that are related to what I'm watching
- 5) Read what people I don't know in my real-life post that are related to what I'm watching
- 6) "Like" or "react" to what I read online that are related to what I'm watching
- 7) Repost/share what I read online that are related to what I'm watching
- 8) Leave comments to what I read online that are related to what I'm watching
- 9) Post links/posts related to what I'm watching with my personal thoughts and opinions

about stories

10) Express/Post my opinions related to what I'm watching

11) Express/Post my feelings about what I'm watching

12) Discuss the topic in the private setting (call/text/email/message friends, family, or other individuals).

13) Discuss the topic in the official setting (use official forums, discussion boards, discussion sections of official social media accounts, etc.).

14) Discuss the topic in the non-official public setting (use non-official social media, non-official forums, discussion sections of non-official social media accounts, etc.).

APPENDIX C

THE UNIVERSITY OF
ALABAMA®

Office of the Vice President for
Research & Economic Development
Office for Research Compliance

December 16, 2019

Yiben Liu
College of Communication & Information Sciences
The University of Alabama
Box 870172

Re: IRB # EX-19-CM-307-A “Exploring Media Technological Attributes’ Effects on Young People’s Political Efficacy During Second Screening”

Dear Ms. Liu:

The University of Alabama Institutional Review Board has reviewed the revision to your previously approved exempt protocol. The board has determined that the change does not affect the exempt status of your protocol.

Please remember that your protocol will expire on November 20, 2020.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants.

Good luck with your research.

Sincerely,

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

Informed Consent

Please read this informed consent carefully before you decide to participate in the study.

Consent Form Key Information:

- **Participate in a 3-5-hour study about second screening during political TV watching**
- **Watch the seventh 2020 Democratic Party presidential debate on January 2020 (date to be decided) at home**
- **Take 1 focus group discussion including a pre-screening short survey (2 questions)**
- **No information collected that will connect identity with responses**

Purpose of the research study: The purpose of the study is to develop what specific media attributes during second screening activities make young people feel more capable to engage in politics.

What you will do in the study: We will ask you to watch the seventh 2020 Democratic Party presidential debate on January 2020 (date to be decided) at home. We will ask you to journal your second screening activities as specifically as you can. In the following workday, we will ask you to attend a focus group discussion (60 – 90 mins) in the public opinion laboratory in College of Communication and Information Sciences to address your second screening experiences (food and drinks will be provided).

Time required: It will require about 3 hours of your time watching the debate and 1 -1.5 hours attending the focus group discussion.

Risks: While discussing politics, you may experience negative emotions such as anger, anxiety, and stress.

Benefits: Reflecting on experience of second screen use may lead to a better understanding of your media use behavior, and moreover, how new media technology facilitates you to participate in politics.

We hope to learn more about what role does media technology play in engaging young people politically. And getting more young people to participate in politics is critical for the development of our democracy.

Confidentiality: Video recording devices will be used. This is for the purpose of transcription and data analysis. During focus group discussions, no participant's identity will be required to mention or recorded. If there is still identifiers in the recording, identifiers will be stripped so data cannot be linked to participants. When transcribing, code letters will be use to address the participants (e.g., participant A, participant B). The recordings will be destroyed after the researcher defend her dissertation in late April 2020. Only the de-identified information will be kept indefinitely. Video recordings will not be used for anything outside of the current research study.

Page 1 of 3

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 12-16-19
EXPIRATION DATE: 11-20-20

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

Your privacy and confidentiality will be protected. Data will be de-identified. No identification of the participants will be recorded. To improve data security and minimize the potential for a breach, UA researchers are advised to use UA Box instead of their own personal filing/storage systems (e.g., flash drive, desktop). UA Box provides a secure cloud-based system for file and data storage, sharing, and collaboration. All data are encrypted both in transit and storage and are maintained on domestic servers. UA Box is free to all active UA students, faculty, and staff. UA Box will be used for data storage in this study.

De-identified data from this study may be shared with the research community at large to advance science and health. We will remove or code any personal information that could identify you before files are shared with other researchers to ensure that, by current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee anonymity of your personal data.

Voluntary participation: Participant's involvement is voluntary. The participant may refuse to participate before the study begins, discontinue at any time, or skip any questions/procedures that may make him/her feel uncomfortable, with no penalty to him/her, and no effect on the compensation earned before withdrawing, or their academic standing, record, or relationship with the university or other organization or service that may be involved with the research.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty. Your tape will be destroyed should they decide to withdraw.

How to withdraw from the study: While watching the debate, if you want to withdraw from the study, stop journaling and tell the researcher. There is no penalty for withdrawing. You will still receive half credit (1 credit) for the study. During the focus group discussion, if you want to withdraw from the study, tell the researcher and leave the room. There is no penalty for withdrawing. You will still receive full credits (2 credits) for the study. If you would like to withdraw after your materials have been submitted, please contact the researcher (yliu208@crimson.ua.edu). Your data will be destroyed.

Compensation/Reimbursement: You will get 4.5 extra credit hours due to your workload. You can also earn these credits by taking regular courses.

If you have questions about the study or need to report a study related issue please contact, contact:

Name of Principal Investigator: Yiben Liu
Title: Doctoral Candidate
Department Name: College of Communication and Information Sciences
Telephone: 205-393-7288
Email address: yliu208@crimson.ua.edu

Faculty Advisor's Name: Dr. Wilson Lowrey
Department Name: College of Communication and Information Sciences
Telephone: 205-348-8608
Email address: wlowrey@ua.edu

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

If you have questions about your rights as a participant in a research study, would like to make suggestions or file complaints and concerns about the research study, please contact:

Ms. Tanta Myles, the University of Alabama Research Compliance Officer at (205)-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at <http://ovpred.ua.edu/research-compliance/prco/>. You may email the Office for Research Compliance at rscpliance@research.ua.edu.

Agreement:

- I agree to participate in the research study described above.
- I do not agree to participate in the research study described above.
- I agree to video in the research study described above.
- I do not agree to video in the research study described above.

Signature of Research Participant

Date

Print Name of Research Participant

Signature of Investigator or other Person Obtaining Consent

Date

Print Name of Investigator or other Person Obtaining Consent

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

Informed Consent

Please read this informed consent carefully before you decide to participate in the study.

Consent Form Key Information:

- Participate in a 2-2.5-hour study about second screening during political TV watching
- Watch the first 30 minutes of the seventh Democratic Party presidential debate in January 2020 (date to be decided)
- Take 1 focus group discussion including a pre-screening short survey (2 questions)
- No information collected that will connect identity with responses

Purpose of the research study: The purpose of the study is to develop what specific media attributes during second screening activities make young people feel more capable to engage in politics.

What you will do in the study: We will ask you to come to the public opinion laboratory in College of Communication and Information Sciences in January 2020 (date to be decided) to watch the seventh Democratic Party presidential debate (the first 30 minutes) together with other participants (food and drinks will be provided). We will conduct a focus group discussion after TV watching (90 – 120 mins in total).

Time required: It will require about 1.5 - 2 hours attending the focus group discussion.

Risks: While discussing politics, you may experience negative emotions such as anger, anxiety, and stress.

Benefits: Reflecting on experience of second screen use may lead to a better understanding of your media use behavior, and moreover, how new media technology facilitates you to participate in politics.

We hope to learn more about what role does media technology play in engaging young people politically. And getting more young people to participate in politics is critical for the development of our democracy.

Confidentiality: Video recording devices will be used. This is for the purpose of transcription and data analysis. During focus group discussions, no participant's identity will be required to mention or recorded. If there is still identifiers in the recording, identifiers will be stripped so data cannot be linked to participants. When transcribing, code letters will be use to address the participants (e.g., participant A, participant B). The recordings will be destroyed after the researcher defend her dissertation in late April 2020. Only the de-identified information will be kept indefinitely. Video recordings will not be used for anything outside of the current research study.

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

Your privacy and confidentiality will be protected. Data will be de-identified. No identification of the participants will be recorded. To improve data security and minimize the potential for a breach, UA researchers are advised to use UA Box instead of their own personal filing/storage systems (e.g., flash drive, desktop). UA Box provides a secure cloud-based system for file and data storage, sharing, and collaboration. All data are encrypted both in transit and storage and are maintained on domestic servers. UA Box is free to all active UA students, faculty, and staff. UA Box will be used for data storage in this study.

De-identified data from this study may be shared with the research community at large to advance science and health. We will remove or code any personal information that could identify you before files are shared with other researchers to ensure that, by current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee anonymity of your personal data.

Voluntary participation: Participant's involvement is voluntary. The participant may refuse to participate before the study begins, discontinue at any time, or skip any questions/procedures that may make him/her feel uncomfortable, with no penalty to him/her, and no effect on the compensation earned before withdrawing, or their academic standing, record, or relationship with the university or other organization or service that may be involved with the research.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty. Your tape will be destroyed should they decide to withdraw.

How to withdraw from the study: During the focus group discussion, if you want to withdraw from the study, tell the researcher and leave the room. There is no penalty for withdrawing. You will still receive full credits (1 credit) for the study. If you would like to withdraw after your materials have been submitted, please contact the researcher (yliu208@crimson.ua.edu). Your data will be destroyed.

Compensation/Reimbursement: You will get 2 extra credit hours due to your workload. You can also earn these credits by taking regular courses.

If you have questions about the study or need to report a study related issue please contact, contact:

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Email address: wlowrey@ua.edu

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

If you have questions about your rights as a participant in a research study, would like to make suggestions or file complaints and concerns about the research study, please contact:

Ms. Tanta Myles, the University of Alabama Research Compliance Officer at (205)-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at <http://ovpred.ua.edu/research-compliance/prco/>. You may email the Office for Research Compliance at rscompliance@research.ua.edu.

Agreement:

- I agree to participate in the research study described above.
- I do not agree to participate in the research study described above.
- I agree to video in the research study described above.
- I do not agree to video in the research study described above.

Signature of Research Participant

Date

Print Name of Research Participant

Signature of Investigator or other Person Obtaining Consent

Date

Print Name of Investigator or other Person Obtaining Consent

Project Title: Exploring media technological attributes' effects on young people's political efficacy during second screening

Informed Consent

Please read this informed consent carefully before you decide to participate in the study.

Consent Form Key Information:

- **Participate in a 15 minutes study about second screening during political TV watching**
- **Take 1 online survey**
- **No information collected that will connect identity with responses**

Purpose of the research study: The purpose of the study is to develop what specific media attributes during second screening activities make young people feel more capable to engage in politics.

What you will do in the study: We will ask you to complete a questionnaire.

Time required: This will probably take you 15 minutes.

Risks: The questionnaire contains political topics. You may experience negative emotions such as anger, anxiety, and stress.

Benefits: Reflecting on experience of second screen use may lead to a better understanding of your media use behavior, and moreover, how new media technology facilitates you to participate in politics.

We hope to learn more about what role does media technology play in engaging young people politically. And getting more young people to participate in politics is critical for the development of our democracy.

Confidentiality: Your privacy and confidentiality will protected. Data will be de-identified. No identification of the participants will be recorded.

De-identified data from this study may be shared with the research community at large to advance science and health. We will remove or code any personal information that could identify you before files are shared with other researchers to ensure that, by current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee anonymity of your personal data.

Voluntary participation: Participant's involvement is voluntary. The participant may refuse to participate before the study begins, discontinue at any time, or skip any questions/procedures that may make him/her feel uncomfortable, with no penalty to him/her, and no effect on the compensation earned before withdrawing, or their academic standing, record, or relationship with the university or other organization or service that may be involved with the research.

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Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty

How to withdraw from the study: If you want to withdraw from the study, stop answering the questions and leave the survey page. There is no penalty for withdrawing. You will still receive \$1 compensation. If you would like to withdraw after your materials have been submitted, please contact the researcher (yliu208@crimson.ua.edu). Your data will be destroyed.

Compensation/Reimbursement: You will get \$1 compensation.

If you have questions about the study or need to report a study related issue please contact, contact:

Name of Principal Investigator: Yiben Liu
Title: Doctoral Candidate
Department Name: College of Communication and Information Sciences
Telephone: 205-393-7288
Email address: yliu208@crimson.ua.edu

Faculty Advisor's Name: Dr. Wilson Lowrey
Department Name: College of Communication and Information Sciences
Telephone: 205-348-8608
Email address: wlowrey@ua.edu

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Signature of Investigator or other Person Obtaining Consent

Date

Print Name of Investigator or other Person Obtaining Consent

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UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 12-16-19
EXPIRATION DATE: 11-20-20