

# UC Santa Barbara

## UC Santa Barbara Previously Published Works

### Title

Media Mastery: Paradoxes in College Students' Use of Computers and Mobile Phones

### Permalink

<https://escholarship.org/uc/item/7s62q5b6>

### Journal

American Behavioral Scientist, 62(9)

### ISSN

0002-7642

### Authors

Rice, Ronald E  
Hagen, Ingunn  
Zamanzadeh, Nicole

### Publication Date

2018-08-01

### DOI

10.1177/0002764218773408

Peer reviewed

Rice, R. E., Hagen, I., & Zamanzadeh, N. (2018). Media mastery: Paradoxes in college students' use of computers and mobile phones. *American Behavioral Scientist*, 62(9), 1229-1250. doi:[10.1177/0002764218773408](https://doi.org/10.1177/0002764218773408)

[Note: There may be some slight differences between this submitted manuscript version and the published version cited above.]

## **College Students' Media Mastery: Paradoxes in Using Computers and Mobile Phones**

### **Abstract**

The range and capabilities of multiple new media require us to master paradoxical aspects of their uses and implications. Further, those same media may also come to master us, through those paradoxes. Based on prior literature, we develop a four-component taxonomy of sites of media mastery (technology, technology-use, social contexts, individual aspects). We apply and extend this framework to analyze summaries of focus group comments from students in a Norwegian and a US university about their experiences attempting to master computers and mobile phones. From these results we apply thematic analysis to identify five paradoxes associated with the use of these devices throughout the media mastery taxonomy as well as a tension between using media convergence or media comparison to master multiple new media. Keywords: college students, computers, contradictions, focus groups, media comparisons, media convergence, media mastery, mobile phones, Norway, paradoxes, tensions, U.S.

## **College Students' Media Mastery: Paradoxes in Using Computers and Mobile Phones**

Increasingly, multiple new media provide stimulating visual, auditory, textual and interactive content, connectivity to old and new social networks, uncountable activities and applications, and convergence of activities and content across multiple platforms (Jenkins, 2006; Madianou & Miller, 2013). But new media also compete for users, usage, time, and attention, and can foster a wide range of problematic behaviors (Zu, Wang, & David, 2016). Thus, while we learn to master the use of multiple media for our benefit, media can also master us, with more or less awareness, and more or less acquiescence and resistance. This study explores positive, negative, and paradoxical aspects of college students' attempts to master multiple media, including also experiencing being mastered by them in their daily lives.

### **Media Psychology and Media Mastery**

Media psychology is the study of the interaction of perception and emotion with media. In this view, media are a lens through which we perceive and think about the world (Rutledge, 2012). Scholars of media psychology consider how affordances and attributes of media constrain and/or enhance social perceptions, engage and affect cognitive processing, and involve and shape social psychological processes. Media psychology focuses on the uses, processes and effects of media as they relate to and are created by human psychology and development (Knobloch-Westerwick, Kalyanaraman, & Bussell, 2013). This includes how media evoke cognition and emotion (Klimmt, 2011; Weber, Huskey, & Craighead, 2015) and how people selectively expose themselves to media and its content (Greenwood & Long, 2009; Knobloch-Westerwick, Hastall, & Rossmann, 2009). The perspective highlights divergences between media's goals and characteristics and those of the people who create and use it, by emphasizing the role of awareness and choice.

We introduce the term *media mastery* to refer to how well people understand, cope with, and use multiple media (in the media psychology perspective, as lenses) in their everyday lives. Media mastery thus includes the choices (conscious or unconscious), habits, and patterns people develop in their lives regarding the use of media, based on their own and their social groups' values and attitude towards media, as well as on the characteristics and capabilities of media (see O'Neill & Hagen, 2009). As Picone (2017, p. 384) argues, media use involves "...a range of practices involving various degrees of active engagement [selecting, interpreting, and producing] between media users and media content, devices and contexts." From this perspective, different social contexts influence various kinds engagement with various media.

We apply the concept in two ways. The first is *how we master the balance and use of multiple media* in one's residence, study or work context, and social groupings. Schroeder (2010) noted that much new media research ignores this "multimodal connectedness." Rainie and Wellman (2012) and others have discussed the growth of this multiple media environment. Media mastery is also related to Madianou and Miller's (2013) concept of *polymedia*, where understanding, choice, and use of a medium is relative to other available media. Burchell (2017, p. 409) highlights that "the individual's perception of [the] environment of increasingly differentiated communication possibilities becomes a site for managing and partially negotiating the limits, form and organization of one's social world." Burchell (2017) also notes Couldry's (2012) *media manifold*, where activities are embedded in a pervasive environment of networked media; and Gershon's (2010) *media ideologies*, which shape perceptions of media practice norms.

The second is the more subtle issue of *the ways in and extent to which these media master us* – as our activities, concerns, and relationships are being shaped through, facilitated and constrained by, and dependent upon, the use of these media. Media mastery is a more processual term, based on an understanding of media use as an integral daily habit for people with ongoing negotiations, self-regulation challenges, tensions and paradoxes. Thus, we develop the concept of media mastery as a term to explore theoretically (Bowen, 2006), and provide examples of related paradoxes or themes through the discussion of our empirical results.

### **Positive, Negative, and Paradoxical Implications of New Media Use**

The simultaneous existence of positive and negative consequences is a central implication of all innovations (Rogers, 2003). More specifically, both traditional and new media exhibit "dual lives" of negative and positive consequences (de Sola Pool, 1983). Previous literature on new media in general and mobile phones in particular has identified tensions, contradictions and paradoxes in their use, social construction, and implications, though with varying definitions and foci. We will use the term *paradox* to include the simultaneous existence of simultaneous positive and negative or intended and unintended implications, without obvious or even any resolution. The following sections summarize some of the primary positive, negative, and paradoxical aspects of new media.

#### **Positive and Negative Aspects.**

**General.** Smartphone users claim positive aspects, such as sense of safety, productiveness, interest, but also report frustration and distraction (Weisberg, 2016). In general, large majorities (from 70% to 80% to 93%) in Smith's results (from a U.S. Pew survey) emphasized the positive benefits (from freedom, to worth the cost, to helpful) of their smartphones compared to their disadvantages (from leash, to financial burden, to annoying). Over three-quarters also reported that using their smartphones made them feel productive (79%) or happy (77%). However, lower percentages reported feeling distracted (57%) and frustrated

(36%). Younger users were more likely to report both positive as well as negative emotions about their smartphones.

**Social.** Rice and Hagen's (2010) extensive review identified several concepts associated with adolescent/college students' use of personal computers and mobile phones, each with positive and negative aspects. For example, perpetual contact (the ability to be continuously aware of but also accessible to one's network) improves one's sense of belonging, but also fragments attention and creates expectations about checking in, responding, and being available. Social control through these devices involves balancing the needs and concerns of the self with those of one's multiple groups, but also blurs boundaries between public and private spaces and lives.

Access to, awareness of, expectations from, and communication with, one's social relationships through media constitute are also sources of both positive as well as negative effects (e.g., social support and identity as well as interference and social norm pressures). For example, perpetual contact with one's social groups leads to the "fear of missing out" (FOMO), driving users to try to stay connected to others through their media (Przybylski, Murayama, DeHaan, & Gladwell, 2013). Ling and Lai (2016) argue that the growth of mobile messaging apps (WhatsApp, iMessage, etc.) has increased the role of social groups in mediated communication. They expand the fundamental nature of interactions from dyadic to multi-person, multi-device, and multi-context. These sites and features facilitate the microcoordination of our interdependencies to achieve goals, but also deeply embed that process into daily mobile communication. It is now easy to start groups, but more difficult to manage them. Indeed, mobile communication has become fully integrated into many societies, so that it is "taken for granted" (Ling, 2012). Thus most people assume, expect, and rely on all their social members being accessible and responsive through media.

**Identity.** One's identity can be more flexible and contextual online, but is also much more publicly linked to and framed by the past as recorded and retrieved online. More possibilities for surveillance and privacy intrusion arise (Ganesh, 2016). Managing and repairing one's identities requires constant connectedness, awareness, revising, and tending (Turkle, 2011).

**Well-being.** Considerable research assesses positive and negative relationship of new media use with well-being. A review of 43 studies from 2003-2013 on online communication, social media, and adolescent wellbeing, found both positive implications (self-esteem, perceived social support, increased social capital, safe identity experimentation and increased opportunity for self-disclosure) and negative effects (exposure to harm, social isolation, depression and cyber-bullying) (Best, Manktelow, & Taylor, 2014). Both Reagle (2015) and Turkle (2011, 2016) note the beneficial uses of new media such as connecting with others, but are also concerned about the prevalence of disinhibition, narcissism, decreased levels of empathy, and avoidance of interacting with others.

**Dependency.** People can become overly dependent on, and experience dysfunctional psychological, academic, and behavioral patterns from, excessive Internet, mobile phone, and online gaming use (David, Kim, Brickman, Ran, & Curtis, 2015). (We do not here review the debate on whether this can constitute formal medical addiction; see Hong, Chiu, & Huang, 2012; it is probably better to refer to this as "compulsive use", or a form of impulse control disorder, or more generally, "problematic Internet/mobile phone use"; see Caplan, 2005). Many smartphone users turn to their phone upon awakening and before going to sleep, and engage in constant monitoring throughout the day (Weisberg, 2016).

Students are often not able to reduce the time spent on the Internet, even in research conditions (Bicen & Arnavut, 2015; Katz, 2006). Nearly half (46%) of young adult smartphone users in Smith's (2015) study said they could not live without it. A 2015 Pew survey reported that many Americans feel that continuous connection harms and distracts from group processes, but at the same time cannot resist remaining connected (Rainie, 2015). Users may become resigned to the disadvantages of and dependency on new technologies (Turkle, 2011).

**Paradoxes.** New media in general and mobile phones in particular involve a wide variety of paradoxes (Rice, 1999). For example, increased choices in media options generate more burdens on usage and skills. Greater diversity among users and media options enables greater social fragmentation and divisiveness. Overcoming temporal and physical constraints increases autonomy as well as speed of work and expectations of responsiveness. Early on in the study of mobile phones, Arnold (2003) noted the inherent irony and paradox, tension and contradiction – often simultaneous – in their socio-technical uses and implications, proposing a variety of paradoxes: mobility and fixedness; independence and co-dependence; vulnerability and reassurance; closeness and distance, reachability and breaching ability; privacy and publicity; business and availability, more importance and less importance; production and consumption; and patriarchy and matriarchy. Jarvenpaa and Lang's (2005) analysis of urban mobile device users in Helsinki, Tokyo, Hong Kong, and Austin grouped an initial set of 23 paradoxes into eight: empowerment/enslavement, independence/dependence, fulfills needs/creates needs, competence/incompetence, planning/improvisation, engaging/disengaging, public/private, and illusion/disillusion.

### **Research Questions**

The media psychology emphasis on tensions, the concept of media mastery, and the paradoxes associated with new media, jointly underscore the need to not only reject a strictly positive or negative view of new media, but also to reject a mutual exclusivity between their positive and negative uses, social constructions, and implications (Arnold, 2003; Katz & Rice, 2002). Thus, we ask: *RQ1*: What are the components of media mastery? *RQ2*: To what extent are positive and negative aspects associated with those components? *RQ3*: What paradoxes emerge throughout the media mastery process? *RQ4*: How do users exhibit mastery through their choices between multiple media?

### **Method**

#### **Research Context**

This study analyzes discussions about experiences of media mastery involving computers and mobile phones in college student's lives in two high-tech, highly-educated, developed countries: *Norway* and the *United States*. Multiple new media are widely used in both countries. In Norway, according to Medienorge (n.d.), in 2015 85% of the population (aged 9 to 79) had access to a smartphone, 87% used the Internet on an average day while 96% had access to the Internet in general, 65% accessed the Internet via their mobile phone on an average day, 94% had access to a computer at home, and 75% had access to a computer tablet (primarily iPad). By fall of 2015, of US adults, 92% own a cellphone, 73% desktop or laptop computer, 68% smartphone, and 45% a tablet (Anderson, 2015). In one study, 95% of the US college students reported using their own pc and 82.8% used their smartphone for school-related work (Henderson, Selwyn, Finger, & Aston, 2015). Though the tables report some differences between the two countries and the two sets of devices, a subsequent paper will analyze detailed comparisons.

#### **Media Mastery Coding Taxonomy**

We looked for publications concerning college students' use of new media since the comprehensive review by Rice and Hagen (2010). We used both the Proquest Social Sciences Databases, and Google Scholar, to identify an initial set of publications, and their relevant references. The two researchers then separately identified the major concepts in each article and entered those into a spreadsheet as the beginning basis for the coding taxonomy. For example, a 2015 Pew Research online report was coded as including the concepts of *cellphone*, *constant connection*, *dependency*, *distracting*, *harmful*, *public spaces*, and *young adults*. First, duplicate terms were removed, and similar terms were standardized. Then the researchers discussed each term for possible rewording, and other relevant terms we were familiar with from our research. Separately and then jointly we iteratively grouped and regrouped concepts, suggesting consistent and meaningful groupings and subgroupings.

From these numerous discussions slowly emerged an overall *taxonomy of sites of media mastery*. This begins with the *technologies* in general, consisting of the devices, services and site, through the experienced features, and then to the uses and purposes of the technologies. The next stage of the taxonomy represents the experienced intersection between technology and use. This *technology-use* involves contrasts and obstacles, using the content and accessing information and other people, and crossing social and system boundaries, sometimes preceded or followed by user awareness of or self-reflexivity about the technology-use. Our distinction between technology and technology-use is somewhat similar to Burchell's (2017, p. 416) between "social device" and "social tool."

The following component is the *social context* for this technology-use, which shapes and is shaped by social context, relations, and influence as well as how users (re)present themselves through technology-use. Next, this accumulating multi-dimensional context has implications for *individual aspects*, such as problematic uses and health issues, and is shaped and influenced by users' traits and cognitions. Finally, valence is not a component of media mastery itself, but any instances within these components may be associated with explicitly mentioned *negative or positive valence*. We used this set of media mastery components, and their constituent subcodes and subsubcodes, as the initial *a priori* coding taxonomy.

### **Sample**

College students are an appropriate population to study the use and mastery of new media for two primary reasons. First, teenagers and young adults are considered to have mastered new media more than any other group (Brenner, 2013; Tapscott, 2008). However, some question aspects of this assumption (Helsper & Eynon, 2010; Kennedy, Judd, Dalgamo, & Waycott, 2010). Thus college students' ability to continue developing the technical and regulatory skills necessary for mastering multiple media is both crucial yet still developing. Second, leaving home after high school in general, and going to college in particular, is a major life transition from high school and family life to a wide set of new relationships, and a period of personal and social development and adjustment involving ongoing interactions (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012; Fang & Ha, 2015, p. 259; Manago, Taylor, & Greenfield, 2012; Turkle, 2011).

We used focus groups as the context for exploring the media mastery taxonomy and identifying possible paradoxes. A focus group is a qualitative data-gathering approach that offers insight into target populations and new concepts, provides a basis for developing questionnaire or survey content, and allows the exploration of categories that would be restricted by quantitative methods (Knodel, 1993). The interactive discussions of focus groups are particularly

useful to allow participants to remember, elaborate, and generate diverse opinions and meanings (Powell & Single, 1996).

After obtaining human subjects approval at both universities, we advertised for focus group participants from a large mid-Norwegian university and a medium-sized US west coast university. US students were recruited as part of a for-credit research experience in the communication major. As the Norwegian university did not have such a system, it was harder to obtain participants, who were primarily undergraduate students in media studies and/or psychology, so their focus group sizes are smaller. We conducted six focus groups each at the two universities between November 2015 and February 2016. As media use has traditionally been rather gendered, we sought evenly balanced diversity in the gender composition across the focus groups, and thus obtained two focus groups each with only females, two with only males, and two with a mix of females and males, to encourage diversity of opinions from females and males at both sites. Descriptive statistics of the focus group members – media ownership and use, demographics, living situation – are available from the authors.)

### **Procedures**

We were particularly interested in college students' sense of media mastery in the multiple digital media environment consisting of computers (desktop, laptop, tablet) and mobile phones. We asked seven questions in sequence, first about computers (desktop, laptop, tablet), and then about mobile phones: 1) On a normal day, for what purposes do you use the ...?; 2) Follow up questions (if the group participants do not talk about this): For what school-related tasks do you use the ... ?; 3) What personal or social purposes do you use the ... for?; 4) Do you feel that you achieve what you would like to with your .... ?; 5) Please describe negative experiences you may have had with your ....; 6) Please describe situations where you really enjoy using the ....; and 7) What would your life look like if you did not have a ...?

Each focus group took about one hour, evenly allocated to the two sets of devices. The discussions were digitally recorded and transcribed. The Norwegian comments were translated into English and verified to ensure that it was correct in terms of the specific word used, and its context. The focus group comments were entered into NVIVO (version 11, Pro) along with information classifying each file as to country, focus group, device, question, and researcher.

### **Coding**

The two US researchers conducted all of the procedures and analyses from this point on. The researchers carefully read each of the files, and each separately prepared two sentences that summarized the most substantial topics or themes in each file, creating 336 sentences, each associated with the question, medium, country, and researcher. We created emergent codes in NVivo as needed to complement the *a priori* codes, discussing each before moving them into a component, subcode, and subsubcode. We discussed each new code, clarified or added codes, moved codes or subcategories to more appropriate groupings, and clarified that we were coding from a semantic perspective (Braun & Clarke, 2006) for manifest/explicit meaning as much as possible, thus revising the codes into a combined *a priori-emergent* taxonomy. Each researcher then used that revised taxonomy to re-code their sentences. The final taxonomy and coding operationalizations (available from the authors) are the basis for the current results.

## **Results**

### **RQ1**

The components constitute the taxonomy of media mastery sites, as the focus of media mastery moves from technologies in general, through technology-use, to social, and then to individual aspects. Table 1 presents the components and their subcodes, and the total coding

instances, and percentages by country and device set. This coding involved 298 different subsubcodes and 2092 coding instances. The coding instances were almost evenly distributed across the countries and the devices: Norway = 47.1%, US = 52.9%; computer = 49.6%, mobile phone = 50.4%.

--- Table 1 ---

## RQ 2

As opposed to paradoxes, Table 2 shows the frequency and percentage of negative and positive valenced comments for the media mastery taxonomy components. This quantification illuminates how the existing components are perceived from positive and negative perspectives. There were almost equal percentages of valenced comments for both technology (35.1%) and technology-use (35.5%), with fewer for social contexts (13.3%) and individual aspects (20.6%).

--- Tables 2 and 3---

Table 3 provides examples of negative and positive valences within each of the four components. Within the *technology* component, positive and negative attitudes were largely expressed about technical capacity. For instance, the mobile phone was enjoyable for facilitating communication, but had negative conditions such as limited screen space or limited battery energy. Next within the *technology-use* component, the most common positive attitude noted the ease and convenience of access to information. The most negative attitudes were related to privacy issues, and problems with surveillance. Positive sentiments towards the *social contexts* were focused upon the ability to maintain existing social relationships. However, negative feelings were expressed about the impact of the expectations for constant availability, and the ability to withdraw from face-to-face communication. Finally, *individual aspects* that were praised included personal enjoyment that comes from creating or consuming content. However, the focus group participants expressed frustration with their (and others') dependency on and addiction to (their word) their computers and mobile phones.

## RQ 3

Five major paradoxes across the taxonomy of media mastery components emerged from our analysis of the focus group comments. These themes represent tensions, contradictions, and paradoxes among goals, experiences, and consequences. They also reveal the paradox of ways in which new media may master us even as we try to master them. These themes were constructed by reading through the specific references coded for each of the four components, and cross-referenced or also coded with the code "contradictions, paradoxes and tensions," which was nested under the larger code "contrasts."

**Stimulating and exhausting.** The first theme is *stimulating and exhausting*, which describes the constant information stream that is entertaining but also draining or strenuous. An example of this theme includes, "participants report enjoying keeping up to date on friends' lives, but the need to constantly scroll is tiring." Participants referenced how consuming social information can be enjoyable, but also exhausting. Participants mentioned bringing their devices into bed to be entertained, but such usage can be relentless and lead people to stay up too late. This is associated with the need to remain up to date with social networks, which is mainly a social phenomenon. Participants also describe their fear of missing out (FOMO) when they lack access to social information. This is related to friends and family expecting constant connection and availability. In these cases, it can be difficult to navigate being both socially active and fulfilling the increasing demands and expectations for availability.

**Frustrating fragility and beneficial breather.** The second theme is the *frustrating fragility yet beneficial breather* associated with these devices. In these cases, participants



described technology limitations (i.e., battery issues, lack of or slow Wi-Fi) as frustrating obstacles to goal completion, yet opportunities for relaxation. An exemplary reference for this theme is: “Without access to Wi-Fi, then there is a feeling of missing out or fear that one will be lost related to dependency, but sometimes a lack of access to Wi-Fi is relaxing.” This pattern captures a tension in which technological problems can occur frequently, creating obstacles to their work and social plans, and be some of the most negative experiences participants have with their devices. However, they often note that these moments then provide a reason to relax or become involved in opportunities in their physical surroundings, including exercise, and face-to-face conversations and relationships.

**Structure and chaos.** The third theme is *structure and chaos*, or the experience that media technology facilitates structure and focus yet also creates chaos in one's time. For example: “Mobile phones are integrated into a number of daily tasks and experience and act as a useful tool for extending a person's cognition and a gatekeeper for time. However, they are distracting and can also take away from the social connections and daily activities.” Focus group participants often noted that the ability to manage, organize and schedule one's time is the most gratifying use of new media, especially mobile phones. They use calendars and reminders to help them recall important activities and prepare their days. Many describe this organizing capacity as a reason they would feel lost without these devices. This organizing capacity facilitates structure within the day and thus enables participants to be oriented to tasks such as arriving at class on time and in the correct location more easily. However, just as frequently, if not more so, participants describe how the presence and accessibility of their media can make it seem impossible not to become distracted when completing school-related and work-related tasks. The focus groups explained how easy it is to lose track of time once distracted from a task and that it's often difficult to differentiate between media tasks. The amount of time spent distracted is also expressed as an unconscious behavior.

**Flexible and uncontrollable.** The fourth theme is *flexible and uncontrollable*: the flexibility to accomplish more goals and a greater diversity in the range of goals, but that these accomplishments may be achieved in ways that are unexpected or undesirable. One group summarized this tension particularly well, sharing that, “there's a complexity and confusion that comes out of having access to many options.” Another group argued, “there is no goal to mobile phone use, therefore accomplishment does not feel like the right word..., but people are more available so they can accomplish quick social coordination.” A different group notes, “the flexibility it provides leads others to be less accountable.” This paradox may seem related to the *structure and chaos* paradox, but is expressed differently by participants. Where the prior paradox lies at the intersection of time saved/lost and organized/disorganized, this paradox describes the ability to accomplish more goals and a variety of goals, but that the journey to accomplishment may be unsatisfactory and uncontrollable. This can include sensations of wasting time, which can be related to perceptions of problematic use. It can also include an overall dissatisfaction with one's inability to remain focused and the need to repeat previous tasks such as reading. This flexibility extends beyond academic tasks. While people can coordinate more social interactions, due to the flexibility to cancel or reschedule plans, these coordinating efforts are not equally successful, and create unexpected demands on others. It's possible to coordinate people, which is one achievement, but accountability is more difficult to accomplish and can take more time or effort than is desired (see Ling & Lai, 2016, on the benefits and costs of micro-coordination via mobile phones).

**Quantity and quality.** The final paradox was *quantity and quality*. Participants reflected that despite the facilitation of more relationships and communication (greater quantity), their social relationships with parents and friends feel less intimate (lower quality). When describing how they would respond to life without their devices, participants often indicated that the most unfortunate losses would be personal or academic, not social. For instance one group was summarized by, "Life without the mobile would be limited by a lack of access to important information, boring due to lack of content, and scary because it would be difficult to contact others, but people would spend more face-to-face time." Another group stated, "significant relationships would become clearer in the absence of technology." They would gain more interaction with their social network and even spend more time being present in face-to-face interactions, which would improve the intimacy of these relationships. Participants even remarked that parents often are overly involved in their own technological devices when the students visit home. Thus need to maintain and harness many relationships despite their awareness of the cost this might have to the quality of these very same relationships.

#### RQ 4

A final question focused on how users choose among multiple media, as part of the media mastery process. During the course of the focus groups, two themes emerged that demonstrated college students' awareness and navigation of the multiple media environment: *media convergence* and *media comparison*. This pair of themes represents a tension (not a paradox) in choosing how and when to use media, indicating awareness about multiple media use based on convergence or comparison.

**Media convergence and media comparison.** *Media convergence* represents the ability to have a continuous media experience (due to digitization, networking, and multiple platforms) of the same or related content and seamless uses across different platforms. Focus group participants commented that devices can share many purposes; thus in the absence of one device, another device could be used for the same end. For instance, when asked what they would do without a computer, most felt they would accomplish all of the same personal or school-related tasks on their mobile phone, and vice versa. They described how the convergence of the multiple media environment was both used consciously to access content across devices, and automatically facilitated through cloud technology that shared content across devices. One unintended and negative consequence of this convergence was when content (such as messages) ended up being shared across devices when that was not intended or desired. However, there were also instances in which convergence was preferable because it afforded flexibility in the face of technology's fragility, or was merely enjoyable due to individual preference. Thus users were aware of the tension in making choices involving the convergence among the multiple media to gain benefits while avoiding disadvantages.

The other form of this awareness of use was *media comparisons*, expressions of how people strategically use devices differentially, based on comparisons of the characteristics, contextual benefits and costs, applications, and appropriateness of devices. In making such comparisons, the participants often distinguished between the devices and the device characteristics, and their uses of those devices. These comparisons were often framed as either a personal preference or attempts to benefit from the different media's characteristics. For example, some suggested that using Facebook on the computer at home after school or work is more relaxing (stating a preference), while others claimed Facebook had more features on the computer (referring to a characteristic) (though these are related – more features may make the Facebook experience more enjoyable).

The justifications provided for using devices similarly or differentially based on individual preferences and media characteristics can be interpreted as the search for simplicity in the complex multiple media environment; that is, part of the attempt to master multiple media. The students frequently contextualized the use of the device based on both media convergences and media comparisons, often at the same time. For example, a few groups agreed that larger screens on devices are generally more suitable for watching video content. Despite this, they also described how they enjoy watching television shows on their phone in their bed before sleeping; it can be inferred that at bedtime portability is a more valuable feature than screen size. Additionally, the focus groups also mentioned the role of media convergences and media comparisons in maintaining boundaries within their social/personal and work uses of devices. They described how accessing emails or online course content from both devices can be valuable, but for work-related tasks, the mobile phone can lead to more distractions from work-related content, while the computer provides a better keyboard than phones.

### Discussion

This study contributes to prior work in tensions, contradictions, and paradoxes associated with media use in three primary ways. First, based on prior literature and analysis of focus group comments, we derive a *taxonomy of sites for media mastery involving four main components*: from technology (i.e., devices, features, sites, and broad uses), to the technology-user interface (i.e., use awareness and boundaries), to the social contexts of technology use and implications (i.e., social relations), and then to individual aspects (i.e., cognition and problematic use). Second, *valence towards each component* became somewhat more negative as they moved through the media mastery taxonomy. That is, navigating media mastery is the most problematic in the social and individual aspects of the taxonomy. Further, we find several differences in valence across the components.

Third, we identify *five paradoxes* associated with media mastery: *stimulating and exhausting, frustrating fragility and beneficial breather, structure and chaos, flexible and uncontrollable, and quantity and quality*. These paradoxes identify the sites where people's mastery of new media is not yet resolved, and possibly unresolvable because of the nature of new media characteristics, use, and contexts. People's experiences of tension demonstrate how mastery is a process of everyday negotiations between the potentially positive and negative forms of media use. From a media mastery perspective, it is possible that these tensions between people and media are a central mechanism of stressful outcomes. On the other hand, the management of these tensions promotes successful outcomes. This precludes media experiences themselves as either mostly positive or negative; rather, people engage in a balancing act between these poles (e.g., stimulation and exhaustion, or flexible and uncontrollable). Media mastery is a personalized experience of creating media habits that diminish tensions, which differentiates the concept from digital literacy and media literacy. Thus, the skill of media mastery can be conceptualized as a form of self-regulation of media habits. Therefore, these paradoxes also contribute to understandings of digital use and well-being such that informational overload, problematic internet use (PIU) or SNS fatigue can be situated as undeveloped or insufficient media mastery (Caplan, 2005; Reinecke et al., 2017; Tokunaga, 2015).

Fourth, the emergence of a tension theme, *media convergence and media comparison*, suggests people are struggling with, but also developing awareness of and strategies for, mastering multiple new media, in line with domestication theory. These practices of media convergence and media comparison provide evidence of the more or less conscious and successful self-regulatory nature of media mastery. Those who have the cognitive capacity for

awareness of the benefits and disadvantages of media use and are disciplined enough, often based on idiosyncratic rules, to inhibit their practices (Tokunaga, 2016). Those who are aware of these paradoxes but have not developed strategies, are more likely to experience the strain of balancing the paradoxes associated with multiple media use. This is particularly interesting for older adolescents or young adults who are still developing their self-regulatory capacities. Furthermore, interestingly, media convergence and media comparison suggest that these regulatory strategies are a person by media interaction. In other words, it is likely that media uses have differential effects depending on users' individual self-regulatory mechanisms (Valkenberg & Peter, 2013). This provides insights into the nature and the appropriate measures for investigating media effects on well-being. Our results complement Burchell's (2017, p. 409) argument that the mutual engagement of user and diverse media affects the "reflexive management of one's own media ideology through a highly idiosyncratic 'relational ordering' of perceived and preferred platform uses..." Hasebrink and Hepp (2017) also note how people use the same devices for different purposes as well as different devices for similar purposes, more and more routinely.

### **Directions for Future Research**

Future research could consider how these experiences are informed by socially and culturally shaped beliefs about new media, such as how new media evolve into old media through habit, ritualization, and confounding of content, interaction, and medium (Rice, 1999). Future research can continue to disentangle the effects of the underlying media processes and affordances from the effects of using the devices themselves. It also seems important that future research address interdependencies among the four components of the taxonomy of sites for media mastery, and both common and unique influences and challenges of multiple media.

### **Conclusion**

These results encourage media scholars to search beyond the positive and negative effects of a specific medium, and consider individuals' awareness or lack of awareness about, negotiations with, and attempts at mastering paradoxes surrounding multiple media. This approach supports the media psychology perspective, which presumes, or assesses how much, people are more or less aware of and active in their media use choices. However, the paradoxes discussed here are importantly ones of college students whose use of media devices and social networks are expanding and in transition. Media mastery is central to their pursuit of and strains in such social relations. In this case, media do not only provide a lens through which to see the world, but also reflect the internal concerns as well as social relations of people who use them.

As a final note, it may be the case that media, due to both convergence and constant innovation, are becoming just too complex and interdependent for individuals to master, leading to enduring paradoxes. The demands of full media mastery may well exceed individual and social capabilities for coping with the paradoxes. Many of the students felt that there is no going back, and they must resign themselves to or attempt to master these paradoxes and tensions. On the other hand, perhaps over time we are able to domesticate and master new media across the taxonomy components, sometimes even strategically managing the extent to which, and how, those media exceed our capabilities. Beyond this issue is a more fundamental paradox, however: while we attempt to master media, those media may also attempt to master us.

### References

- Anderson, M. (October 29, 2015). *Technology device ownership: 2015*. Pew Research Center. <http://www.pewinternet.org/2015/10/29/technology-device-ownership-2015/>
- Arnold, M. (2003). On the phenomenology of technology: The Janus-faces of mobile phones. *Information and Organization*, 13(4), 231-256.
- Best, P., Manktelow, R., & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review*, 41(June), 27-36.
- Bicen, H., & Arnavut, A. (2015). Determining the effects of technological tool use habits on social lives. *Computers in Human Behavior*, 48, 457-462. doi:<http://doi.org/10.1016/j.chb.2015.02.012>
- Bowen, G. A. (2006). Grounded theory and sensitizing concepts. *International Journal of Qualitative Methods*, 5(3), 12-23.
- boyd, d. (2015). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi:10.1191/1478088706qp063oa
- Brenner, J. (2013). *Pew Internet: Mobile*. Pew Internet and American Life Project. <http://pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx>.
- Burchell, K. (2017). Everyday communication management and perceptions of use: How media users limit and shape their social world. *Convergence*, 23(4), 409-424.
- Caplan, S. E. (2005). A social skill account of problematic Internet use. *Journal of Communication*, 55(4), 721-736. doi: 10.1111/j.1460-2466.2005.tb03019
- Couldry, N. (2012). *Media, society, world: Social theory and digital media practice*. London: Polity.
- David, P., Kim, J-H., Brickman, J. S., Ran, W., & Curtis, C. M. (2015). Mobile phone distraction while studying. *New Media & Society*, 17(10), 661-1679.
- DeAndrea, D. C., Ellison, N. B., LaRose, R., Steinfield, C., & Fiore, A. (2012). Serious social media: On the use of social media for improving students' adjustment to college. *The Internet and Higher Education*, 15(1), 15-23.
- Fang, L. & Ha, L. (2015). Do college students benefit from their social media experience? Social media involvement and its impact on college students' self-efficacy perception. In A. Mesquita & C-W. Tsai (Eds.), *Human behavior, psychology, and social interaction in the digital era* (pp. 259-278). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-8450-8
- Ganesh, S. (2016). Managing surveillance: Surveillant individualism in an era of relentless visibility. *International Journal of Communication*, 10, 164-177.
- Gershon, I. (2010). Breaking up is hard to do: Media switching and media ideologies. *Journal of Linguistic Anthropology*, 20(2), 389-405.
- Greenwood, D. N. & Long, C. R. (2009). Mood specific media use and emotion regulation: Patterns and individual differences. *Personality and Individual Differences*, 46(5-6), 616-621.
- Haddon, L. (2003). Domestication and mobile telephony. In J. E. Katz (Ed.) *Machines that become us: The social context of personal communication technology* (pp. 43-56). New Brunswick, NJ: Transaction Publishers.
- Hasebrink, U., & Hepp, A. (2017). How to research cross-media practices? Investigating media repertoires and media ensembles. *Convergence*, 23(4), 362-377

- Helsper, E. J. & Eynon, R. (2010). Digital natives: Where is the evidence? *British Educational Research Journal*, 36(3), 503-520.
- Henderson, M., Selwyn, N., Finger, G., & Aston, R. (2015). Students' everyday engagement with digital technology in university: Exploring patterns of use and 'usefulness'. *Journal of Higher Education Policy and Management*, 37(3), 308-319. doi:10.1080/1360080X.2015.1034424
- Hong, F. Y., Chiu, S. I., & Huang, D. H. (2012). A model of the relationship between psychological characteristics, mobile phone addiction and use of mobile phones by Taiwanese university female students. *Computers in Human Behavior*, 28(6), 2152-2159. <http://dx.doi.org.proxy.library.ucsb.edu:2048/10.1016/j.chb.2012.06.020>
- Jarvenpaa, S. L. & Lang, K. R. (2005). Managing the paradoxes of mobile technology. *Information Systems Management*, 22(4), 7-23.
- Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York: New York University Press.
- Katz, J. E. & Rice, R. E. (2002). *Social consequences of Internet use: Access, involvement and interaction*. Cambridge, MA: The MIT Press.
- Katz, J. E. (2006). *Magic in the air: Mobile communication and the transformation of social life* (Chapter 6, pp. 87-101). New Brunswick, NJ: Transaction Publishers.
- Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: Exploring types of net generation students. *Journal of Computer Assisted Learning*, 26(5), 332-343.
- Klimmt, C. (2011). Media psychology and complex modes of entertainment experiences. *Journal of Media Psychology*, 11(1), 34-38.
- Knobloch-Westerwick, S., Hastall, M. R., & Rossmann, M. (2009). Coping or escaping?: Effects of life dissatisfaction on selective exposure. *Communication Research*, 36(2), 207-228.
- Knobloch-Westerwick, S., Kalyanaraman, S., & Busselle, R. (2013). New pathways. *Media Psychology*, 16(1), 1-3.
- Ling, R. (2012). *Taken for grantedness: The embedding of mobile communication into society*. MIT Press.
- Ling, R., & Lai, C. H. (2016). Microcoordination 2.0: Social coordination in the age of smartphones and messaging apps. *Journal of Communication*, 66(5), 834-856.
- Madianou, M., & Miller, D. (2013). Polymedia: Towards a new theory of digital media in interpersonal communication. *International Journal of Cultural Studies*, 16(2), 169-187.
- Manago, A.M., Taylor, T., & Greenfield, P.M. (2012). Me and my 400 friends: The anatomy of college students' Facebook networks, their communication patterns, and well-being. *Developmental Psychology*, 48, 369-380. doi: 10.1037/a0026338
- Medienorge (n.d.). The Norwegian national center for media statistics. <http://www.medienorge.uib.no/english/>
- Morgan, D. L. (Ed.) (1993). *Successful focus groups: Advancing the state of the art*. Thousand Oaks, CA: Sage Publications.
- O'Neill, B. & Hagen, I. (2009). Media literacy. In S. Livingstone & L. Haddon (Eds.), *Kids online: Opportunities and risks for children* (pp. 229-239). Bristol, UK: The Policy Press.
- Pew Research Center (April 1, 2015). *U.S. smartphone use in 2015*. <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/>

- Picone, I. (2017). Conceptualizing media users across media: The case for 'media user/use' as analytical concepts. *Convergence*, 23(4), 378-390.
- Pool, I. de Sola (1983). *Technologies of freedom*. Cambridge, MA: Harvard University Press.
- Powell, R. A., & Single, H., M. (1996). Focus groups. *International Journal for Quality in Health Care*, 8(5), 499-504. doi:10.1093/intqhc/8.5.499
- Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, 29, 1841-1848.
- Rainie, L. (2015). Manners 2.0: Key findings about etiquette in the digital age. FactTank: Pew Research Center. <http://www.pewresearch.org/fact-tank/2015/08/26/keyfindings-about-etiquette-in-the-digital-age>
- Rainie, L. & Wellman, B. (2012). *Networked: The new social operating system*. Cambridge, MA: The MIT Press.
- Reagle, J. R. (2015). *Reading the comments: Likers, haters, and manipulators at the bottom of the web*. Cambridge, MA: The MIT Press.
- Reinecke, L., Aufenanger, S., Beutel, M. E., Dreier, M., Quiring, O., Stark, B., ... Müller, K. W. (2017). Digital stress over the life span: The effects of communication load and internet multitasking on perceived stress and psychological health impairments in a German probability sample. *Media Psychology*, 20(1), 90–115. <https://doi.org/10.1080/15213269.2015.1121832>
- Rice, R. E. (1999). Artifacts and paradoxes in new media. *New Media & Society*, 1(1), 24-32.
- Rice, R. E. & Hagen, I. (2010). Young adults' perpetual contact, social connectivity, and social control through the Internet and mobile phones. In C. Salmon (Ed.), *Communication yearbook*, 34 (pp. 2-39). London: Routledge.
- Rogers, E. M. (2003). *Diffusion of innovations* (5<sup>th</sup> ed.). New York, NY: The Free Press
- Rutledge, P. B. (2012). Arguing for media psychology as a distinct field. In K. E. Dill (Ed.), *The Oxford handbook of media psychology* (pp. 43-61). Oxford, UK: Oxford University Press.
- Schroeder, R. (2010). Mobile phones and the inexorable advance of multimodal connectedness. *New Media & Society*, 12(1), 75-90.
- Smith, A. (April 1, 2015). *U.S. smartphone use in 2015*. Pew Research Center. <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/>
- Tapscott, D. (2008). *Grown up digital: How the net generation is changing your world*. New York, NY: McGraw-Hill.
- Tokunaga, R. S. (2015). Perspectives on internet addiction, problematic internet use, and deficient self-regulation: Contributions of communication research. *Communication Yearbook*, 39(1), 131–161. <https://doi.org/10.1080/23808985.2015.11679174>
- Tokunaga, R. S. (2016). An examination of functional difficulties from internet use: Media habit and displacement theory explanations, 42, 339–370. <https://doi.org/10.1111/hcre.12081>
- Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York, NY: Basic Books.
- Turkle, S. (2016). *Reclaiming conversation: The power of talk in a digital age*. New York, NY: Penguin Books.
- Valkenburg, P. M., & Peter, J. (2013). The differential susceptibility to media effects model. *Journal of Communication*, 63(2), 221–243. <https://doi.org/10.1111/jcom.12024>

- Weber, R., Huskey, R., & Craighead, B. (2016). Flow experience and well-being: A media neuroscience perspective. In L. Reinecke & M. B. Oliver (Eds.), *The Routledge handbook of media use and well-being: International perspectives on theory and research on positive media effects* (pp. 183-196). New York: Routledge.
- Weisberg, J. (2016, February 25). We are hopelessly hooked. *The New York Review of Books*. <http://www.nybooks.com/articles/2016/02/25/we-are-hopelessly-hooked/>
- Xu, S., Wang, Z. (Joyce), & David, P. (2016). Media multitasking and well-being of university students. *Computers in Human Behavior*, 55, 242-250. doi:10.1016/j.chb.2015.08.040



Table 1

Components, Subcodes, and Subsubcodes in Coding Taxonomy, by Country and Device

Component and Subcode	Description	# Sub- sub- codes	# and % coding instances				
			total	country		device	
				NO	US	CO	MP
<i>1 Technology</i>	<i>Refers to the Technology -- devices &amp; sites, features, and uses.</i>	104	1024	43.8%	56.3%	54.4%	45.6%
1.1 devices, services, sites	Explicit mention of devices, services, sites	48	359	40.9	59.1	60.4	39.6
1.2 features	mention of attributes, affordances, features, abilities of the technology (device, service, etc.)	9	86	62.8	37.2	52.3	47.7
1.3 uses	ways, purposes, or activities for which respondents use the technology; also extent or type of use	48	678	42.7	57.3	50.9	49.1
<i>2 Technology-Use</i>	<i>Aspects related to use of the technology, including contradictions, obstacles, using the content, access, boundaries, and awareness of that use.</i>	73	500	50.5%	49.5%	45.6%	54.4%
2.1 contrasts	contradictory, paradoxical, unintended, positive and negative uses or consequences	5	64	46.9	53.1	40.6	59.4
2.2 obstacles	difficulties in using technology	17	143	47.6	52.4	61.5	38.5
2.3 using content	using the tech to create, process, use, obtain content, including about self	11	54	53.7	46.3	51.9	48.1
2.4 access	access to or accessing, the device, information, self and others	7	88	42.0	58.0	20.5	79.5
2.5 boundaries	when or where tech use cross boundaries; where user	22	84	51.2	48.8	28.6	71.4

	becomes involved across system or social boundaries; the interface between tech and social						
2.6 use awareness	level and type of user awareness, intention, consciousness, self-reflexivity, decision-making about their use	11	157	58.0	42.0	54.1	45.9
<i>3 Social contexts</i>	<i>Emphasizing the social and relational aspects and contexts -- relations, influence, and self-presentation.</i>	<i>61</i>	<i>160</i>	<i>44.4%</i>	<i>55.6%</i>	<i>28.1%</i>	<i>71.9%</i>
3.1 social relations	bonds, relationships, interactions, social use contexts	23	118	39.8	60.2	22.0	78.0
3.2 social influence	process, concern, behavior related to influence of one's social context	21	27	77.8	22.2	100.0	0.0
3.3 self-presentation	issues of and representation of self in social contexts	17	12	16.7	83.3	75.0	25.0
<i>4 Individual aspects</i>	<i>Individual aspects involved in or arising from or associated with use -- problematic use, health, individual traits, individual cognition.</i>	<i>57</i>	<i>191</i>	<i>50.8%</i>	<i>49.2%</i>	<i>58.1%</i>	<i>41.9%</i>
4.1 problematic use	questionable or harmful use, whether to self or others	18	70	48.6	51.4	48.6	51.4
4.2 health	individual psychological, physical, spiritual health issues, needs, concerns	23	72	51.4	48.6	60.5	39.5
4.3 traits	individual personality or psychological traits	9	0	00.0	00.0	00.0	00.0
4.4 cognition	rational, mental information processing and outcomes (attention, learning, recall, etc.)	7	49	53.1	46.9	75.5	24.5

<i>5 Valence</i>	<i>Explicit, manifest word or text indicating negative or positive valence; e.g., (harmful, negative, bad consequences, dislike, or negative) or (healthy, preferred, good, like positive) aspect of media on social relationship.</i>	2	128	55.5%	44.5%	47.8%	52.2%
5.1 Valence - negative	stated as harmful, unintended, disliked, unwanted, disapproved	1	69	68.1	31.9	33.3	66.7
5.2 Valence - positive	stated as helpful, intended, liked, wanted, approved	1	59	40.7	59.3	55.9	44.1
<b>Total</b>		298	2092	47.1%	52.9%	49.6%	50.4%

Table 2

Frequency and Percentage of Negative and Positive Valenced Codings, by Media Mastery Narrative Component, Country, Device Set, and Overall

	Negative		Positive		Negative	Positive	Total
	Norway	US	Norway	US	Total	Total	
<b>Component</b>							
Technology	27 (61.4%)	17 (38.6)	21 (41.2%)	30 (58.8)	44 (46.3%)	51 (53.7)	95 (33.5%)
Technology- use	37 (64.9%)	20 (35.1)	19 (48.7%)	20 (51.3)	57 (59.4%)	39 (40.6)	96 (33.8)
Social contexts	14 (60.9%)	9 (39.1)	5 (45.5%)	6 (54.5)	23 (67.6%)	11 (32.4)	34 (12.4)
Individual aspects	23 (67.6%)	11 (32.4)	11 (70.6 %)	6 (29.4)	34 (66.7%)	17 (33.3)	51 (19.1)
<b>Devices Cross-Referenced with Components</b>							
Computer	32 (31.7%)	26 (45.6%)	24 (45.8%)	43 (64.5%)	58 (36.7%)	67 (57.5%)	125 (44.7%)
Mobile phone	69 (68.3)	31 (54.4)	32 (54.2)	19 (35.5)	100 (63.3)	51 (42.5)	151 (55.3)
<b>Total</b>	101 (63.9%)	57 (36.1)	56 (47.5%)	62 (52.5)	158 (57.2%)	118 (42.7)	276

Note: These represent all instances of positive or negative coding across all components and devices. Therefore it is possible for multiple components and/or devices to be referenced as negative or positive.

Table 3

Examples of Positive and Negatively Valenced Comments within the Four Components

<b>Component</b>	<b>Negative</b>	<b>Positive</b>
Technology	"Mobile phone's small screen is limiting" "lack of battery is a common negative experience"	"The mobile phone is considered more satisfying because it's mostly communication focused" "It's [mobile phone] useful for remembering and sharing good moments with others"
Technology-use	"People often monitor each other" "...negative experiences of people overhearing or finding private/personal information like someone's death over social media"	"the ease of access to others and information is particularly enjoyable" "enjoy the ability to orient oneself and easily find access to information" "Enjoy downloading pictures, watching series..." "People enjoy finding videos or information related to their hobbies or interests"
Social contexts	"Others' expectations, as in the norm has become accessibility and availability" "There's a pressure to always be doing something and oriented to what others are doing as well" "possibility to be excluded in the moment by people contacting each other secretly"	"Enjoyable uses of the computer include video chatting, connecting with distant relationships;" "enjoy computer to connect to long distance romantic partners and family;" "improved coordination with friends"
Individual aspects	"Dependency and emotional attachment to phones creates a desire to return to simpler times" "the conversation was about dependency and negative experiences that included being disrupted"	"...opens time to explore talents" "it allows people to expand knowledge" "efficiency and personalization of computers is enjoyable" "report being successful...listening to music"

Quotes are from sentence summaries.