Media Mastery by College Students: A Typology and Review

Ronald E. Rice, Nicole Zamanzadeh, and Ingunn Hagen

The Oxford Handbook of Digital Technology and Society
Edited by Simeon J. Yates and Ronald E. Rice

Print Publication Date: Aug 2020 Subject: Sociology, Social and Cultural Anthropology
Online Publication Date: Aug 2020 DOI: 10.1093/oxfordhb/9780190932596.013.9

Abstract and Keywords

The continuing evolution and use of a wide array of digital media represents challenges to understand and learn new features and applications, as well as manage the contradictions and paradoxes of both positive and negative implications, often simultaneously. This chapter explicates the concept of *media mastery*, the more or less conscious and more or less successful ongoing process of how people master (understand, manage, make sense of, cope with, and use) one or more new media in their everyday lives, as well as how media in turn master (manage, control, or affect) individuals and their social relations. Based on extensive and iterative analyses of transcripts of focus groups with college students in Norway and the United States and several rounds of reviewing research literature about college students' use of new media, we develop a typology of three sets of contextual factors or occasions for media mastery (*Technology*, *Social Aspects*, and *Individual Aspects*), and a set of *Media Mastery* factors (access, boundaries, constraints, managing content, obstacles, and use awareness). We use this typology to produce a focused literature review of 218 articles from 2010 to 2018. One implication is that the concept of media mastery appears to underlie a variety of theoretical approaches to understanding uses and effects of new media.

Keywords: college students, digital media, effects of new media, focus groups, media mastery, new media, uses of new media

Introduction

DIGITAL media, from the early Arpanet and email through to current developments such as social media and the Internet of Things, have changed our everyday lives and social relationships.[1] But every aspect of society has also become more and more dependent on that technology. We use digital media for information, education, entertainment, interaction, and consumption, and for managing countless aspects of our lives. Yet digital media also compete for people's attention, energy, time, identity, and relationships in a way that can be challenging, risky, and harmful for individuals, groups, and society (Xu, Wang, &

David, 2016). Our concern, then, is the tension between the process of trying to master digital media, and the process of being mastered by them (Rice, Hagen, & Zamanzadeh, 2018). The purpose of this chapter is to synthesize and understand the uses and effects of digital media among college students through the framework of *media mastery*, pervasive but latent in the current literature. We do so by reviewing examples of media mastery factors associated with social and individual contexts.

Different age cohorts and life span periods are associated with different exposure to and use of information and communication technologies (ICTs), experiences of positive and negative aspects of ICTs, and cognitive and emotional abilities used to manage ICTs (Reinecke et al., 2017). We focus on college students, because they: have grown up with an increasingly diverse array of new media, are usually experiencing significant transitions from their family and high school friends, are engaging in a wide variety of new social interactions and contexts, and are required to take personal control over (p. 251) their tasks, schedules, and relationships (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012; Manago, Taylor, & Greenfield, 2012; Turkle, 2011). They are also prodigious users of digital media and experience a wide array of positive and negative uses and outcomes. We note just a few examples.

Amount of use is considerable. In a 24-hour tracking study of the mobile phone use of 793 university students in four countries, Mihailidis (2014, p. 58) found that 31% of the participants logged into social networking apps more than 13 times in a 24-hour period, clearly demonstrating the centrality of mobile Internet use for the "tethered generation." In Moreno et al.'s (2012) experience sampling study with 189 undergraduate students, participants multitasked 56.5% of the time they were online.

Types of use are diverse. Analysis of a week's worth of social media usage by college students documented content-sharing, text-based entertainment/discussion, relationships, and video consumption as the main clusters of activity (Wang, Niiya, Mark, Reich, & Warschauer, 2015).

Negative implications are extensive. A panel study among 484 undergraduate students from the United States found negative effects of perceived "cyber-based overload" (e.g., e-mail volume, pressure to respond, perceived pressure to post content on social media etc.) on perceived stress and overall health status (Misra & Stokols, 2012, p. 740). In a survey study with 600 student participants, LaRose, Connolly, Lee, Li, and Hales (2014) explored the effects of "connection overload" (p. 59) arising from the communication demands resulting from social media and e-mail use.

The Concept of Media Mastery

Definition

Media mastery is the more or less conscious and more or less successful ongoing process of how people understand, manage, make sense of, cope with, and use one or more new media in their everyday lives, as well as how media in turn come to manage, control, or affect individuals and their social relations. Media mastery includes the choices, engagement, habits, and patterns people engage in and develop in their lives regarding the use of media, its content, and its social connections (see also Picone, 2017). Our concept of media mastery entails four main arguments.

1. Media mastery invokes the reciprocality among structure, actors, and technology of *structurational theory* (Jones & Karsten, 2008) and *adaptive structuration* (DeSanctis & Poole, 1994), in the context of individuals, groups, social contexts, and new media. Thus, we apply the concept of media mastery in two ways. The first is *how we master the balance and use of one or more media* in different (p. 252) contexts. 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. For example, users may learn about themselves, and benefit from, online identities, but managing and repairing those requires constant connectedness, awareness, revising, and tending (boyd, 2015). This awareness of the dual nature of media (or for that matter, any technology) is not new: Postman (1996), in the context of television and computers, claimed that more important than learning how to use media is learning how they use us.

2. Crucial to the media mastery concept is the awareness, interpretation, and management of both (often simultaneously) positive and negative aspects and implications of media use. Katz and Rice (2002) applied a *syntopian* approach to the study of Internet use specifically to reject either a utopian or dystopian perspective. Smith (2015), summarizing a U.S. Pew survey, noted that while from 70% to over 90% reported positive benefits relative to disadvantages of their smartphone use, younger users were more likely to report both positive as well as negative emotions about their use. Best, Manktelow, and Taylor's (2014) review of a decade's worth of studies 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). Much research and popular literature underscores the potential for various media dependencies, problematic use, and addiction (David, Kim, Brickman, Ran, & Curtis, 2015).

3. Tensions, contradictions, and paradoxes arise in and from media experiences. Research on new media in general and the Internet and mobile phones in particular has identified tensions, contradictions and paradoxes in their use, social construction, and implications, though with varying definitions and foci. For example, Rice, Hagen,

and Zamanzadeh (2018) identified a variety of paradoxes associated with college students' use of new media, such as being both stimulating and exhausting, and both flexible and uncontrollable. 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.

4. Media mastery is highly contextual, shaped by the user's own and their social groups' values and attitudes towards media, their motivations for using media, and the characteristics, capabilities, convergence, affordances, mobility, and personalization of media. Thus the balance between mastery of media *by* users, or *of* users by media, shifts across media, contexts, and time. Using media for some goals in some contexts may have different and even opposed interpretations or outcomes, or activate or even preclude other goals, in other contexts.

(p. 253) Related Concepts

We distinguish the concept of media mastery from a range of established as well as recent terms, ranging from the more individual to the more societal. Some approaches focus on individuals' self-regulation and attention, emphasizing both psychological and cognitive aspects. For example, Wu (2015) identified four dimensions of an online learning motivated attention and regulatory strategies scale, comprising perceived attention discontinuity, and social media notifications (constituting *knowledge of attention*), and behavioral strategies, and mental strategies (constituting *regulation of attention*). Thus Wu highlights the important role of *meta-attention* or *motivated attention*. Integrating those with a variety of other measures, Wu clustered users into five categories: (1) motivated strategic, (2) the unaware, (3) the hanging on, (4) the non-responsive, and (5) the self-disciplined. Media mastery involves self-regulation but that is only one component of an individual's experience of mastery or of being mastered. A related approach is the concept and practice of *mindfulness* (Schonert-Reichl & Roeser, 2016)—which highlights the importance of paying attention (in a non-judgmental way) to what you are paying attention to, and to avoid being distracted—to the use of media (Hadar & Ergas, 2018; Johnson, 2015; Levy, 2017). Levy's exercises help students become more mindful and reflective about their technology use, to reshape use and social interactions. Johnson suggests thinking about media use as an information diet, leading to "conscious consumption."

Media literacy is more general and more cognitively oriented, emphasizing the awareness of media practices and the development of media-related skills (O'Neill & Hagen, 2009). Rheingold (2012) integrates mindfulness with media literacy, also underscoring the importance of being aware of how we think about our media use. He proposes five central digital literacies: conscious attention and intention, critical evaluation of content, participation and managing your presentation, collaboration and sharing, and developing networks and social capital. Literacy bolsters users' awareness of various aspects of media,

but via media mastery requires individuals to personalize this information to their capacities, desires, and social surroundings.

James (2014) identifies three value-oriented ways of thinking about media use in relation to others, manifesting different levels of *conscientious connectivity*, "the use of ethical thinking skills, a sensitivity to the moral and ethical dimensions of online situation, and a motivation to reflect on and wrestle with the associated dilemmas" (James, 2014, p. 109). This varies both individually and across online communities. Thus, she asks, what are young people thinking when they use new media? The vastly increased ability to interact with (knowingly or not) diverse others across time and space deepens the gaps between (1) consequence thinking (concerned with implications of a specific action for oneself), (2) moral thinking (an application of principles with known individuals or a group) and (3) ethical thinking (an other-focused consideration of the implications for a broader community or public, concerned with roles and responsibilities thinking, complex perspective taking, and community thinking; James, 2014, pp. 5–7). A 2008–2012 study by James and colleagues identified five ethically related themes related to the use of social network sites, blogs, content-sharing sites, and gaming communities by youth and young (p. 254) adults: "online identity, credibility, privacy, property, and participation" (p. 18). The concept of conscientious connectivity is about when and where youth thinking is sensitive to moral or ethical issues, and where there are blind spots (favoring self-interest over others' interests, and where other concerns diminish ethical concerns, but also including blind spots about technical aspects of new media, such as the extent to which postings can be viewed by the general public) and disconnects (more conscious and intentional dismissal of or indifference to others' interests in favor of self-interests).

Domestication theory explains how new media, through adoption, integration, and conversion, become embedded into daily practices (initially in the home, but then applied in wider contexts), and blur traditional home/work/life boundaries (Haddon, 2003; Silverstone & Hirsch, 1992). What is new eventually becomes an artifact (Rice, 1999). *Taken-for-grantedness* is the social condition whereby a medium has become fully integrated into society, embedding expectations, interdependencies, and social practices (Ling, 2012), or, in diffusion of innovations terms, *structured* and *routinized* (Rogers, 2003). This concept overlaps with the more individual behavior of media use *habit*, or habitual media use, which itself overlaps with *dependency*, *addiction*, and general *problematic use* (Wilmer & Chein, 2016). Domestication and routines play a role at individual and social levels of media mastery. Over time, as individuals and societies adapt to, and adopt, the tools they've created, used, learned, applied, and become familiar with or dependent on, the skills for managing media and their positive or negative outcomes will change and may improve.

Given the expanding realm of media choices, the concept of *polymedia* emphasizes that understanding, choice, and use of a medium is relative to *comparisons* with other available media (Madianou & Miller, 2013). Rainie and Wellman (2012) and others have discussed the growth of this multiple media environment. Experiences, from small to large, now involve *multiple, multitasking, interdependent, layered,* and *blended media* (Hilbert,

Vásquez, Halpern, Valenzuela, & Arriagada, 2017). Helles (2013) characterizes this new environment with the term *intermediality*, especially as, with the widespread adoption and constant evolution of the mobile phone, "the user becomes a mobile terminus for mediated communicative interaction across the various contexts of daily life" (p. 14). Formerly distinct, independent, or location-specific features, and content are now available through smartphones, laptops, and tablet computers. Thus digitization, mobility, and networking create *convergence* across content and media, and allow or require comparisons across media choices (Jensen, 2010). 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." A related concept is Couldry's (2012) *media manifold*, where activities are embedded in a pervasive environment of networked media. Other conceptualizations such as *mediapolis* (Silverstone, 2007) and *medialife* (Deuze, 2012) refer to the increasing embeddedness, interrelatedness and invisibility of media, creating a pervasive social, sensory, and cognitive experience (Miller, 2014). Gershon (2010) discussed *media ideologies*, which shape perceptions of media practice norms. *Mediatization* focuses more on how media are at the center of (p. 255) significant cultural, political and social developments, and become embedded and hidden (Deacon & Stanyer, 2014; Hjarvard, 2009; Miller, 2014; Livingstone, 2009).

Media mastery takes a more micro focus (individuals and their social relations) than do social construction of technology or social shaping of technology approaches. The *social construction of technology* (Klein & Kleinman, 2002; Pinch & Bijker, 1987) centers around five major components: Interpretive flexibility (social circumstances and intergroup negotiations affect interpretation and meaning of a technology, and thus varying final designs); multiple relevant social groups (shared and competing interpretations and meanings within and across groups affect technology development and outcome); closure and stabilization (moving through and negotiating conflicting interpretations to resolution, closure, and a stable artifact); the wider context (society, culture, politics, power); and the technological frame (cognitive frame of a relevant group, with shared goals, problems, theories, procedures, and exemplars). The *social shaping of technology* approach(es) places more emphasis on the social, economic, and policy, in addition to the technical, aspects of innovation processes and technology form. Social, cultural, economic and institutional forces affect each (conscious and unconscious) choice among technical options, often exhibiting path dependence and varying levels of lock-in or closure, with subsequently different innovation trajectories and social implications (MacKenzie & Wajcman, 1985; Williams & Edge, 1996). Thus media mastery does not explicitly consider the origin, development, and design of technological innovations; rather, it is about the construction and shaping by (mastering), and of (being mastered), individuals in their social settings of the meanings, choices, uses, and consequences of, and by, new media already available to them.

Development of the Concept

Our initial interest in college students' use of digital media arose from our observations of the way computers and mobile phones seemingly were already central technologies in their daily lives in the early 2000s. Thus, we initiated the *Media Mastery Project*, where the focus is on exploring the way college students attempt to use and master digital (especially multiple) media. We first conducted a literature review and analyzed focus group interviews with students at two universities in the U.S. and Norway in 2005/2006 (Rice & Hagen, 2010). Based on those results and an updated literature review, we iteratively developed and refined a detailed Media Mastery typology. We used that to code another round of similar focus groups in 2016 (Rice, Hagen, & Zamanzadeh, 2018). For example, we discovered that students experienced attempts (conscious or not) to master media through their experiencing of paradoxes, contradictions, and tensions, while also being themselves somewhat mastered (conscious or not) by these media. Based on those results, we extended and further refined the typology to use in coding the current set of articles. Essentially, we followed Chaffee's (1991) claim that "In practice the scholar begins reading prior studies, moves to various steps in the explication process, refines the preliminary definition, and then returns to the literature search with a sharpened definition" (p. 22). Our approach expands beyond an emergent-only or solely grounded-theory approach, which would ignore a vast existing (p. 256) set of concepts and literature, as well as a solely a priori approach, which would exclude insights beyond the initial framework. Rather, it takes what Boell and Cecez-Kecmanovic (2014) call a hermeneutic approach, by engaging in iterations between (cycles of) search and acquisition, and (cycles of) analysis and interpretation. But it takes that approach even further, by including content and thematic analyses from a set of focus groups a decade apart. Both sources provided some concepts not found in the other, and revealed some different insights in different time periods. Thus the current review synthesizes how the concept of media mastery illuminates the research literature about college students' experiencing of digital media, within social and individual contexts.

Materials and Coding

Scope of the Literature

The initial literature review was based on Proquest Social Sciences databases, Google Scholar, and other publications we were aware of, as well as foundational publications from the 2010 literature review. New concepts or issues arising from the focus groups lead us to seek additional relevant publications. Once the typology was fully developed, we then conducted two literature searches. Both were for the period Jan 1 2010 – Jan 1 2018, full text articles in scholarly peer-reviewed journals, or book chapters. Search terms were (student* AND (college OR university)) AND (digital OR social media OR laptop OR mobile phone OR smartphone OR personal computer OR tablet computer OR IPad OR Internet OR World Wide Web). We first searched in abstracts in Proquest (ERIC, PsychArticles, PsychInfo, Sociological Abstracts), retrieving 65, of which 7 were relevant.

Then we searched in the title or abstract in the Social Sciences Citation Index, which returned 3896 publications, which were sorted by relevance (using the SSCI feature); the top 10% of the title and abstracts were read for relevance. Publications about “young adults” were included if they specifically indicated college ages. Publications were not included about: use of media for campus campaigns, interventions, or activism; studies of technology for pedagogy or educational policy, or evaluation of digital media use in classroom on performance, unless from the students’ perspective; and samples of college students without explicit focus on media use. Finally several recent highly relevant books and book chapters were added. From all these sources, we identified 218 publications. Thus our review is extensive and well-grounded and -developed, but is neither comprehensive nor statistically representative.

Where possible, we obtained the full publication (.pdf, .html, .docx); 26 were not available, so we used the title and abstract. These were imported into NVIVO 11, along with the full coding typology (component code, subcodes, and subsubcodes, each of which can be aggregated to its higher level analysis). We prepared a spreadsheet with the reference and abstract for each publication. The articles and spreadsheet were separated into three sets, grouped alphabetically, one for each author.

(p. 257) The Media Mastery Typology

The media mastery typology includes three sets of contextual factors or occasions for media mastery (*Technology*, *Social Aspects*, and *Individual Aspects*), and a set of *Media Mastery* factors. These media mastery factors are ways in which media can more or less “master” the user, and ways in which users can attempt to more or less “master” media. Table 9.1 summarizes and briefly defines these factors (codes) and their levels of subcodes. The NVIVO project also included a *Context* category (location of media use by the respondents, the type of respondents, and country of the study), and a new emergent category of *Theory and Frameworks* (includes explicit naming of a theory or a model, as well as of primary concepts, used to frame or motivate the study), and a working category for emergent *New Codes* for later discussion, relabeling, and integration into the appropriate subcodes.

(p. 258) Table 9.1 Media Mastery Typology Codes and Sublevels

Typology Codes	Subcode and (Subsubcodes)	Range of subsubcodes
Technology (refers to the technology—devices & sites, features, and uses)	*Devices, services, sites* (explicit mention of devices, services, sites) *Features* (mention of attributes, affordances, features, abilities of the technology (device, service, etc.)) *Uses* (ways, purposes, or activities for which respondents use the technology; also extent or type of use)	alarm clock to YouTube accessories to technical aspects achievement/ productivity/ completion to writing
Social Aspects (emphasizing the social and relational aspects and contexts—relations, influence, and self-presentation)	*Social relations* (bonds, relationships, interactions, social use contexts) *Social influence* (process, concern, behavior related to influence of one's social context) *Self-presentation* (issues of and representation of self in social contexts)	affection to social ties-network co-dependence to traditional social values authenticity to superficial
Individual Aspects (individual aspects involved in or arising from or associated with use—problematic use, health, individual traits, individual cognition)	*Problematic use* (questionable or harmful use, whether to self or others) *Health* (individual psychological, physical, spiritual health issues, needs, concerns) *Traits* (individual personality or psychological traits)	addiction-hooked to withdrawal adjustment to symptoms disinhibition to self-esteem/ self-worth academic performance to recall

	Cognition (rational, mental information processing and outcomes (attention, learning, recall, etc.))	
Media Mastery (aspects related to use, management, and implications of the technology, including contradictions, obstacles, using the content, access, boundaries, and awareness of that use)	*Access* (access to or accessing, the device, information, self and others) *Boundaries* (when or where tech use cross boundaries; where user becomes involved across system or social boundaries; the interface between tech and social) *Constraints* (contradictory, paradoxical, unintended, positive and negative uses or consequences) *Managing content* (using the tech to create, process, use, obtain content, including about self) *Obstacles* (difficulties in using technology) *Use awareness* (level and type of user awareness, intention, consciousness, self-reflexivity, decision making about their use)	access to social coordination ability accountability-responsibility to work-non-work ambivalence to unintended consequences ambiguity-uncertainty to temporary or ephemeral access (technical difficulties) to viruses-malware attitudes about one's use to use of multiple media

Note: Only the first and last subsubsubcodes for each subcode are listed here. See Table 9.2 for a list of each subsubcode for the Media Mastery subcodes. The full list of codes, subcodes, subsubcodes, and subsubsubcodes, with short operational definition, is available in the supplemental codebook.

The Coding Process

Before coding, the three authors carefully reviewed and discussed every code on the typology. We next read our spreadsheet's set of titles and abstracts to get an overview of the range of topics and terms. For coding, we first read each of our publications (excluding abstract and references) to determine and code for (1) the motivating theory, model or concept, and (2) for the population and country context. For each publication, we then checked each paragraph (excluding abstract and references) for (3) any indicators of media mastery codes. If so, we coded that paragraph for (4) any and all specific subsubcodes of the media mastery component, (5) any instance of a specific technology/device/site subsubcode, (6) any instance of a subcode in the other two Technology subcodes, or of a Social or Individual subcode, and (7) any emergent codes into Theories and Frameworks, or into New Codes, for later discussion, grouping, and inclusion. Finally, we each also maintained and later discussed a journal within NVIVO to document any questions or suggestions.

We first each coded several of the same articles, and met to discuss ambiguities or additions. From then on, each author worked on their set of one-third articles, grouped alphabetically. In the next week we separately coded 10 articles each, met to discuss the (p. 259) codings and clarifications, and documented any changes or additional codes. The following week we repeated the coding and discussion process with the next 10 articles each. Finding few additional codes by that time, we then proceeded to code and then discuss the next 20 articles each from our separate sets, and repeated that process until all articles were coded. At each meeting we discussed any new Theories or Frameworks codes or any New Codes, and then each updated our coding file with those so all coders had access to any new codes. As both the list of codes, and the coding process, evolved most during the early stages, when all articles were coded, we removed the codes from each of our first 10 articles, and recoded them using the full coding set and coding procedures.

When all articles were coded, we then met to discuss all the new Theories and Frameworks, and the New Codes, and grouped similar ones, especially those with few instances. For example, under Theories and Frameworks, bridging and bonding components were grouped with the general theory of social capital; or under New Codes, managing and expressing emotions were grouped under emotions. Finally, we decided where to move each of the New Codes into the prior codes. The final typology reflects this extensive, iterative, multi-year, multi-study, and multi-data process. The typology and coding operationalizations, as well as the full list of analyzed references, are available from the first author.

Description of the Sample

Technologies, Context, and Theories were not the focus of the study, were coded for occurrence anywhere in the article, and thus were not specifically related to text indicating the media mastery components. Therefore, they are not included in the co-occurrence re-

view later in the chapter. A wide range of technologies appeared throughout the retrieved literature. These include 58 *devices* (from alarm apps to YouTube), representing 182 articles and 380 codings; 9 *features* (from accessories to personalizing settings), representing 12 articles and 20 codings; and 51 *uses* (from achievement to writing), involving 30 articles and 60 codings. Nearly all (202) of the 242 *population* subsubcodes were of college students, with a few samples consisting of adolescent or young adults that included college students. There were 209 *country* subsubcodes, with the most to the United States (88) and China (32), Turkey (14), and Taiwan (11), with at least one coding to another 36 countries (from Argentina to the United Kingdom). 133 out of the 218 articles mentioned a total of 131 *theories, models, frameworks, or primary concepts*, with 239 coding instances, ranging from the accessibility hypothesis (Yang et al., 2017) to vertical discourse (Bennett & Maton, 2010). The theories and frameworks mentioned in the most articles included social capital (14 articles), uses-and-gratifications perspective (12), addiction (10), internet addiction (9), digital natives, social cognitive theory (6 each), attachment theory, problem behavior theory (4), and cognitive-behavioral theory, cyberbullying, diffusion of innovations, life satisfaction, personality, smart phone addiction, and subjective well-being (3).

Table 9.2 lists each of the Social, Individual, and Media Mastery codes and subcodes, and in the case of Media Mastery the subsubcodes, along with the number of subsubcodes, (p. 260) (p. 261) (p. 262) (p. 263) (p. 264) (p. 265) (p. 266) the number of articles jointly coded for a specific Media Mastery subsubcode and either a Social or an Individual subcode, and the number of times each code was used, all provided by NVIVO.

For the following review, we then retrieved co-occurrences in NVIVO of media mastery subsubcodes with each of the social aspects and individual aspects subcodes. Here, each of the authors coded two different sets of the subsubcodes, so that coders and materials were crossed between coding and reviewing. Only a few examples from the most frequent and/or most interesting or unique co-occurrences are used. (All citations with three or more authors are referred to as “et al.”)

Table 9.2 Co-occurrences of Media Mastery Subcodes with Social and Individual Aspects Subcodes

Media Mastery Components and Subsubcodes	Social Aspects Subcodes			Individual Aspects Subcodes			
Access (A:158, R: 750)	**Social relations (SC:24, A: 105, R: 307)**	**Social influence (SC:21, A: 36, R:82)**	**Self-presentation (SC:17, A: 49, R:114)**	**Problematic use (SC:22, A: 86, R:265)**	**Health (SC:25, A: 117, R: 309)**	**Traits (SC:9, A: 58, R: 109)**	**Cognition (SC:6, A: 69, R: 217)**
1. access	6	0	0	9	17	1	6
2. access (to a medium)	0	0	0	0	2	1	3
3. access to others	0	1	0	0	0	0	0
4. accessibility—content & people	105	28	26	74	64	29	38

5. availability of self and others through media	75	8	10	20	25	20	13
6. collaboration through media	13	6	0	4	4	2	11
7. convenience—ease	17	2	4	17	16	4	9
8. notifications	1	0	0	0	0	0	0
9. passive—low effort	4	2	0	6	3	2	3
10. social coordination ability	8	1	1	0	6	1	3

Boundaries (A:161, R: 894)	**Social relations**	**Social influence**	**Self-presentation**	**Problematic use**	**Health**	**Traits**	**Cognition**
1. accountability—responsibility	11	5	5	9	3	6	0
2. anonymity	7	1	3	9	4	7	0
3. audience	8	5	12	5	3	3	2
4. balancing online and offline self	1	0	2	2	1	1	0
5. balancing online and offline social networks	2	1	1	0	1	0	0

6. barriers to or facilitators of integration across boundaries	0	0	0	0	0	0	0
7. blending—blurring	12	5	4	4	5	3	17
8. constant connection	35	9	8	28	31	9	14
9. context collapse	1	0	5	1	2	0	0
10. continuous copresence	3	2	0	0	1	0	3
11. divides	12	0	4	7	8	4	13
12. identity disjuncture	0	0	0	0	2	0	0

13. parental access	1	1	0	1	1	0	0
14. permanence	3	3	4	3	1	0	1
15. perpetual—persistent—contact (subset)	9	1	2	4	3	0	3
16. personal space	0	0	0	0	1	0	0
17. pervasive awareness	4	2	0	2	3	2	0
18. privacy	9	4	12	17	6	2	4
19. public	5	4	5	3	2	0	2
20. safety	8	2	6	6	8	1	0

21. self-broadcasting	22	10	41	5	6	9	2
22. self-editing or self-censorship	0	0	0	0	0	0	0
23. surveillance	5	3	1	4	3	3	1
24. transitions	25	2	4	3	18	3	7
25. trust	5	1	3	0	2	1	0
26. ubiquity	3	1	2	4	2	1	5
27. visibility—transparency	13	5	10	8	8	5	3
28. vulnerability	14	3	4	27	36	14	3

29. watchfulness	5	4	0	4	2	2	5
30. work—nonwork	0	0	0	1	0	0	4
Constraints (A:101, R: 291)	**Social relations**	**Social influence**	**Self-presentation**	**Problematic use**	**Health**	**Traits**	**Cognition**
1. ambivalence	2	2	1	4	2	1	1
2. contradiction—paradox—tension	30	12	9	35	30	8	26
3. double-standards	0	1	0	0	1	0	0
4. interpretive flexibility (contrasts)	0	0	0	0	0	0	0

5. irony	1	3	0	1	2	1	1
6. loss or change of some traditional skills or activities or relations	17	2	3	9	7	5	7
7. negotiating	2	0	0	0	0	0	1
8. unintended consequence	7	4	1	14	14	3	6
Managing Content (A:129, R: 551)	**Social relations**	**Social influence**	**Self-presentation**	**Problematic use**	**Health**	**Traits**	**Cognition**
1. ambiguity—uncertainty	1	0	1	1	0	0	1

2. awareness	3	2	3	7	2	1	2
3. commodification	5	0	3	2	0	0	0
4. consumption	7	4	3	7	6	0	1
5. control over own content (5.4 managing content)	0	0	0	0	1	0	0
6. gratifying—satisfying	26	8	12	16	13	10	14
7. media literacy (learning how to use media)	4	0	1	5	5	1	5

8. media multitask-ing	19	10	4	16	24	7	82
9. personal info	23	7	22	17	7	4	1
10. pro-dusers—to share or post	10	7	10	6	2	4	4
11. tempo-rary or ephemeral	0	0	0	0	0	0	1
Obstacles (A:49, R: 213)	**Social re-lations**	**Social in-fluence**	**Self-pre-sentation**	**Problem-atic use**	**Health**	**Traits**	**Cognition**
1. access	4	0	1	4	3	1	**6**
2. battery —no elec outlet	0	0	0	0	0	0	0

3. break drop lose phone or computer	0	0	0	0	0	0	0
4. change in technology; updating or upgrading	0	0	0	0	0	0	1
5. compatibility	0	0	0	0	0	0	0
6. complexity	0	0	0	0	0	0	1
7. connections	3	1	0	0	1	0	5
8. costs (financial, time, psych)	4	0	2	6	5	0	11
9. distracting	6	2	0	16	8	1	32

10. frustration	1	2	0	1	2	0	0
11. info overload	1	0	0	1	5	1	5
12. interference	4	0	0	3	4	1	7
13. interruptions	2	3	0	2	2	1	5
14. passwords	0	0	0	0	0	0	0
15. spam	0	0	0	0	0	0	0
16. tech problems	1	0	0	1	1	0	1
17. technostress	1	2	0	2	2	0	0
18. time zones	0	0	0	0	1	0	0

19. viruses—malware	0	0	0	0	0	0	0
Use Awareness (A:139, R: 630)	**Social relations**	**Social influence**	**Self-presentation**	**Problematic use**	**Health**	**Traits**	**Cognition**
1. attitudes about one's use	16	6	4	16	12	11	10
2. balance of active sharing or just viewing	0	0	2	0	0	0	0
3. balancing self and group needs	8	5	3	1	2	1	2

4. choices—how when use	24	9	14	16	17	8	9
5. expertise	7	2	3	6	4	8	21
6. filtering	3	1	1	2	1	0	0
7. media comparisons	9	8	3	2	0	1	2
8. media convergence	1	0	0	0	0	2	0
9. media habit	0	0	0	0	0	0	0
10. meta-attention	0	0	0	1	0	0	0
11. monitoring or checking frequently	0	1	0	1	0	0	1

12. multiple conversations	1	0	0	0	0	0	0
13. preparing responses	5	0	4	1	3	2	0
14. self-regulation	4	0	0	19	9	3	7
15. strategizing media use for coordination	0	0	0	0	0	0	1
16. taken-for-grantedness	0	0	0	7	3	0	6
17. techno-resistance	1	1	2	0	0	0	1
18. tool awareness	4	2	2	9	1	1	5

19. use of multiple media	1	1	1	4	3	4	2

Note: SC: Number of subsubcodes

A: Number of unique articles coded

C: Number of times the subcode was used

As explained in the text, three components are not analyzed here: *Technology*: *devices, services, sites* (SC:58, A:182; C:380), *features* (SC:9, A:12, R:20), and *uses* (SC:51, A:30, R:60); *Context*: *location (of the respondents)* (SC:8, A:8, R:10), *population* (respondent type) SC:12, A:202, R:242), and *country of the sample* (SC:37, A:195, R:209); and *Theories and Frameworks* (SC:131, A:133; C:239).

Review: Co-occurrences of Media Mastery Components with Social and Individual Aspects

Access

The most frequent association of the subsubcodes for media access is accessibility of content and people, with social relations. The second most frequent subsubcode is availability of self and others through media, also as it relates to social relations. The third most frequent subsubcode is accessibility of content and media, in relation to problematic use for individuals. Accessibility of content and people in association with the health of individuals is also frequent.

Accessibility of content and people, and social relations. Research on college students' use of communication technologies such as cell phones and internet platforms suggests that the students are "power users" of such communication technologies (Abeele & Roe, 2011). These communication tools are significant because they enable students to stay in touch with family and friends at home, and also with new college friends, as well as search for information and enjoy online leisure activities. Aharony (2017) focused on the functions provided by mobile phones, and how these relate to students' personality characteristics and motivation. Openness to experience and self-disclosure were important personality characteristics associated with mobile phone use.

College students are particularly engaged in use of social networking sites (SNSs), which provide them with access to more information and more experiences than they would in a more closed university environment (Chen & Marcus, 2012). If properly framed, these expanded exposures through SNSs can facilitate learning for university students, by use of new social connections to share ideas, build their new student identities, and develop their own learning paths. Thus, SNSs seem to facilitate the transition for students to their new environment, both in terms of socialization and a sense of connection to their institution (DeAndrea et al., 2012; Gray et al., 2013).

(p. 267) In their recent book *Technology and engagement* Rowan-Kenyon and Alemán (2018) use the term "ecology of transition" to describe how social media were important in making it meaningful for new students to be in college, as well in assisting their integration into the university setting. However, the use of social media and being online can also be a double-edged sword for students:

> "Well, I think that it's really bad if I'm not on top of my e-mail, and it's really bad if I'm not up to date on the class stuff that I have to do on the Internet. I also definitely value keeping in touch with friends. So all those are things that I really like to be able to do. But it's tough, because it becomes a real time tradeoff. Often when I do those things, I end up going to other places on the Internet that aren't so valuable to me."

(Davis, 2011, p. 1972)

Accessibility of content and people, and problematic use. In addition to being communication tools, mobile phones provide access to the Internet and are digital environments where students can seek entertainment, shop, and manage finances (Gökçearslan et al., 2016). However, overuse creates new social problems (Bian & Leung, 2015). The dramatic increase in use of smartphones worldwide has resulted in problematic use related to accessibility of content and people. Smartphone addiction is a concern in many countries (Hong et al., 2012). According to Demirci et al. (2015), smartphone addiction can be defined as the overuse of smartphones to the extent that it disturbs users' daily lives. These authors, like Aker et al. (2017), find that psychological problems such as depression and anxiety, and challenges such as insomnia and lack of family social support, can predict smartphone addiction. Chen et al. (2016) find that both internet and mobile phone addiction are closely related to interpersonal problems. According to Aladwani and Almarzoug (2016), low self-esteem also correlates with compulsive use of social media. More generally, social media and easy access to the internet seem to make students more vulnerable to compulsive media use. However, for people with inter-personal problems like social anxiety, face-to-face interaction can be challenging, so having contact with people on Facebook and via their smartphone could be easier (Clayton et al., 2013).

Several researchers are also concerned with how overuse of smartphones can have damaging effects on students' academic performance (Aljomaa et al., 2016). Students may use the phone and be inattentive during lectures, or they disturb others by sharing content like new tones, songs, and YouTube videos with classmates and fellow students. However, as the authors mentioned emphasize, one should not forget the potential positive effects of smartphones in facilitating communication and in sharing information among teachers and students. Also, many students develop various strategies to manage the distractions of smartphones and laptops (Ames, 2013). Still, controlling intrusions can be challenging because both work and distractions are present on the same devices. Thus, multi-tasking is a constant temptation for a number of students (Flanagin & Babchuk, 2015). This is the reason why Chen et al. (2016) characterize mobile phones as a "double-edged sword" for young adults. Thus, Flanagin and Babchuk (2015) characterize (p. 268) social media as "academic quicksand"; when you get in, it is hard to escape, even though students describe how they try hard to manage social media.

A problematic aspect of the increased accessibility from the viewpoint of the film and music industry is the increasing digital piracy (Duarte et al., 2016). Even though the internet has increased possibilities for distribution of their products, digital piracy is a daily worry for these companies. Another problematic aspect of increasing accessibility of people via new technologies is the growing phenomenon of cyberbullying (Crosslin & Golman, 2014). Experiencing cyberbullying can be so detrimental to the victims that some of them —like the media-exposed cases of Tyler Clementi and Jessica Logan—have committed suicide.

Availability of self and others through media, and social relations. Smartphones and social media are central in making self and others available, and thus impacting people's lives and especially their social relations (Amankwah & Ha, 2015). These authors discuss smartphones as providing great self-broadcasting power, often through the use of SNSs. However, while smartphones are demanding attention from users, many students would emphasize that they would not interrupt a F2F interaction with a phone call (Ames, 2013). A number of students explained that they avoided checking messages or even having their phone out when with other people or in special social situations (like a date or a dinner party). Others went out of their way not to be too accessible by phone.

Students, like other young people, are increasingly dependent on social networking sights for their socialization, information-seeking, and self-broadcasting. Fang and Ha (2015) claim that students' SNS consumption is positively associated with social capital and social support, especially for individuals with low psychological resources. However, Manago et al. (2012) ask whether there is a trade-off between having a large network on SNSs like Facebook and being able to develop intimacy and social support among fellow emerging adults. Their results confirm that Facebook mainly facilitates more distant kinds of relationships, like acquaintances and activity-based connections, while also reinforcing and expanding the number of close relationships. According to Manogo and co-authors, the major function of people's status updates was emotional disclosure, which plays an important role in developing intimacy. These results indicate that the nature of intimacy is being transformed, and that large networks were related to higher levels of life satisfaction, and also of perceived social support.

Boundaries

The most frequent media boundaries subsubcode co-occurrences are self-broadcasting as it relates to self-presentation; vulnerability with both health and problematic use; constant connection in association with social relations, health and problematic use; and transitions with social relations.

Constant connection, with social relations. Constant connection easily creates tension, due to the social effect of mediated communication, multi-tasking, and having constant (p. 269) technology access, especially facilitated through smartphones. Ames (2013) notes that so-called digital natives negotiate with (both embracing and rejecting) the social expectations enabled by new technologies. Marlowe et al.'s (2017) study interviewed students in Auckland from five ethnic minority groups to examine the role of social media in their social interactions. New media are especially impactful influences on their daily lives, affecting friendship and family networks, providing access to community engagement, and helping a sense of belonging in their diverse society. In recent decades, new web-based technologies and social media sites are also increasingly being integrated into learning contexts as well as daily life, becoming "inevitable" (Pilli, 2015, p. 345).

Constant connection, with health. Internet addiction is increasingly a risk area among college students, which, along with drug use, has been identified as risk factors for youth

suicide (Aricak et al., 2015). Generally, it seems that smartphone addiction co-occurs with other social, domestic, and academic problems among students. Hassell and Sukalich (2016) note studies finding that higher levels of internet or social media use are negatively associated with life satisfaction. Turkle (2011, p. 276) underscores that "The time-consuming constant demands for attention and performance becomes stressful and distracting, limiting creativity and reflection." Hong et al. (2012) write about how mobile phone addiction relates to anxiety and self-esteem, claiming that mobile phone addiction "has an indirect effect upon the relationship between anxiety and mobile phone usage behavior and between self-esteem and mobile phone usage behavior" (p. 2158). Similarly, Hussain et al. (2017) report that smartphone dependency, mediated by constant use, can lead to anxiety when the phone is not available.

Constant connection, with problematic use. A number of students report how the smartphone allows for constant connection, being in contact with friends, wasting time, and playing games. Ames (2013), for example, reports how some students felt that they have lost their independence by being constantly connected and needing to check on and with people. They also expressed that being constantly connected, they were hardly fully present anywhere. A number of students also expressed resistance towards these constant connection norms and habits, and that multi-tasking was a constant temptation or threat. Students depend on their technological devices to the extent that they feel anxious and tense when the technology is not readily available or when their attention is drawn towards what the technology has to offer (Bicen & Arnavut, 2015).

Self-broadcasting, with self-presentation. According to Aricak et al. (2015), social networking sites increasingly serve as mandatory experiences for young people's identity construction. Self-presentation could be a central part of this process. Chen and Marcus (2012) notice how SNSs provide new arenas for individuals to present themselves, access and broadcast information, nurture their social networks, and establish and maintain connections with others. Amankwah and Ha (2015) conducted a study of smartphones and self-broadcasting among college students via social media. As much as 85.2% of college students self-broadcast at least once a month by updating their status on SNS. Network size, years of experience using social media, and the time spent on social media predicted frequency of self-broadcasting (which occurs mainly within one's network). (p. 270) While most students set their profile as private or semi-private, that did not affect self-broadcast frequency.

Students spend much of their lives in an electronic world, which continuously demands their attention. According to Dalton and Crosby (2013), social media have the most seductive influence on college students' attention. Since social media have become so engaging for young students, they develop a digital identity, which is "the composite of images that individuals present, share, and promote for themselves in the digital domain" (p. 1). Kim and Lee (2011) distinguish between positive and more honest self-presentation on Facebook. With honest self-disclosure one is more likely to receive support from Facebook friends, which can be beneficial to students' social wellbeing and happiness. Sponcil and Gitimu (2013) similarly suggest that intimate self-disclosures help produce greater inti-

macy in computer-mediated communication. Punyanunt-Carter and her colleagues (2017) discuss self-presentation on SnapChat, which is geared towards already solidified interpersonal relationships, like close friends and family. The information disclosed is high in intimacy, and often mundane. Thus they report that on SnapChat "the 'true' self can be represented rather than the 'best' self as is the norm with other social media sites" (p. 891).

Transitions, with social relations. The transition between high school and college is a major one, where students often move to a new location and have to establish new social and academic networks, while trying to maintain old networks with family and friends. Abeele and Roe (2011, p. 237) find that for American new students, "the transition to college involves the task of building up a new social network, and communication technologies play an important role in supporting this process." Many students need support to cope with problems they might face in order to adjust to transitions (Fang & Ha, 2015). These authors argue for using the concept of self-efficacy to understand how young people continuously use information from both offline and online environments to reevaluate themselves. DeAndrea et al. (2012) discuss a social media intervention intended to increase incoming students' feelings of connectedness to the university, reduce uncertainty about college, and influence positive expectancies, as understood within a social capital framework, to foster a healthy college transition.

Vulnerability, with health and problematic use. Internet addiction disorder has become a clinical concept during the last two decades. Numerous studies find that smartphone addiction is related to a number of psychological and behavioral problems. Kuang-Tsan and Fu-Yuan (2017) argue that smartphone addiction may also be related to life-stress for university students. Floros et al. (2014) suggest that college students are particularly vulnerable to internet addiction disorder "due to the particular psychological and developmental characteristics of late adolescence/young adulthood, ready access to the Internet, and an expectation of computer/Internet use during studies" (p. 672). Students who scored high on internet addiction disorder were higher on psychopathology and distress; they were more lonely, had lower self-esteem, and reported more anxiety and depression than others. Moreno et al. (2015) found increased risk for problematic internet use and addiction among those with most severe depression.

(p. 271) According to Polo et al. (2017), the mobile phone has caused traditional socialization spaces to be replaced by virtual ones. Mobile phone use can be risky for young people, especially because they use mobile phones almost constantly. This could be detrimental to young people's psychological and social functioning. Heavy users are also more likely to become problematic or addicted users. Polo et al.'s results indicate that "age, field of knowledge, victim/aggressor profile, and hours of mobile phone use are crucial variables in the communication and emotional conflicts arising from the misuse of mobile" (p. 245).

The large presence of self-injury sites on social media and YouTube24 is seen as alarming, as self-injury exposure is feared to be socially contagious, inspiring vulnerable individuals

to experiment with self-harm (Jarvi et al., 2017). Some vulnerable individuals such as those with a tendency to seek novel and intense sensations and experiences may use dating apps to look for drugs or sexual intercourse (Choi et al., 2017). Cyberbullying is a very serious outcome of inappropriate use of technology, which has resulted in mental health problems among victims and even suicide (Crosslin & Golman, 2014). Moreover, cyberbullies themselves are impacted negatively by their bullying behaviors.

Constraints

The four most frequent occurrences involved contradiction/paradox/tensions (at the heart of media mastery), with social relations, problematic use, health, and cognition. These were followed by a loss or change of some traditional skills or activities or social relations, and unintended consequences related to both problematic use, and to health. Here, we focus on four of these few topics that are not much already covered in other sections.

Contradictions, and social influence. Social media help users keep in touch with peers and groups, a source of social influence, and enable access to social support. But social media can also create pervasive anxiety from a "fear of missing out" (FOMO) from salient activities and discussions experienced by those others (Alt, 2015). Indeed, a central contradiction of these new media is that while connectivity is generally positive, the need to constantly monitor others' communication, and expectations from others for constant connectivity, creates stress and excessive use. Many students are aware of, and concerned about, this contradiction (Ames, 2013). Also, in attempts to strengthen one's group identity and gain status, users may post messages and photos of activities that are quite harmful (self-injury, for example; Jarvi et al., 2017).

Contradictions, and cognition. While thoughtful social media use can improve learning experiences (Castillo-Manzano et al., 2017), compulsive use can degrade academic performance (Aladwani & Almarzouq, 2016), due to factors such as studying for shorter periods and even being more susceptible to being victims of crime (Aljomaa et al., 2016). Some students do attempt to engage in what Ames (2013) calls "techno-resistance" to expectations for constant connectivity, by establishing boundaries or even disconnecting (p. 272) from their devices, aiming to lower negative cognitive implications of multitasking. Some studies help explain some contradictions in results by showing that use and knowledge of different Facebook features or activities differentially affect academic outcomes (Wohn & LaRose, 2014).

Loss or change, with social relations. Many authors have argued that new media, as with prior communication technologies when they were new (Jensen, 1990; Marvin, 1990), are profoundly affecting individual and social relationships and norms (boyd, 2015; Turkle. 2011). For example, social networks may develop and endure based on members' using similar technology and apps, in order to avoid inconveniences in communicating with everyone (Bicen & Arnavut, 2015). Or, because online social interactions are so common and normative, factors such as introversion and extraversion may be far less influential on people's experienced lives (Yao et al., 2014), and users may be more aware of, and

able to participate in, a more diverse array of identities and types of relationships (Yang, 2014). More subtly, people are more likely to communicate with multiple others online while with others offline, and even just stay "connected" while not actually exchanging messages (Vorderer et al., 2016).

Unintended consequences, with health. The very utility and attractiveness of smartphones, social media, and other digital devices lead to a variety of unintended consequences. Primary among these is internet/smartphone addiction or problematic internet use, associated with a wide variety of health dysfunctions, from depression to obesity (Li et al., 2015). Sleep deprivation may be a consequence of excessive device use (Demirci et al., 2015), with attendant schoolwork procrastination, and then students staying up late to (ineffectively) rush through their work (Li et al., 2015). As college Facebook posts and profiles present more images of alcohol use and drinking parties, from a peer norms theoretical perspective, viewers (incorrectly) perceive higher alcohol use as descriptively normative (Clayton et al., 2013), leading to more positive attitudes toward, and behaviors of, excessive drinking. The pervasiveness of and dependence on digital devices for schoolwork as well as social relations and entertainment may also be associated with musculoskeletal symptoms (Dockrell, Bennett, & Culleton-Quinn, 2015).

Managing Content

The most frequent co-occurrences with managing content (including people) involved having a gratifying-satisfying experience in relation to social relations as well as problematic use; media multitasking in association with social relations, health, and cognitions, and personal information in the context of self-presentation and problematic use.

Gratifying and satisfying, and social relations. While using media for gratification can become problematic, the social component of media mastery provides an explanation for why media are gratifying. Social connection and social information are inherently embedded in media, especially social media, which has increased the availability (p. 273) and diversity in connections and information available. Particularly, the need for social support and connection motivate a great deal of media use. For example, New Zealand college students with ethnic minority or migrant identities used social media not only to establish and maintain intimacies, but also to exchange information about oneself, and others, to determine who will be admitted into existing friendship networks (Marlowe, Bartley, & Collins, 2017). Though the social support received through media use can improve well-being, the need for social interaction and new social information often becomes habitual (Meier et al., 2016). This suggests that media's role in sharing social information can become a source of tension as it both contributes to well-being and potentially detracts from it. For example, Meier et al. (2016) find the constant checking that becomes habitual leads to usage conflicts which can ultimately reduce well-being and task performance.

Gratifying and satisfying, and problematic media use. Mastering media includes using media for one's own needs. People must manage content in ways in that fulfill their

own desires. However, in the literature there is evidence that even when one can use media to gratify their needs, that use can become problematic. Research on the addiction to mobile devices and Internet finds that the reward experienced from media use can become dysfunctional and excessive. Meier et al. (2016), for instance, showed that students use media to provide relief, reward and relaxation from work and from negative experiences. However, in pursuit of reward students express that they begin to procrastinate. This procrastination on academic work can become detrimental. Likewise, Chiu (2014) found that when experiencing life stressors, young adults use mobile phones to alleviate their negative emotions. The gratification and stimulation experienced from using media, however, had led to addiction for those who were not capable of self-regulation. While all college students may experience the gratifications of using media, the motivation for, media choices and outcomes of that use may reflect individual differences.

Media multitasking, and cognition. Within the media mastery framework, media multitasking or the splitting of attention between media and other tasks, is a method of managing the various content available. Thus far, cognition or the ability to focus and learn is the commonly studied aspect of individual differences in the media multitasking literature. Media multitasking appears not only a method for managing content but also for managing focus and learning. Some master this management, others do not. Ames (2013) reported that while some students report frequently media multitasking, the majority of students expressed that they have set rules in order to reduce the negative cognitive effects of media multitasking. This implicates that young adults are sensitive and strategic in managing their media and media multitasking habits to avoid cognitive harm. In addition to frequency, college students differ in the types of tasks with which they media multitask. Fan et al. (2017) noted that those that display higher metacognition engaged in less irrelevant media multitasking during difficult learning tasks. This suggests that managing content via media multitasking involves managing the cognitive load and effects of the media used.

(p. 274) **Media multitasking, and social influence.** However, managing media via media multitasking behaviors is not only driven by cognitive preferences and capacities. Rather, Ames (2013) concluded that the social pressure to be available both to immediate surroundings and extended networks formed a double-standard that created pressure to media multitask. Students reported that media multitasking is coupled with constant guilt both for not being fully present to their offline reality and for not being fully present to their online reality.

Personal information, and self-presentation. Within the construct of managing content, people’s desire to connect with others via the Internet requires them to manage and interpret the information they share with and receive from their social network. In our coding we referred to this subcomponent as personal information, and defined it as involving personal self-disclosure and information available about others. Personal information was commonly cross-coded with the individual component of self-presentation. The findings demonstrate the tension in mastering sharing personal information through media. Moreno et al. (2011) showed that young adults frequently expressed that they knew

that people exaggerate and even misrepresent themselves on social networking sites. However, the students still found this information valuable and used it to form first impressions of others. They shared that sometimes the personal information they found about others was even accurate. They had friends whose SNS reflects them well. The credibility of information online even on social networks was understood as flawed yet useful. However, loss of control or management over one's personal information and images can severely affect one's self-presentation, leading to cyberbullying, "revenge porn," and even suicide (Virden, Trujilo, & Predeger, 2014).

Personal information, and health. Though the personal information shared online has social value, it can cause harm to young adult's well-being. For instance, Tandoc et al. (2015) explain how the information about others found online is also used to inform the user about what's attractive, and how people's feedback can be used to identify how attractive one is to his/her social network, leading to social comparison. Tandoc et al. (2015) provide an example of how young adults use this information to identify their social rank. They contend that if students find themselves unattractive, they often feel envious and depressed. Thus, though the information may be useful for navigating one's social network, this also fuels comparison which can be detrimental.

Obstacles

Physical and technical obstacles to college students' use of media do not much appear in research publications, though they were mentioned in the focus groups. The most frequently co-occurring were distracting, with problematic use, health, and cognition; costs with problematic use, and cognition; interference, with cognition; and access, with cognition.

Access, with cognition. It is obvious that not having access to relevant new media constitutes a grave challenge to students (Goode, 2010). While many students use mobile (p. 275) devices for academic practices, Fasae and Adegbilero-Iwari (2015) reported that many students are challenged by obstacles of low quality Internet connections and high data subscription costs. Ironically, some students are concerned that pervasive access to social media (diverting attention, energy, and time from academic work) may lead to obstacles to success later on (Flanagin & Babchuk, 2015). Further, relationships between use of social media for online content creation are affected by more than just traditional digital literacy—they include the kinds of peer support, practices, and technologies that university students have access to, and bring with them, in the first place (Brown et al., 2016), which also extends the concept of the digital divide. In turn, experience in digital creation can provide advantage in the global society, possibly widening certain kinds of disparities in access and use.

Costs, with problematic use. Intriguingly, smartphone costs are not only a form of obstacle to access, but also an aspect of problematic use, as over-dependence on smartphones can foster excessive overspending on accessories, upgrades, apps, and data (Aljo-

maa et al., 2016). Indeed, some studies note that students want to have the most recent device or product regardless of price (Bicen & Arnavut, 2015).

Distracting, with health. Many studies refer to the "double-edge" sword nature of the mobile phone, which can provide personal, social, and business benefits as well as disadvantages and harm. For example, many refer to the distractions from one's own use and the use by others, reducing focus and attention on activities and social relationships, and creating physical and mental health problems (Chen et al., 2016). People may turn to smartphone or internet over-dependence as a distraction from other health or life stress issues (Chiu, 2014; Kuang-Tsan, & Fu-Yuan, 2017). Impaired inhibition and attention deficit hyperactivity disorder (ADHD) are associated with increased risk of Internet addiction (Dalbudak et al., 2015). The increased need to maintain constant connectivity, and engage in multitasking, can harm mental and emotional development and create ongoing distractions from relationships and self-reflection (Davis, 2011).

Distracting, with cognition. Digital device use during class creates distractions for the user, surrounding students, and even the instructor (Aljomaa et al., 2016; Jacobsen & Forste, 2011), negatively affecting user academic performance (related to issues such as reduced details in class note-taking, less cognitive processing of the content, and poorer recall; Kuznekoff & Titsworth, 2013). Multitasking in general is frequent in class, and typically negatively affects students' ability to learn content (Judd, 2014; Junco, 2012). Similar issues arise, but with much graver potential consequences, for students who are distracted by their devices while walking or driving (Kim & Kim, 2017).

Use Awareness

Here, the most frequent co-occurrences involved attitudes about one's use, with social relations and problematic use; choices as to how and when to use a medium, with social (p. 276) relations, self-presentation, problematic use, and health; digital expertise, with cognitions; and self-regulation, in association with problematic use.

Attitudes about one's use, and social relations. One aspect of media mastery becoming increasingly important with the ever-growing popular social media is people's (especially young adults') perceptions of media as means and context for social connection. Pilli (2015) found that students' perceptions that Facebook was useful for their social adjustment and relationship maintenance explained why socially competent Facebook users exhibited better psychosocial well-being. This result highlights that individual dispositions play a role in students' likelihood to have positive attitudes towards their media use.

Attitudes about use, and problematic media use. While problematic use includes addiction and dependency, it also includes other dangers such as cyberbullying and revenge porn. We found frequent co-occurrences between problematic use and the attitudes people have about their use of media. Virden et al. (2014) highlight how, especially among young adults, perceptions of the use of media (for instance to explore their sexuality via sexting) affects their likelihood to use media in ways that put them at risk. They found that few young adults recognize the risk of engaging in these online sexual behaviors.

The interpretation of their risk in using media affects their vulnerability to that risk. Some studies (and our focus groups) find that students have generally positive attitudes about their digital media, but are aware of wasting time, fear of missing out, being over-dependent, and other problematic uses and effects, but feel they must continue to use their media, and are even resigned to doing so, both on psychological and pragmatic grounds (Turkle, 2011).

Choices, and self-presentation. Choices about how to use media are both individually and socially motivated as people manage their online identities in the face of potential context collapse; Thomas et al., 2017) and privacy issues. Hoy and Milne (2010) detailed, for instance, how privacy protection practices varied from lying to post-hoc changes and image management. These practices also varied by gender: men and women differed in their concerns about self-presentation as a privacy issue and their strategies to cope with potential problems, and those choices in turn were related to various media effects. With the understanding of which practices are least to most successful, understanding the choices users make in self-presentation could lead to more targeted and effective interventions.

Choices, and health. Scholars are discovering ways to identify the profiles of usage that are more likely related to diminished well-being. For example, Park et al. (2013) found a relationship between depressive symptoms and uses of Facebook such that a user's activeness and uses of features could be associated with specific symptoms, highlighting that the ways people use media can reveal and reflect the state of their mental and emotional health. The researchers explore the possibility of using these profiles of how and when people use media to improve or increase diagnostic capacity for depression.

Expertise, and self-presentation. In the articles discussing these two concepts, an important and interesting set of tensions arises. Axelsson (2010) discusses that young adulthood is a special developmental period in which the need to express oneself (p. 277) becomes increasingly important. However, the ability to do so competently can rely on technological skills, including one's ability and understanding of Internet uses. He contends that a lack of understanding and competence about the internet can translate into a lack of competence in developmental integral capacities, including self-expression. Ishii et al. (2017) argue that young adults with greater communication competence prefer face-to-face communication for self-disclosure in order to most benefit from the increased cues. Their perspective implies that while all young adults need self-expression, their choice to not express online might not be due to a lack of Internet skills but rather better traditional communication skills.

Expertise, and traits. Expertise or the ability to use media with skill is perhaps one of the most seemingly obvious forms of media mastery within use awareness. Chang et al. (2014) documented that traits such as internet self-efficacy not only increased confidence in an online course but affected perceptions of the online course as relevant and was associated with better course performance. There were many similar findings across the literature.

Media comparison, and social influence. Group level differences such as shared norms also contribute to one's preferences, comparisons, interpretations and uses of media. Cultural differences provide one example of such social influence. Ishii et al. (2017) concluded that US and Japan college students differentially perceived text-messaging as a form of communication. The US students perceived text messaging as having more media richness, reduced cues, quickness, ubiquity of the sender and the receiver, satisfaction, effectiveness, and level of comfort than did the Japanese students. The authors proposed that these perceptions follow cultural norms of communication; for example, that Americans prefer direct communication. Students interviewed by Ames (2013) said that pressures such to be constantly available did lead them to alter the particular medium they used in order to meet both their own contexts and the expected contexts of their communication partners.

Self-regulation, and problematic media use. Self-regulation represents the capacity to control and manage one's behaviors. It occurs frequently in the literature, and is an essential aspect of use awareness within the media mastery typology. Wu (2015) validated four dimensions of motivated attention and regulatory strategies by students using social media: perceived attention discontinuity, behavioral strategies, mental strategies, and social media notifications. Integrating those with a variety of related measures (from Internet self-efficacy to academic achievement), Wu identified five categories of students with respect to attention and regulation: motivated strategic, the unaware, the hanging on, the non-responsive, and the self-disciplined. Self-regulation and problematic media use (cyberbullying, to cyberstalking, to dependency and addiction) are frequently co-occurring concepts in the literature. For instance, Gökçearslan et al. (2016) explain that those who are low on self-regulation tend to experience more ego depletion and less focus, and therefore are more likely to engage in cyberloafing where they do not contribute to or benefit from the group. Similarly, Jiang and Shi (2016) (p. 278) indicated that people with diminished self-control or trait-like self-regulation engage in problematic media use to alleviate negative emotions. Their engagement in problematic media use can also be diminished through interventions targeting self-control, which is the stable trait form of self-regulation. Thus self-regulation is one way through which the potentially mastered try to develop media mastery.

Conclusion

In general, this review shows how the concept, and very detailed typology, of media mastery pervades the more familiar contexts, analyses, and results of research on college students' use of new media. Each subsection of the review can generate one or more implications of the media mastery framework. For example, mastery of media is a subjective experience that involves believing in one's expertise and capacity to use media. Masters of media can engage in beneficial media multitasking, while those mastered by media might engage in harmful media multitasking. Media mastery may occur through individual interpretation but can be heavily influenced by the practices and expectations of one's social network. The masters and mastered potentially seek and react to the potential

gratifications from media differently. The tensions in media mastery demonstrate how young adults attempt, sometimes successfully, sometimes not, to navigate the complexities of media use.

The media mastery framework allows a more analytical approach, by integrating a variety of prior and new perspectives, highlighting the relevance of many diverse concepts, and revealing associations among many otherwise disjointed or typically unlinked concepts. As a complement to the theoretical perspectives appearing in most of the articles, media mastery would have provided an especially relevant framework for some of the studies. Media mastery could identify and describe a phenomenon heretofore with no name or with a variety of unintegrated names (as summarized in the Related Concepts section), especially the simultaneous two-way mastery of and by media. So the media mastery perspective provides a lens, and allows for nuances, into how users (here, college students) are potentially mastered by new media, but also attempt to potentially master those media. As just one example, this perspective on the diverse research of college students' digital media use highlights the pervasive paradoxes and contradictions as manifestations of the tensions between attempts to master media and the ways in which media master us. The media mastery framework illuminates the double-edged nature of media technology and especially social media in the lives of students as well as other young people. Moreover, the notion of media mastery may also capture the contradictory and mixed feelings (ranging from pleasure to guilt) that young students and others experience in their daily use of contemporary media technologies. The vast range of ways mastery or being mastered occurs—in association with social and individual aspects, among others—may also be a reflection of the complex, interdependent, and contextual nature of digital media. The detailed and extensively developed media mastery framework may (p. 279) help researchers think in new ways about what questions their work attempts to answer—i.e., what aspects of media mastery does their work highlight or extend?

References from Introductory Material

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.

Boell, S. K. & Cecez-Kecmanovic, D. (2014). A hermeneutic approach for conducting literature reviews and literature searches. *Communications of the Association for Information Systems, 34*(1), 257–286.

boyd, d. (2015). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.

Burchell, K. (2017). Everyday communication management and perceptions of use: How media users limit and shape their social world. *Convergence*, *23*(4), 409–424.

Chaffee, S. H. (1991). *Explication*. Newbury Park, CA: Sage.

Couldry, N. (2012). *Media society world*. Cambridge, UK: 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), 661–679.

Deacon, D., & Stanyer, J. (2014). Mediatization: Key concept or conceptual bandwagon? *Media, Culture & Society*, *36*(7), 1032–1044.

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.

DeSanctis, G. & Poole, M. S. (1994). Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, *5*(2), 121–147.

Deuze, M. (2012). *MediaLife*. Malden, MA: Polity.

Gershon, I. (2010). Media ideologies: An introduction. *Journal of Linguistic Anthropology, 20*(2), 283–293.

Hadar, L. L. & Ergas, O. (2018). Cultivating mindfulness through technology in higher education: A Buberian perspective. *AI and Society,* 1–9. **https://link.springer.com/article/10.1007/s00146-018-0794-z**

Haddon, L. (2003). Domestication and mobile telephony. In J. E. Katz (Ed.), *Machines that become us* (pp. 43–56). New Brunswick, NJ: Transaction Press.

Helles, R. (2013). Mobile communication and intermediality. *Mobile Media & Communication, 1*(1), 14–19.

Hilbert, M., Vásquez, J., Halpern, D., Valenzuela, S., & Arriagada, E. (2017). One step, two step, network step? Complementary perspectives on communication flows in twittered citizen protests. *Social Science Computer Review, 35*(4), 444–461.

(p. 280) Hjarvard, S. (2009). Soft individualism: Media and the changing social character. In K. Lundby (Ed.), *Mediatization: Concept, challenges, consequences* (pp. 159–177). New York, NY: Peter Lang.

James, C. (2014). *Disconnected: Youth, new media, and the ethics gap.* (The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning). Cambridge, MA: The MIT Press.

Jarvenpaa, S. L. & Lang, K. R. (2005). Managing the paradoxes of mobile technology. *Information Systems Management, 22*(4), 7–23.

Jensen, J. (1990). *Redeeming modernity: Contradictions in media criticism.* Newbury Park, CA: Sage.

Jensen, K. B. (2010). *Media convergence: The three degrees of network, mass, and interpersonal communication.* London, UK & New York, NY: Routledge.

Jones, M. R. & Karsten, H. (2008). Giddens's structuration theory and information systems research. *MIS Quarterly*, *32*(1), 127–157.

Katz, J. E. & Rice, R. E. (2002). *Social consequences of Internet use: Access, involvement and interaction*. Cambridge, MA: The MIT Press.

Klein, H. K. & Kleinman, D. L. (2002). The social construction of technology: Structural considerations. *Science, Technology, & Human Values*, *27*(1), 28–52.

LaRose, R., Connolly, R., Lee, H., Li, K., & Hales, K. D. (2014). Connection overload? A cross cultural study of the consequences of social media connection. *Information Systems Management, 31*, 59–73. doi:10.1080/10580530.2014.854097

Levy, D. M. (2017). *Mindful tech: How to bring balance to our digital lives*. New Haven, CN: Yale University Press.

Ling, R. (2012). *Taken for grantedness: The embedding of mobile communication into society*. Cambridge, MA: The MIT Press.

Livingstone, S. (2009). On the mediation of everything: ICA presidential address 2008. *Journal of Communication, 59*(1), 1–18.

MacKenzie, D. & Wajcman, J. (Eds.) (1985). *The social shaping of technology: How the refrigerator got its hum*. London, UK: Open University Press.

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

Marvin, C. (1990). *When old technologies were new: Thinking about electric communication in the late nineteenth century*. New York: Oxford University Press.

Mihailidis, P. (2014). A tethered generation: Exploring the role of mobile phones in the daily life of young people. *Mobile Media & Communication, 2*, 58–72. doi: 10.1177/2050157913505558

Miller, J. (2014). Intensifying mediatization: Everyware media. In A. Hepp & F. Krotz (Eds.), *Mediatized worlds: Culture and society in a media age* (pp. 107–122). London, UK: Palgrave Macmillan UK.

Misra, S. & Stokols, D. (2012). Psychological and health outcomes of perceived information overload. *Environment and Behavior, 44*, 737–759. doi:10.1177/0013916511404408

Moreno, M. A., Jelenchick, L., Koff, R., Eikoff, J., Diermyer, C., & Christakis, D. A. (2012). Internet use and multitasking among older adolescents: An experience sampling approach. *Computers in Human Behavior, 28*, 1097–1102. doi:10.1016/j.chb.2012.01.016

O'Neill, B. & Hagen, I. (2009). Media literacy. Chapter 18. In S. Livingstone & L. Hadden (Eds.), *Kids online: Opportunities and risks for children.* Bristol, UK: Policy Press.

(p. 281) Pinch, T. & Bijker, W. (1987). The social construction of facts and artifacts: Or how the sociology of science and the sociology of technology might benefit each other. In W. Bijker, T. Hughes, & T. Pinch (Eds.), *The social construction of technological systems: New directions in the sociology and history of technology* (pp. 17–50). Cambridge, MA: The MIT Press.

Postman, N. (1996). *The end of education: Redefining the value of school*. New York, NY: Vintage.

Rainie, L., & Wellman, B. (2012). *Networked. The new social operating system.* Cambridge, MA: The Massachusetts Institute of Technology.

Reinecke, L., Aufenanger, S., Beutel, M. E., Dreier, M., Quiring, O., Stark, B., Wölfling, K. & 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**

Rheingold, H. (2012). *Net smart: How to thrive online*. Cambridge, MA: The MIT Press.

Rice, R. E. (1999). Artifacts and paradoxes in new media. *New Media and 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.

Rice, R. E., Hagen, I., & Zamanzadeh, N. (2018). College students' media mastery: Paradoxes in using computers and mobile phones. *American Behavioral Scientist, 62*(9), 1229–1250.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Schonert-Reichl, K. A. & Roeser, R. W. (Eds.) (2016). *Handbook of mindfulness in education: Integrating theory and research into practice*. Berlin, Germany: Springer.

Silverstone, R. & Hirsch, E. (1992). *Consuming technologies: Media and information in domestic spaces*. London: Routledge.

Silverstone, R. (2007). *Media and morality: On the rise of the mediapolis*. Cambridge, UK: Polity Press.

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/**

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York: Basic Books.

Wang, Y., Niiya, M., Mark, G., Reich, S., & Warschauer, M. (2015). Coming of age (digitally): An ecological view of social media use among college students. *Proceedings of the 18th ACM conference on computer supported cooperative work & social computing* (pp. 571–582). New York: ACM. doi:10.1145/2675133.2675271

Williams, R. & Edge, D. (1996). The social shaping of technology. *Research Policy*, *25*(6), 865–899.

Wilmer, H. H. & Chein, J. M. (2016). Mobile technology habits: Patterns of association among device usage, intertemporal preference, impulse control, and reward sensitivity. *Psychonomic Bulletin & Review*, *23*(5), 1607–1614.

Wu, J. Y. (2015). University students' motivated attention and use of regulation strategies on social media. *Computers & Education*, *89*, 75–90.

Xu, S., Wang, Z. J., & David, P. (2016). Media multitasking and well-being of university students. *Computers in Human Behavior*, *55*, 242–250.

Cited Analyzed References

Abeele, M. V. & Roe, K. (2011). New life, old friends: A cross-cultural comparison of the use of communication technologies in the social life of college freshmen. *Young, 19*(2), 219–240.

(p. 282) Aharony, N. (2017). Factors affecting LIS Israeli students' mobile phone use: An exploratory study. *The Electronic Library, 35*(6), 1098–1121.

Aker, S., Sahin, M. K., Sezgin, S., & Oguz, G. (2017). Psychosocial factors affecting smartphone addiction in university students. *Journal of Addictions Nursing, 28(*4), 215–219.

Aladwani, A. M. & Almarzouq, M. (2016). Understanding compulsive social media use: The premise of complementing self-conceptions mismatch with technology. *Computers in Human Behavior, 60*, 575–581.

Aljomaa, S. S., Al Qudah, M. F., Albursan, I. S., Bakhiet, S. F., & Abduljabbar, A. S. (2016). Smartphone addiction among university students in the light of some variables. *Computers in Human Behavior, 61*, 155–164. doi:**http://dx.doi.org/10.1016/j.chb.2016.03.041**

Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior, 49*, 111–119.

Ames, M. G. (2013). Managing mobile multitasking: The culture of iPhones on Stanford campus. *Proceedings of the 2013 conference on computer supported cooperative work* (pp. 1487–1498). doi:10.1145/2441776.2441945

Arıcak, O. T., Dündar, Ş., & Saldaña, M. (2015). Mediating effect of self-acceptance between values and offline/online identity expressions among college students. *Computers in Human Behavior, 49*, 362–374.

Axelsson, A. S. (2010). Perpetual and personal: Swedish young adults and their use of mobile phones. *New Media & Society, 12*(1), 35–54.

Bian, M. & Leung, L. (2015). Linking loneliness, shyness, smartphone addiction symptoms, and patterns of smartphone use to social capital. *Social Science Computer Review, 33*(1), 61–79.

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**

boyd, d. (2015). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.

Brown, C., Czerniewicz, L., & Noakes, T. (2016). Online content creation: Looking at students' social media practices through a Connected Learning lens. *Learning, Media and Technology, 41*(1), 140–159.

Castillo-Manzano, J. I., Castro-Nuño, M., L¢pez-Valpuesta, L., Sanz-D¡az, M. T., & Yñiguez, R. (2017). To take or not to take the laptop or tablet to classes, that is the question. *Computers in Human Behavior, 68*, 326–333.

Chen, B. & Marcus, J. (2012). Students' self-presentation on Facebook: An examination of personality and self-construal factors. *Computers in Human Behavior, 28*(6), 2091–2099.

Chen, L., Yan, Z., Tang, W., Yang, F., Xie, X., & He, J. (2016). Mobile phone addiction levels and negative emotions among Chinese young adults: The mediating role of interpersonal problems. *Computers in Human Behavior, 55*, 856–866.

Chiu, S. I. (2014). The relationship between life stress and smartphone addiction on Taiwanese university student: A mediation model of learning self-efficacy and social self-efficacy. *Computers in Human Behavior, 34*, 49–57.

Choi, E. P., Wong, J. Y., Lo, H. H., Wong, W., Chio, J. H., & Fong, D. Y. (2017). Association between using smartphone dating applications and alcohol and recreational drug use in conjunction with sexual activities in college students. *Substance Use & Misuse, 52*(4), 422–428.

Crosslin, K. & Golman, M. (2014). "Maybe you don't want to face it": College students' perspectives on cyberbullying. *Computers in Human Behavior, 41*, 14–20.

(p. 283) Dalbudak, E., Evren, C., Aldemir, S., Taymur, I., Evren, B., & Topcu, M. (2015). The impact of sensation seeking on the relationship between attention deficit/hyperactivity symptoms and severity of Internet addiction risk. *Psychiatry Research, 228*(1), 156–161.

Dalton, J. C. & Crosby, P. C. (2013). Digital identity: How social media are influencing student learning and development in college. *Journal of College and Character, 14*(1), 1–4. doi:10.1515/jcc-2013–0001

Davis, K. (2011). A life in bits and bytes: A portrait of a college student and her life with digital media. *Teachers College Record, 113*(9), 1960–1982.

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.

Demirci, K., Akgönül, M., & Akpinar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. *Journal of Behavioral Addictions, 4*(2), 85–92.

Dockrell, S., Bennett, K., & Culleton-Quinn, E. (2015). Computer use and musculoskeletal symptoms among undergraduate university students. *Computers & Education, 85*, 102–109.

Duarte-Hueros, J., Duarte-Hueros, A., & Ruano-Lopez, S. (2016). The audiovisual content downloads among university students. *Comunicar, 48*.

Fan, Y., Gong, S., Wang, Y., & Wang, Z. (2017). The effects of learning task and learners' metacognition on college students' media multitasking behaviors. *Advances in Psychology, 7*(7), 895–902.

Fasae, J. K. & Adegbilero-Iwari, I. (2015). Mobile devices for academic practices by students of college of sciences in selected Nigerian private universities. *The Electronic Library, 33*(4), 749–759.

Flanagin, A. E. & Babchuk, W. A. (2015). Social media as academic quicksand: A phenomenological study of student experiences in and out of the classroom. *Learning and Individual Differences, 44*, 40–45. doi:**http://dx.doi.org/10.1016/j.lindif.2015.11.003**

Floros, G., Siomos, K., Stogiannidou, A., Giouzepas, I., & Garyfallos, G. (2014). The relationship between personality, defense styles, internet addiction disorder, and psychopathology in college students. *Cyberpsychology, Behavior, and Social Networking, 17*(10), 672–676.

Gökçearslan, Ş., Mumcu, F. K., Haşlaman, T., & Çevik, Y. D. (2016). Modelling smartphone addiction: The role of smartphone usage, self-regulation, general self-efficacy and cyber-

loafing in university students. *Computers in Human Behavior, 63*, 639–649. doi:**http://dx.doi.org/10.1016/j.chb.2016.05.091**

Goode, J. (2010). The digital identity divide: How technology knowledge impacts college students. *New Media & Society, 12*(3), 497–513.

Gray, R., Vitak, J., Easton, E. W., & Ellison, N. B. (2013). Examining social adjustment to college in the age of social media: Factors influencing successful transitions and persistence. *Computers & Education, 67*, 193–207.

Hassell, M. D. & Sukalich, M. F. (2016). A deeper look into the complex relationship between social media use and academic outcomes and attitudes. *Information Research: An International Electronic Journal, 21*(4), n4.

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.

(p. 284) Hoy, M. G. & Milne, G. (2010). Gender differences in privacy-related measures for young adult Facebook users. *Journal of Interactive Advertising, 10*(2), 28–45. doi: 10.1080/15252019.2010.10722168

Hussain, Z., Griffiths, M. D., & Sheffield, D. (2017). An investigation into problematic smartphone use: The role of narcissism, anxiety, and personality factors. *Journal of Behavioral Addictions, 6*(3), 378–386.

Ishii, K., Rife, T. S., & Kagawa, N. (2017). Technology-driven gratifications sought through text-messaging among college students in the US and Japan. *Computers in Human Behavior, 69*, 396–404.

Jacobsen, W. C. & Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students. *Cyberpsychology, Behavior, and Social Networking, 14*(5), 275–280.

Jarvi, S. M., Swenson, L. P., & Batejan, K. L. (2017). Motivation for and use of social networking sites: Comparisons among college students with and without histories of non-suicidal self-injury. *Journal of American College Health, 65*(5), 306–312.

Jiang, Z., & Shi, M. (2016). Prevalence and co-occurrence of compulsive buying, problematic Internet and mobile phone use in college students in Yantai, China: Relevance of self-traits. *BMC Public Health*, *16*(1), 1211.

Johnson, C. A. (2015). *The information diet: A case for conscious consumption*. Sebastopol, CA: O'Reilly Media, Inc.

Judd, T. (2014). Making sense of multitasking: The role of Facebook. *Computers & Education, 70*, 194–202.

Junco, R. (2012). In-class multitasking and academic performance. *Computers in Human Behavior, 28*(6), 2236–2243. doi:**http://dx.doi.org/10.1016/j.chb.2012.06.031**

Kim, B. & Kim, Y. (2017). College students' social media use and communication network heterogeneity: Implications for social capital and subjective well-being. *Computers in Human Behavior, 73*, 620–628.

Kim, J. & Lee, J.-E. R. (2011). The Facebook paths to happiness: Effects of the number of Facebook friends and self-presentation on subjective well-being. *Cyberpsychology, Behavior, and Social Networking, 14*(6), 359–364. doi: 10.1089/cyber.2010.0374

Kuang-Tsan, C. & Fu-Yuan, H. (2017). Study on relationship among university students' life stress, smart mobile phone addiction, and life satisfaction. *Journal of Adult Development, 24*(2), 109–118.

Kuznekoff, J. & Titsworth, S. (2013). The impact of mobile phone usage on student learning. *Communication Education, 62*(3), 233–252.

Li, W., O'Brien, J. E., Snyder, S. M., & Howard, M. O. (2015). Characteristics of internet addiction/pathological internet use in US university students: A qualitative-method investigation. *PloS One, 10*(2), e0117372.

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

Marlowe, J. M., Bartley, A., & Collins, F. (2017). Digital belongings: The intersections of social cohesion, connectivity and digital media. *Ethnicities, 17*(1), 85–102.

Meier, A., Reinecke, L., & Meltzer, C. E. (2016). "Facebocrastination"? Predictors of using Facebook for procrastination and its effects on students' well-being. *Computers in Human Behavior, 64*, 65–76. doi:**http://dx.doi.org/10.1016/j.chb.2016.06.011**

(p. 285) Moreno, M. A., Swanson, M. J., Royer, H., & Roberts, L. J. (2011). Sexpectations: Male college students' views about displayed sexual references on females' social networking web sites. *Journal of Pediatric and Adolescent Gynecology, 24*(2), 85–89.

Park, S., Lee, S. W., Kwak, J., Cha, M., & Jeong, B. (2013). Activities on Facebook reveal the depressive state of users. *Journal of Medical Internet Research, 15*(10).

Picone, I. (2017). Conceptualizing media users across media: The case for 'media user/use' as analytical concepts. *Convergence*, *23*(4), 378–390.

Pilli, O. (2015). The changes in social media usage: Students' perspective. *The Anthropologist, 22*(2), 345–354.

Polo, M. I., Lázaro, S. M., del Barco, B. L., & Castaño, E. F. (2017). Mobile abuse in university students and profiles of victimization and aggression. *Adicciones, 29*(4), 245–255. [Full article in Spanish]

Punyanunt-Carter, N. M., De La Cruz, J. J., & Wrench, J. S. (2017). Investigating the relationships among college students' satisfaction, addiction, needs, communication apprehension, motives, and uses & gratifications with Snapchat. *Computers in Human Behavior, 75*, 870–875.

Rowan-Kenyon, H. T, & Alemán, A. M. M. (2018). *Technology and engagement: Making technology work for first generation college students*. New Brunswick, NJ: Rutgers University Press.

Sponcil, M. & Gitimu, P. (2013). Use of social media by college students: Relationship to communication and self-concept. *Journal of Technology Research, 4*, 1–13.

Tandoc, E. C., Ferrucci, P. & Duffy, M. (2015). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior, 43*, 139–146.

Thomas, L., Briggs, P., Hart, A., & Kerrigan, F. (2017). Understanding social media and identity work in young people transitioning to university. *Computers in Human Behavior*, *76*, 541–553.

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York, NY: Basic Books.

Virden, A. L., Trujillo, A., & Predeger, E. (2014). Young adult females' perceptions of high-risk social media behaviors: A focus-group approach. *Journal of Community Health Nursing, 31*(3), 133–144.

Vorderer, P., Krömer, N., & Schneider, F. M. (2016). Permanently online—Permanently connected: Explorations into university students' use of social media and mobile smart devices. *Computers in Human Behavior, 63*, 694–703.

Wohn, D. Y. & LaRose, R. (2014). Effects of loneliness and differential usage of Facebook on college adjustment of first-year students. *Computers & Education, 76*, 158–167.

Wu, J. Y. (2015). University students' motivated attention and use of regulation strategies on social media. *Computers & Education, 89*, 75–90.

Yang, H. C. (2014). Young people's friendship and love relationships and technology: New practices of intimacy and rethinking feminism. *Asian Journal of Women's Studies, 20*(1), 93–124.

Yang, T., Yu, L., Oliffe, J. L., Jiang, S., & Si, Q. (2017). Regional contextual determinants of internet addiction among college students: A representative nationwide study of China. *The European Journal of Public Health, 27*(6), 1032–1037.

Yao, M. Z., He, J., Ko, D. M., & Pang, K. (2014). The influence of personality, parental behaviors, and self-esteem on Internet addiction: A study of Chinese college students. *Cyberpsychology, Behavior, and Social Networking, 17*(2), 104–110.

Appendix: Publications Analyzed

Abeele, M. V., & Roe, K. (2011). New life, old friends: A cross-cultural comparison of the use of communication technologies in the social life of college freshmen. *Young*, *19*(2), 219–240.

Aharony, N. (2015). What's App: A social capital perspective. *Online Information Review, 39*(1), 26–42.

Aharony, N. (2017). Factors affecting LIS Israeli students' mobile phone use: an exploratory study. *The Electronic Library, 35*(6), 1098–1121.

Akçayır, M., Dündar, H., & Akçayır, G. (2016). What makes you a digital native? Is it enough to be born after 1980? *Computers in Human Behavior, 60*, 435–440.

Aker, S., Sahin, M. K., Sezgin, S., & Oguz, G. (2017). Psychosocial factors affecting smartphone addiction in university students. *Journal of Addictions Nursing*, *28*(4), 215–219.

Aladwani, A. M., & Almarzouq, M. (2016). Understanding compulsive social media use: The premise of complementing self-conceptions mismatch with technology. *Computers in Human Behavior, 60*, 575–581.

Al-Gamal, E., Alzayyat, A., & Ahmad, M. M. (2016). Prevalence of internet addiction and its association with psychological distress and coping strategies among university students in Jordan. *Perspectives in Psychiatric Care, 52*(1), 49–61.

Aljomaa, S. S., Al.Qudah, M. F., Albursan, I. S., Bakhiet, S. F., & Abduljabbar, A. S. (2016). Smartphone addiction among university students in the light of some variables. *Computers in Human Behavior, 61*, 155–164. doi:**http://dx.doi.org/10.1016/j.chb.2016.03.041**

Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior*, *49*, 111–119.

Alwagait, E., Shahzad, B., & Alim, S. (2015). Impact of social media usage on students' academic performance in Saudi Arabia. *Computers in Human Behavior*, *51*, 1092–1097.

Alzayyat, A., Al-Gamal, E., & Ahmad, M. M. (2015). Psychosocial correlates of Internet addiction among Jordanian university students. *Journal of Psychosocial Nursing and Mental Health Services, 53*(4), 43–51.

Amankwah, F. N., & Ha, L. (2015). Smartphones and self-broadcasting among college students in an age of social media. In A. Mesquita & C-W Tsai (Eds.), *Human behavior, psy-*

chology, and social interaction in the digital era (pp. 95–128). Hershey, PA: IGI Global. doi: 10.4018/978-1-4666-8450-8.

Ames, M. G. (2013). Managing mobile multitasking: The culture of iPhones on Stanford campus. *Proceedings of the 2013 conference on computer supported cooperative work*, 1487–1498. doi:10.1145/2441776.2441945

Annisette, L. E. & Lafreniere, K. D. (2017). Social media, texting, and personality: A test of the shallowing hypothesis. *Personality and Individual Differences, 115*, 154–158.

Arıcak, O. T., Dündar, Ş., & Saldaña, M. (2015). Mediating effect of self-acceptance between values and offline/online identity expressions among college students. *Computers in Human Behavior*, *49*, 362–374.

Armstrong, A., Thomas, J., & Smith, M. (2017). College students' experiences with anonymous social media: Implications for campus racial climate. *Journal of College Student Development, 58*(7), 1101–1107.

Axelsson, A. S. (2010). Perpetual and personal: Swedish young adults and their use of mobile phones. *New Media & Society*, *12*(1), 35–54.

Barkley, J. E., & Lepp, A. (2016). Mobile phone use among college students is a sedentary leisure behavior which may interfere with exercise. *Computers in Human Behavior*, *56*, 29–33.

(p. 287) Bauman, S., & Baldasare, A. (2015). Cyber aggression among college students: Demographic differences, predictors of distress, and the role of the university. *Journal of College Student Development, 56*(4), 317–330.

Bennett, S., & Maton, K. (2010). Beyond the "digital natives" debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning, 26*(5), 321–331. doi:10.1111/j.1365–2729.2010.00360.x

Benson, V., Saridakis, G., & Tennakoon, H. (2015). Purpose of social networking use and victimisation: Are there any differences between university students and those not in HE? *Computers in Human Behavior*, *51*, 867–872.

Bian, M., & Leung, L. (2015). Linking loneliness, shyness, smartphone addiction symptoms, and patterns of smartphone use to social capital. *Social Science Computer Review, 33*(1), 61–79.

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**

Bjornsen, C. A., & Archer, K. J. (2015). Relations between college students' cell phone use during class and grades. *Scholarship of Teaching and Learning in Psychology*, *1*(4), 326–336.

Bobkowski, P., & Smith, J. (2013). Social media divide: characteristics of emerging adults who do not use social network websites. *Media, Culture & Society, 35*(6), 771–781.

Boswell, S. S. (2012). “I deserve success”: Academic entitlement attitudes and their relationships with course self-efficacy, social networking, and demographic variables. *Social Psychology of Education, 15*(3), 353–365.

Brown, C., Czerniewicz, L., & Noakes, T. (2016). Online content creation: Looking at students’ social media practices through a Connected Learning lens. *Learning, Media and Technology, 41*(1), 140–159.

Castillo-Manzano, J. I., Castro-Nuño, M., López-Valpuesta, L., Sanz-Díaz, M. T., & Yñiguez, R. (2017). To take or not to take the laptop or tablet to classes, that is the question. *Computers in Human Behavior*, *68*, 326–333.

Chang, C. S., Liu, E. Z. F., Sung, H. Y., Lin, C. H., Chen, N. S., & Cheng, S. S. (2014). Effects of online college student’s Internet self-efficacy on learning motivation and performance. *Innovations in Education and Teaching International, 51*(4), 366–377.

Chan-Olmsted, S., & Shay, R. (2016). Understanding tablet consumers: Exploring the factors that affect tablet and dual mobile device ownership. *Journalism & Mass Communication Quarterly*, *93*(4), 857–883.

Chen, B., & Marcus, J. (2012). Students’ self-presentation on Facebook: An examination of personality and self-construal factors. *Computers in Human Behavior*, *28*(6), 2091–2099.

Chen, L., Yan, Z., Tang, W., Yang, F., Xie, X., & He, J. (2016). Mobile phone addiction levels and negative emotions among Chinese young adults: the mediating role of interpersonal problems. *Computers in Human Behavior, 55*, 856–866.

Chi, X., Lin, L., & Zhang, P. (2016). Internet addiction among college students in china: Prevalence and psychosocial correlates. *Cyberpsychology, Behavior, and Social Networking, 19*(9), 567–573.

Chiu, S. I. (2014). The relationship between life stress and smartphone addiction on Taiwanese university student: A mediation model of learning self-efficacy and social self-efficacy. *Computers in Human Behavior*, *34*, 49–57.

Choi, E. P., Wong, J. Y., Lo, H. H., Wong, W., Chio, J. H., & Fong, D. Y. (2017). Association between using smartphone dating applications and alcohol and recreational drug use in (p. 288) conjunction with sexual activities in college students. *Substance Use & Misuse*, *52*(4), 422–428.

Choi, E. P., Wong, J. Y., Lo, H. H., Wong, W., Chio, J. H., & Fong, D. Y. (2016). The association between smartphone dating applications and college students’ casual sex encounters and condom use. *Sexual & Reproductive Healthcare, 9*, 38–41.

Choi, M., & Toma, C. L. (2017). Social sharing with friends and family after romantic breakups: Patterns of media use and effects on psychological well-being. *Journal of Media Psychology: Theories, Methods, and Applications*, *29*(3), 166–172.

Chou, C., Wu, H. C., & Chen, C. H. (2011). Re-visiting college students' attitudes toward the Internet-based on a 6-T model: Gender and grade level difference. *Computers & Education, 56*(4), 939–947.

Christakis, D. A., Moreno, M. M., Jelenchick, L., Myaing, M. T., & Zhou, C. (2011). Problematic internet usage in US college students: A pilot study *BMC Medicine, 9*, 77. doi: 10.1186/1741-7015-9-77

Clavio, G., & Walsh, P. (2014). Dimensions of social media utilization among college sport fans. *Communication & Sport*, *2*(3), 261–281.

Clayton, R. B., Osborne, R. E., Miller, B. K., & Oberle, C. D. (2013). Loneliness, anxiousness, and substance use as predictors of Facebook use. *Computers in Human Behavior, 29*(3), 687–693.

Crosslin, K., & Golman, M. (2014). "Maybe you don't want to face it"–College students' perspectives on cyberbullying. *Computers in Human Behavior*, *41*, 14–20.

Dalbudak, E., Evren, C., Topcu, M., Aldemir, S., Coskun, K. S., Bozkurt, M., … & Canbal, M. (2013). Relationship of Internet addiction with impulsivity and severity of psychopathology among Turkish university students. *Psychiatry Research, 210*(3), 1086–1091.

Dalbudak, E., Evren, C., Aldemir, S., Taymur, I., Evren, B., & Topcu, M. (2015). The impact of sensation seeking on the relationship between attention deficit/hyperactivity symptoms and severity of Internet addiction risk. Psychiatry Research, 228(1), 156–161.

Dalton, J. C., & Crosby, P. C. (2013). Digital identity: How social media are influencing student learning and development in college. *Journal of College and Character, 14*(1), 1–4. doi:10.1515/jcc-2013–0001

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.

Davila, J., Hershenberg, R., Feinstein, B. A., Gorman, K., Bhatia, V., & Starr, L. R. (2012). Frequency and quality of social networking among young adults: Associations with depressive symptoms, rumination, and corumination. *Psychology of Popular Media Culture, 1*(2), 72–86. **http://dx.doi.org/10.1037/a0027512**

Davis, K. (2011). A life in bits and bytes: A portrait of a college student and her life with digital media. *Teachers College Record*, *113*(9), 1960–1982.

De Leo, J. A., & Wulfert, E. (2013). Problematic Internet use and other risky behaviors in college students: An application of problem-behavior theory. *Psychology of Addictive Behaviors*, *27*(1), 133–141.

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.

Demirbilek, M. (2014). The "digital natives" debate: An investigation of the digital propensities of university students. *Eurasia Journal of Mathematics, Science & Technology Education*, *10*(2), 115–123.

(p. 289) Demirci, K., Akgönül, M., & Akpinar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. *Journal of Behavioral Addictions*, *4*(2), 85–92.

Demirhan, E., Randler, C., & Horzum, M. B. (2016). Is problematic mobile phone use explained by chronotype and personality? *Chronobiology International, 33*(7), 821–831.

Dockrell, S., Bennett, K., & Culleton-Quinn, E. (2015). Computer use and musculoskeletal symptoms among undergraduate university students. *Computers & Education*, *85*, 102–109.

Dong, G., Wang, J., Yang, X., & Zhou, H. (2013). Risk personality traits of Internet addiction: a longitudinal study of Internet-addicted Chinese university students. *Asia-Pacific Psychiatry, 5*(4), 316–321.

Duarte-Hueros, J., Duarte-Hueros, A., & Ruano-Lopez, S. (2016). The audiovisual content downloads among university students. *Comunicar, 48*.

Egan, K. G., & Moreno, M. A. (2011). Prevalence of stress references on college freshmen Facebook profiles. *Computers, Informatics, Nursing: CIN, 29*(10), 586–592.

Ekinci, B. (2014). The relationship between problematic internet entertainment use and problem solving skills among university students. *International Journal of Mental Health and Addiction, 12*(5), 607–617.

Fan, Y., Gong, S., Wang, Y., & Wang, Z. (2017). The effects of learning task and learners' metacognition on college students' media multitasking behaviors. *Advances in Psychology, 7*(7), 895–902.

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.

Fasae, J. K., & Adegbilero-Iwari, I. (2015). Mobile devices for academic practices by students of college of sciences in selected Nigerian private universities. *The Electronic Library, 33*(4), 749–759.

Flanagin, A. E. & Babchuk, W. A. (2015). Social media as academic quicksand: A phenomenological study of student experiences in and out of the classroom. *Learning and Individual Differences, 44*, 40–45. doi:**http://dx.doi.org/10.1016/j.lindif.2015.11.003**

Floros, G., Siomos, K., Stogiannidou, A., Giouzepas, I., & Garyfallos, G. (2014). The relationship between personality, defense styles, internet addiction disorder, and psychopathology in college students. *Cyberpsychology, Behavior, and Social Networking, 17*(10), 672–676.

Forbush, E., & Foucault-Welles, B. (2016). Social media use and adaptation among Chinese students beginning to study in the United States. *International Journal of Intercultural Relations*, *50*, 1–12.

Garett, R., Liu, S., & Young, S. D. (2018). The relationship between social media use and sleep quality among undergraduate students. *Information, Communication & Society*, *21*(2), 163–173.

Genctanirim Kurt, D. (2015). Suicide risk in college students: The effects of Internet addiction and drug use. *Educational Sciences: Theory and Practice, 15*(4), 841–848.

Gökçearslan, Ş., Mumcu, F. K., Haşlaman, T., & Çevik, Y. D. (2016). Modelling smartphone addiction: The role of smartphone usage, self-regulation, general self-efficacy and cyberloafing in university students. *Computers in Human Behavior, 63*, 639–649. doi:**http://dx.doi.org/10.1016/j.chb.2016.05.091**

(p. 290) Goode, J. (2010a). Mind the gap: The digital dimension of college access. *The Journal of Higher Education*, *81*(5), 583–618.

Goode, J. (2010b). The digital identity divide: How technology knowledge impacts college students. *New Media & Society*, *12*(3), 497–513.

Gray, R., Vitak, J., Easton, E. W., & Ellison, N. B. (2013). Examining social adjustment to college in the age of social media: Factors influencing successful transitions and persistence. *Computers & Education*, *67*, 193–207.

Han, L., Geng, J., Jou, M., Gao, F., & Yang, H. (2017). Relationship between shyness and mobile phone addiction in Chinese young adults: Mediating roles of self-control and attachment anxiety. *Computers in Human Behavior, 76*, 363–371.

Han, P., Wang, P., Lin, Q., Tian, Y., Gao, F., & Chen, Y. (2017). Reciprocal relationship between internet addiction and network-related maladaptive cognition among Chinese college freshmen: A longitudinal cross-lagged analysis. *Frontiers in Psychology, 8*, 1047.

Hassell, M. D., & Sukalich, M. F. (2016). A deeper look into the complex relationship between social media use and academic outcomes and attitudes. *Information Research: An International Electronic Journal*, *21*(4), n4.

Haug, S., Castro, R. P., Kwon, M., Filler, A., Kowatsch, T., & Schaub, M. P. (2015). Smartphone use and smartphone addiction among young people in Switzerland. *Journal of Behavioral Addictions, 4*(4), 299–307.

Haverila, M. J. (2011). Cell phone feature preferences and gender differences among college students. *International Journal of Mobile Communications*, *9*(4), 401–419.

Hawi, N. S., & Samaha, M. (2016). To excel or not to excel: Strong evidence on the adverse effect of smartphone addiction on academic performance. *Computers & Education*, *98*, 81–89.

Hawi, N. S., & Samaha, M. (2017). The relations among social media addiction, self-esteem, and life satisfaction in university students. *Social Science Computer Review*, *35*(5), 576–586.

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

Hendrickson, B., & Rosen, D. (2017). Insights into new media use by international students: Implications for cross-cultural adaptation theory. *Social Networking*, *6*, 81–106.

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.

Hou, J., Ndasauka, Y., Jiang, Y., Ye, Z., Wang, Y., Yang, L., … & Xu, F. (2017). Excessive use of WeChat, social interaction and locus of control among college students in China. *PloS One, 12*(8), e0183633.

Hoy, M. G., & Milne, G. (2010). Gender differences in privacy-related measures for young adult Facebook users. *Journal of Interactive Advertising, 10*(2), 28–45. doi: 10.1080/15252019.2010.10722168

Hussain, Z., Griffiths, M. D., & Sheffield, D. (2017). An investigation into problematic smartphone use: The role of narcissism, anxiety, and personality factors. *Journal of Behavioral Addictions, 6*(3), 378–386.

Ishii, K., Rife, T. S., & Kagawa, N. (2017). Technology-driven gratifications sought through text-messaging among college students in the US and Japan. *Computers in Human Behavior*, *69*, 396–404.

(p. 291) Jacobsen, W. C., & Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students. *Cyberpsychology, Behavior, and Social Networking*, *14*(5), 275–280.

Jarvi, S. M., Swenson, L. P., & Batejan, K. L. (2017). Motivation for and use of social networking sites: comparisons among college students with and without histories of non-suicidal self-injury. *Journal of American College Health*, *65*(5), 306–312.

Jenkins-Guarnieri, M. A., Wright, S. L., & Johnson, B. (2013). Development and validation of a social media use integration scale. *Psychology of Popular Media Culture*, *2*(1), 38–50.

Jiang, Z., & Shi, M. (2016). Prevalence and co-occurrence of compulsive buying, problematic Internet and mobile phone use in college students in Yantai, China: Relevance of self-traits. *BMC public health*, *16*(1), 1211.

Jiang, Z., & Zhao, X. (2016). Self-control and problematic mobile phone use in Chinese college students: The mediating role of mobile phone use patterns. *BMC psychiatry, 16*(1), 416.

Jiang, Z., & Zhao, X. (2017). Brain behavioral systems, self-control and problematic mobile phone use: The moderating role of gender and history of use. *Personality and Individual Differences, 106*, 111–116.

Johnston, K., Tanner, M., Lalla, N., & Kawalski, D. (2013). Social capital: the benefit of Facebook “friends”. *Behaviour & Information Technology*, *32*(1), 24–36.

Judd, T. (2014). Making sense of multitasking: The role of Facebook. *Computers & Education*, *70*, 194–202.

Junco, R. (2012a). In-class multitasking and academic performance. *Computers in Human Behavior, 28*(6), 2236–2243. doi:**http://dx.doi.org/10.1016/j.chb.2012.06.031**

Junco, R. (2012b). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, *58*(1), 162–171.

Kabasakal, Z. (2015). Life satisfaction and family functions as-predictors of problematic Internet use in university students. *Computers in Human Behavior*, *53*, 294–304.

Karadağ, E., Tosuntaş, Ş. B., Erzen, E., Duru, P., Bostan, N., Şahin, B. M., … & Babadağ, B. (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. *Journal of Behavioral Addictions, 4*(2), 60–74.

Katikalapudi, R., Chellappan, S., Montgomery, F., Wunsch, D., & Lutzen, K. (2012). Associating internet usage with depressive behavior among college students. IEEE *Technology and Society Magazine, 31*(4), 73–80.

Kim, B., & Kim, Y. (2017). College students' social media use and communication network heterogeneity: Implications for social capital and subjective well-being. *Computers in Human Behavior*, *73*, 620–628.

Kim, H. J., Min, J. Y., Kim, H. J., & Min, K. B. (2017). Accident risk associated with smartphone addiction: A study on university students in Korea. *Journal of Behavioral Addictions, 6*(4), 699–707.

Kim, J, & Lee, J.-E. R. (2011). The Facebook paths to happiness: Effects of the number of Facebook friends and self-presentation on subjective well-being. *Cyberpsychology, Behavior, and Social Networking, 14*(6), 359–364. doi: 10.1089/cyber.2010.0374

Kim, J. H., Kim, M. S., & Nam, Y. (2010). An analysis of self-construals, motivations, Facebook use, and user satisfaction. *International. Journal of Human–Computer Interaction, 26*(11–12), 1077–1099.

Kim, Y., Liu, Y., & Shan, Z. (2017). Beyond touchdown: College students' sports participation, social media use, college attachment, and psychological well-being. *Telematics and Informatics*, *34*(7), 895–903.

(p. 292) Kim, Y., Sohn, D., & Choi, S. M. (2011). Cultural difference in motivations for using social network sites: A comparative study of American and Korean college students. *Computers in Human Behavior*, *27*(1), 365–372.

Kim, Y., Wang, Y., & Oh, J. (2016). Digital media use and social engagement: How social media and smartphone use influence social activities of college students. *Cyberpsychology, Behavior, and Social Networking*, *19*(4), 264–269.

Kobus, M. B., Rietveld, P., & Van Ommeren, J. N. (2013). Ownership versus on-campus use of mobile IT devices by university students. *Computers & Education*, *68*, 29–41.

Koc, M., & Gulyagci, S. (2013). Facebook addiction among Turkish college students: The role of psychological health, demographic, and usage characteristics. *Cyberpsychology, Behavior, and Social Networking, 16*(4), 279–284.

Koh, H., & Mackert, M. (2016). A study exploring factors of decision to text while walking among college students based on Theory of Planned Behavior (TPB). *Journal of American College Health*, *64*(8), 619–627.

Kokkinos, C. M., Baltzidis, E., & Xynogala, D. (2016). Prevalence and personality correlates of Facebook bullying among university undergraduates. *Computers in Human Behavior*, *55*, 840–850.

Krasnova, H., Widjaja, T., Buxmann, P, Wenninger, H., & Benbasat, I. (2015). Why following friends can hurt you: An exploratory investigation of the effects of envy on social networking sites among college-age users. *Information Systems Research, 26*(3), 585–605.

Kuang-Tsan, C., & Fu-Yuan, H. (2017). Study on relationship among university students' life stress, smart mobile phone addiction, and life satisfaction. *Journal of Adult Development, 24*(2), 109–118.

Kuznekoff, J. & Titsworth, S. (2013). The impact of mobile phone usage on student learning. *Communication Education, 62*(3), 233–252.

Lachmann, B., Duke, É., Sariyska, R., & Montag, C. (2017). Who's addicted to the Smartphone and/or the Internet? *Psychology of Popular Media Culture,* (Nov 20).

Lau, W. W. (2017). Effects of social media usage and social media multitasking on the academic performance of university students. *Computers in Human Behavior*, *68*, 286–291.

Lee, E. B. (2015). Too much information: Heavy smartphone and Facebook utilization by African American young adults. *Journal of Black Studies*, *46*(1), 44–61.

Lee, K. S., & Chen, W. (2017). A long shadow: Cultural capital, techno-capital and networking skills of college students. *Computers in Human Behavior*, *70*, 67–73.

Lee-Johnson, Y. L., Jiang, Y., & Li, Y. (2016). Comparing the digital literacy repertoire among college students in China and the USA. *Quarterly Journal of Chinese Studies*, *4*(4), 64–80.

Lepp, A., Li, J., Barkley, J. E., & Salehi-Esfahani, S. (2015). Exploring the relationships between college students' cell phone use, personality and leisure. *Computers in Human Behavior*, *43*, 210–219.

Li, W., O'Brien, J. E., Snyder, S. M., & Howard, M. O. (2015). Characteristics of internet addiction/pathological internet use in US university students: A qualitative-method investigation. *PloS one*, *10*(2), e0117372.

Li, X., & Chen, W. (2014). Facebook or Renren? A comparative study of social networking site use and social capital among Chinese international students in the United States. *Computers in Human Behavior*, *35*, 116–123.

Lian, L., & You, X. (2017). Specific virtues as predictors of smartphone addiction among Chinese undergraduates. *Current Psychology*, *36*(2), 376–384.

(p. 293) Lian, L., You, X., Huang, J., & Yang, R. (2016). Who overuses Smartphones? Roles of virtues and parenting style in Smartphone addiction among Chinese college students. *Computers in Human Behavior*, *65*, 92–99.

Lin, J. H. (2015). The role of attachment style in Facebook use and social capital: Evidence from university students and a national sample. *Cyberpsychology, Behavior, and Social Networking*, *18*(3), 173–180.

Lin, J. H., Peng, W., Kim, M., Kim, S. Y., & LaRose, R. (2012). Social networking and adjustments among international students. *New Media & Society*, *14*(3), 421–440.

Lin, T. T., & Chiang, Y. H. (2017). Investigating predictors of smartphone dependency symptoms and effects on academic performance, improper phone use and perceived sociability. *International Journal of Mobile Communications*, *15*(6), 655–676.

Lin, Y., & Sackey, E. (2015). Use of Facebook: A Comparative Study of US American and Ghanaian College Students. *Communication Research Reports*, *32*(3), 281–286.

Liu, D., & Brown, B. B. (2014). Self-disclosure on social networking sites, positive feedback, and social capital among Chinese college students. *Computers in Human Behavior, 38*, 213–219.

Liu, D., Kirschner, P. A., & Karpinski, A. C. (2017). A meta-analysis of the relationship of academic performance and Social Network Site use among adolescents and young adults. *Computers in Human Behavior*, *77*, 148–157.

Long, J., Liu, T. Q., Liao, Y. H., Qi, C., He, H. Y., Chen, S. B., & Billieux, J. (2016). Prevalence and correlates of problematic smartphone use in a large random sample of Chinese undergraduates. *BMC psychiatry*, *16*(1), 408.

Madu, S. N., Otuka, C. C., & Adebayo, I. A. (2011). Attitude of male and female students towards the use of internet. *Gender and Behaviour*, *9*(1), 3817–3826.

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

Marlowe, J. M., Bartley, A., & Collins, F. (2017). Digital belongings: The intersections of social cohesion, connectivity and digital media. *Ethnicities, 17*(1), 85–102.

Meier, A., Reinecke, L., & Meltzer, C. E. (2016). "Facebocrastination"? Predictors of using Facebook for procrastination and its effects on students' well-being. *Computers in Human Behavior, 64*, 65–76. doi:**http://dx.doi.org/10.1016/j.chb.2016.06.011**

Michikyan, M., Subrahmanyam, K., & Dennis, J. (2015). Facebook use and academic performance among college students: A mixed-methods study with a multi-ethnic sample. *Computers in Human Behavior*, *45*, 265–272.

Mihailidis, P. (2014a). A tethered generation: Exploring the role of mobile phones in the daily life of young people. *Mobile Media & Communication*, *2*(1), 58–72.

Mihailidis, P. (2014b). The civic-social media disconnect: Exploring perceptions of social media for engagement in the daily life of college students. *Information, Communication & Society*, *17*(9), 1059–1071.

Miller, R. A. (2017). "My voice is definitely strongest in online communities": Students using social media for queer and disability identity-making. *Journal of College Student Development*, *58*(4), 509–525.

Miller, R., & Melton, J. (2015). College students and risk-taking behaviour on Twitter versus Facebook. *Behaviour & Information Technology*, *34*(7), 678–684.

Misra, S., & Stokols, D. (2012). Psychological and health outcomes of perceived information overload. *Environment and Behavior, 44*(6), 737–759.

(p. 294) Mitchell, M. E., Lebow, J. R., Uribe, R., Grathouse, H., & Shoger, W. (2011). Internet use, happiness, social support and introversion: A more fine grained analysis of person variables and internet activity. *Computers in Human Behavior, 27*(5), 1857–1861.

Mok, J. Y., Choi, S. W., Kim, D. J., Choi, J. S., Lee, J., Ahn, H., … & Song, W. Y. (2014). Latent class analysis on internet and smartphone addiction in college students. *Neuropsychiatric Disease and Treatment*, *10*, 817–827.

Monacis, L., de Palo, V., Griffiths, M. D., & Sinatra, M. (2017). Exploring individual differences in online addictions: The role of identity and attachment. *International Journal of Mental Health And Addiction, 15*(4), 853–868.

Montagni, I., Guichard, E., & Kurth, T. (2016). Association of screen time with self-perceived attention problems and hyperactivity levels in French students: A cross-sectional study. *BMJ open*, *6*(2), e009089.

Moreno, M. A., Jelenchick, L. A., & Breland, D. J. (2015). Exploring depression and problematic internet use among college females: A multisite study. *Computers in Human Behavior, 49*, 601–607.

Moreno, M. A., Jelenchick, L. A., & Christakis, D. A. (2013). Problematic internet use among older adolescents: A conceptual framework. *Computers in Human Behavior, 29*(4), 1879–1887.

Moreno, M. A., Jelenchick, L., Koff, R., Eikoff, J., Diermyer, C., & Christakis, D. A. (2012). Internet use and multitasking among older adolescents: An experience sampling approach. *Computers in Human Behavior*, *28*(4), 1097–1102.

Moreno, M. A., Swanson, M. J., Royer, H., & Roberts, L. J. (2011). Sexpectations: Male college students' views about displayed sexual references on females' social networking web sites. *Journal of Pediatric and Adolescent Gynecology, 24*(2), 85–89.

Morreale, S., Staley, C., Stavrositu, C., & Krakowiak, M. (2015). First-year college students' attitudes toward communication technologies and their perceptions of communication competence in the 21st Century. *Communication Education*, *64*(1), 107–131.

Noh, D., & Kim, S. (2016). Dysfunctional attitude mediates the relationship between psychopathology and Internet addiction among Korean college students: A cross-sectional observational study. *International Journal of Mental Health Nursing, 25*(6), 588–597.

Odacı, H., & Kalkan, M. (2010). Problematic Internet use, loneliness and dating anxiety among young adult university students. *Computers & Education*, *55*(3), 1091–1097.

Oh, S., & Kim, S. (2014). College students' use of social media for health in the USA and Korea. *Information Research: An International Electronic Journal*, *19*(4), n4, article 643.

Orzech, K. M., Grandner, M. A., Roane, B. M., & Carskadon, M. A. (2016). Digital media use in the 2 h before bedtime is associated with sleep variables in university students. *Computers in Human Behavior*, *55*, 43–50.

Ouyang, Z., Wang, Y., & Yu, H. (2017). Internet use in young adult males: From the perspective of pursuing well-being. *Current Psychology, 36*(4), 840–848.

Pak, R., Rovira, E., McLaughlin, A. C., & Leidheiser, W. (2017). Evaluating attitudes and experience with emerging technology in cadets and civilian undergraduates. *Military Psychology*, *29*(5), 448–455.

Panek, E. T., Nardis, Y., & Konrath, S. (2013). Mirror or Megaphone?: How relationships between narcissism and social networking site use differ on Facebook and Twitter. *Computers in Human Behavior*, *29*(5), 2004–2012.

Park, N., Song, H., & Lee, K. M. (2014). Social networking sites and other media use, acculturation stress, and psychological well-being among East Asian college students in the United States. *Computers in Human Behavior*, *36*, 138–146.

(p. 295) Park, S., Lee, S. W., Kwak, J., Cha, M., & Jeong, B. (2013). Activities on Facebook reveal the depressive state of users. *Journal of Medical Internet Research, 15*(10).

Percheski, C., & Hargittai, E. (2011). Health information-seeking in the digital age. *Journal of American College Health*, *59*(5), 379–386.

Pilli, O. (2015). The changes in social media usage: students' perspective. *The Anthropologist*, *22*(2), 345–354.

Polo, M. I., Lázaro, S. M., del Barco, B. L., & Castaño, E. F. (2017). Mobile abuse in university students and profiles of victimization and aggression. *Adicciones*, *29*(4), 245–255.

Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., & James, A. E. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among U.S. young adults. *Computers in Human Behavior*, *69*, 1–9.

Punyanunt-Carter, N. M., De La Cruz, J. J., & Wrench, J. S. (2017). Investigating the relationships among college students' satisfaction, addiction, needs, communication apprehension, motives, and uses & gratifications with Snapchat. *Computers in Human Behavior*, *75*, 870–875.

Raacke, J., & Bonds-Raacke, J. (2015). Are students really connected? Predicting college adjustment from social network usage. *Educational Psychology*, *35*(7), 819–834.

Ragan, E. D., Jennings, S. R., Massey, J. D., & Doolittle, P. E. (2014). Unregulated use of laptops over time in large lecture classes. *Computers & Education*, *78*, 78–86.

Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior*, *63*, 604–612.

Rayan, A., Dadoul, A. M., Jabareen, H., Sulieman, Z., Alzayyat, A., & Baker, O. (2017). Internet use among university students in South West Bank: Prevalence, advantages and disadvantages, and association with psychological health. *International Journal of Mental Health and Addiction, 15*(1), 118–129.

Reed, L. A., Tolman, R. M., & Safyer, P. (2015). Too close for comfort: Attachment insecurity and electronic intrusion in college students' dating relationships. *Computers in Human Behavior*, *50*, 431–438.

Roberts, J. A., & Pirog III, S. F. (2012). A preliminary investigation of materialism and impulsiveness as predictors of technological addictions among young adults. *Journal of Behavioral Addictions, 2*(1), 56–62.

Roberts, J. A., Petnji Yaya, L. H., & Manolis, C. (2014). The invisible addiction: Cell-phone activities and addiction among male and female college students. *Journal of Behavioral Addictions, 3*(4), 254–265. doi:10.1556/JBA.3.2014.015

Roberts, N., & Rees, M. (2014). Student use of mobile devices in university lectures. *Australasian Journal of Educational Technology*, *30*(4), 415–426.

Rowan-Kenyon, H. T., & Alemán, A. M. M. (2018). *Technology and engagement: Making technology work for first generation college students*. New Brunswick, NJ: Rutgers University Press.

Rutledge, C. M., Gillmor, K. L., & Gillen, M. M. (2013). Does this profile picture make me look fat? Facebook and body image in college students. *Psychology of Popular Media Culture*, *2*(4), 251–258.

Samaha, M., & Hawi, N. S. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior, 57*, 321–325.

Sánchez, R. A., Cortijo, V., & Javed, U. (2014). Students' perceptions of Facebook for academic purposes. *Computers & Education*, *70*, 138–149.

(p. 296) Selkie, E. M., Kota, R., Chan, Y. F., & Moreno, M. (2015). Cyberbullying, depression, and problem alcohol use in female college students: A multisite study. *Cyberpsychology, Behavior, and Social Networking, 18*(2), 79–86.

Selwyn, N. (2016). Digital downsides: exploring university students' negative engagements with digital technology. *Teaching in Higher Education*, *21*(8), 1006–1021.

Servidio, R. (2014). Exploring the effects of demographic factors, Internet usage and personality traits on Internet addiction in a sample of Italian university students. *Computers in Human Behavior, 35*, 85–92.

Sevillano-García, M. L., Quicios-García, M. P., & González-García, J. L. (2016). The ubiquitous possibilities of the laptop: Spanish university students' perceptions/Posibilidades ubicuas del ordenador portátil: percepción de estudiantes universitarios españoles. *Comunicar, 24*(46), 87–94.

Sheldon, P. (2013). Voices that cannot be heard: Can shyness explain how we communicate on Facebook versus face-to-face? *Computers in Human Behavior, 29*(4), 1402–1407.

Smith, E. E. (2016). "A real double-edged sword:" Undergraduate perceptions of social media in their learning. *Computers & Education*, *103*, 44–58.

Smith, R., Morgan, J., & Monks, C. (2017). Students' perceptions of the effect of social media ostracism on wellbeing. *Computers in Human Behavior, 68*, 276–285.

Sponcil, M. & Gitimu, P. (2013). Use of social media by college students: Relationship to communication and self-concept. *Journal of Technology Research, 4*, 1–13.

Tandoc, E. C., Ferrucci, P. & Duffy, M. (2015). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior, 43*, 139–146.

Taylor, D. G., Voelker, T. A. & Pentina, I. (2011). Mobile application adoption by young adults: A social network perspective. *International Journal of Mobile Marketing,* 6(2), 60–70.

Teoh, A. N., Chong, L. X., Yip, C. C. E., Lee, P. S. H., & Wong, J. W. K. (2015). Gender as moderator of the effects of online social support from friends and strangers: A study of Singaporean college students. International *Perspectives in Psychology: Research, Practice, Consultation, 4*(4), 254–266.

Thinyane, H. (2010). Are digital natives a world-wide phenomenon? An investigation into South African first year students' use and experience with technology. *Computers & Education*, *55*(1), 406–414.

Thomas, L., Briggs, P., Hart, A., & Kerrigan, F. (2017). Understanding social media and identity work in young people transitioning to university. *Computers in Human Behavior*, *76*, 541–553.

Tu, B. M., Wu, H. C., Hsieh, C., & Chen, P. H. (2011). Establishing new friendships- from face-to-face to facebook: A case study of college students. *Proceedings of the 44th Hawaii International Conference on System Sciences*, Kauai, 4–7 January 2011, 1–10.

Turan, Z. (2013). The reasons for non-use of social networking websites by university students. *Comunicar*, *21*(41), 137–145.

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York, NY: Basic Books.

Tynes, B. M., Rose, C. A., & Markoe, S. L. (2013). Extending campus life to the Internet: Social media, discrimination, and perceptions of racial climate. *Journal of Diversity in Higher Education, 6*(2), 102–114.

Villanti, A. C., Johnson, A. L., Ilakkuvan, V., Jacobs, M. A., Graham, A. L., & Rath, J. M. (2017). Social media use and access to digital technology in US young adults in 2016. *Journal of Medical Internet Research*, *19*(6). e196

(p. 297) Virden, A. L., Trujillo, A., & Predeger, E. (2014). Young adult females' perceptions of high-risk social media behaviors: A focus-group approach. *Journal of Community Health Nursing, 31*(3), 133–144.

Vorderer, P., Krömer, N., & Schneider, F. M. (2016). Permanently online–Permanently connected: Explorations into university students' use of social media and mobile smart devices. *Computers in Human Behavior*, *63*, 694–703.

Wang, H., Chua, V., & Stefanone, M. A. (2015). Social ties, communication channels, and personal well-being: A study of the networked lives of college students in Singapore. *American Behavioral Scientist*, *59*, 1189–1202. doi: 10.1177/0002764215580590

Wang, J. L., Wang, H. Z., Gaskin, J., & Wang, L. H. (2015). The role of stress and motivation in problematic smartphone use among college students. *Computers in Human Behavior*, *53*, 181–188.

Wang, J.-L., Jackson, L. A., Gaskin, J., & Wang, H.-Z. (2014). The effects of Social Networking Site (SNS) use on college students' friendship and wellbeing. *Computers in Human Behavior, 37*(August), 229–236.

Wang, Y., Niiya, M., Mark, G., Reich, S., & Warschauer, M. (2015). Coming of age (digitally): An ecological view of social media use among college students. *Proceedings of CSCW*, 571–582. doi:10.1145/2675133.2675271

Wang, Z., Tchernev, J. M., & Solloway, T. (2012). A dynamic longitudinal examination of social media use, needs, and gratifications among college students. *Computers in Human Behavior*, *28*(5), 1829–1839.

Wei, R., Lo, V. H., Xu, X., Chen, Y. N. K., & Zhang, G. (2014). Predicting mobile news use among college students: The role of press freedom in four Asian cities. N*ew Media & Society*, *16*(4), 637–654.

Wendorf, J. E., & Yang, F. (2015). Benefits of a negative post: Effects of computer-mediated venting on relationship maintenance. *Computers in Human Behavior, 52*, 271–277.

Whitehill, J. M., Brockman, L. N., & Moreno, M. A. (2013). “Just talk to me”: Communicating with college students about depression disclosures on Facebook. *Journal of Adolescent Health*, *52*(1), 122–127.

Wilmer, H. H., & Chein, J. M. (2016). Mobile technology habits: patterns of association among device usage, intertemporal preference, impulse control, and reward sensitivity. *Psychonomic Bulletin & Review*, *23*(5), 1607–1614. doi:10.3758/s13423-016-1011-z

Wohn, D. Y., & LaRose, R. (2014). Effects of loneliness and differential usage of Facebook on college adjustment of first-year students. *Computers & Education*, *76*, 158–167.

Wu, J. Y. (2015). University students’ motivated attention and use of regulation strategies on social media. *Computers & Education, 89*, 75–90.

Wu, J. Y. (2017). The indirect relationship of media multitasking self-efficacy on learning performance within the personal learning environment: Implications from the mechanism of perceived attention problems and self-regulation strategies. *Computers & Education*, *106*, 56–72.

Xu, S., Wang, Z. J., & David, P. (2016). Media multitasking and well-being of university students. *Computers in Human Behavior*, *55*, 242–250.

Xu, X., Lin, Q., Zhang, Y., Zhu, R., Sharma, M., & Zhao, Y. (2016). Influence of WeChat on sleep quality among undergraduates in Chongqing, China: A cross-sectional study. *SpringerPlus*, *5*(1), 2066.

Yang, C. C., & Brown, B. B. (2013). Motives for using Facebook, patterns of Facebook activities, and late adolescents’ social adjustment to college. *Journal of Youth and Adolescence, 42*(3), 403–416.

(p. 298) Yang, C. C., & Brown, B. B. (2015). Factors involved in associations between Facebook use and college adjustment: Social competence, perceived usefulness, and use patterns. *Computers in Human Behavior*, *46*, 245–253.

Yang, H. C. (2014). Young people’s friendship and love relationships and technology: New practices of intimacy and rethinking feminism. *Asian Journal of Women’s Studies, 20*(1), 93–124.

Yang, T., Yu, L., Oliffe, J. L., Jiang, S., & Si, Q. (2017). Regional contextual determinants of internet addiction among college students: A representative nationwide study of China. *The European Journal of Public Health, 27*(6), 1032–1037.

Yao, B., Han, W., Zeng, L., & Guo, X. (2013). Freshman year mental health symptoms and level of adaptation as predictors of Internet addiction: A retrospective nested case-control study of male Chinese college students. *Psychiatry Research, 210*(2), 541–547.

Yao, M. Z., He, J., Ko, D. M., & Pang, K. (2014). The influence of personality, parental behaviors, and self-esteem on Internet addiction: A study of Chinese college students. *Cyberpsychology, Behavior, and Social Networking, 17*(2), 104–110.

Yubero, S., Navarro, R., Elche, M., Larrañaga, E., & Ovejero, A. (2017). Cyberbullying victimization in higher education: An exploratory analysis of its association with social and emotional factors among Spanish students. *Computers in Human Behavior, 75*, 439–449.

Yuchang, J., Cuicui, S., Junxiu, A., & Junyi, L. (2017). Attachment styles and smartphone addiction in chinese college students: The mediating roles of dysfunctional attitudes and self-esteem. *International Journal of Mental Health and Addiction, 15*(5), 1122–1134.

Yuen, E. K., Koterba, E. A., Stasio, M. J. (2018). The effects of Facebook on mood in emerging adults. *Psychology of Popular Media Culture*.

Zhang, Y., Mei, S., Li, L., Chai, J., Li, J., & Du, H. (2015). The relationship between impulsivity and internet addiction in Chinese college students: A moderated mediation analysis of meaning in life and self-esteem. *PloS one, 10*(7), e0131597.

Zhu, R., & Krever, R. (2017). Media use and cultural adaptation by foreign students in Chinese universities. *Continuum*, *31*(2), 307–324.

Notes:

([1.]) We acknowledge support for data collection and software through Dr. Ronald E. Rice's endowed Arthur N. Rupe Professorship in the Social Effects of Mass Communication in the Department of Communication, UC Santa Barbara.

Ronald E. Rice

Ronald E. Rice (PhD, Stanford University, 1982) is the Arthur N. Rupe Chair in the Social Effects of Mass Communication in the Department of Communication at University of California, Santa Barbara. Dr. Rice has been awarded an Honorary Doctorate from University of Montreal (2010), an International Communication Association (ICA) Fellow, selected President of the ICA (2006–2007), awarded a Fulbright Award to Finland (2006), and appointed as the Wee Kim Wee Professor at the School of Communication and Information and the Visiting University Professor, both at Nanyang Technological University in Singapore (Augusts 2007–2009 and June 2010). His co-authored or co-edited books include Organizations and unusual routines: A systems analysis of dysfunctional feedback processes (2010); Media ownership: Research and regulation (2008); The Internet and health care: Theory, research and practice (2006); Social consequences of internet use: Access, involvement and interaction (2002); The Internet and health communication (2001); Accessing and browsing information and communication (2001); Public communication campaigns (1981, 1989, 2001, 2012); Research methods and the new media (1988); Managing organizational innovation (1987); And The new media: Communication, research and tech-

nology (1984). He has published over 150 refereed journal articles and 70 book chapters. Dr. Rice has conducted research and published widely in communication science, public communication campaigns, computer-mediated communication systems, methodology, organizational and management theory, information systems, information science and bibliometrics, social uses and effects of the Internet, and social networks. http://www.comm.ucsb.edu/people/ronald-e-rice

Nicole Zamanzadeh

Nicole Zamanzadeh received her PhD from the University of California, Santa Barbara. Her research interests include new media, stress, and family resilience. Her current work investigates questions about media use habits such as media multitasking as a potential source of stress or resilience for individuals and the family system.

Ingunn Hagen

Ingunn Hagen (PhD) is a Professor in Psychology at the Department of Psychology, Norwegian University of Science and Technology (NTNU), Trondheim, Norway. Her main research interests include topics related to media and communication psychology, such the role of media and ICT in children and young people’s lives. She has been involved in research projects on Internet-related risks (EU Kids Online). Her research also includes such fields as audience reception studies, political communication, consumption of popular culture, children and consumption, and yoga and well-being. See https://www.ntnui.edu/employees/ingunn.hagen