

## Response to the Reviewers' Comments

Thanks for the reviewers' valuable comments and suggestions, which help improve this manuscript substantially. The responses to each of them are listed as the follows:

Reviewer A:

**Comment:** *The introduction and literature review provide a good context for the research. In addition, the 'Uses and Gratifications' is a useful perspective to frame this study. There are, however, several issues that should be addressed by the authors, namely:*

- i) *The concept 'Web 2.0' is seen by a considerable number of researchers as one-dimensional and uncritical of the history and sociotechnical features of the Internet. If the authors do want to use the concept, please offer the reader a brief critical definition.*

**Response:** Web 2.0 is a big concept, which has many definitions and interpretations. But it is not a crucial concept in this study. SNS is a central concept. And the relationship between Web 2.0 and SNS is not a key issue in this study. Therefore, the revision does not use the undefined concept "Web 2.0".

**Comment:**

- ii) *A supporting reference is missing here "The major SNSs, such as Facebook, Twitter, and Sina Weibo are among the most accessed websites".*

**Response:** A reference was added in the text and reference list: "List of most popular websites. (n.d.)"

**Comment:**

- iii) *There is a robust body of research that questions the so-called "rational decisions on time allocation". Please check the rational choice theory and its criticisms.*

**Response:** The following paragraphs were added in the revision in regard of the rational choice theory and its criticisms:

"No matter what people use ICTs or non-ICT media for, and no matter to what extent the multitasking is, it is evident that people spend a huge amount of time on media platforms. As time is a limited resource, it is worthwhile to analyze how people allocate their time on media activities and other non-media activities, on different media platforms, and on different activities on the same media platform. The rational choice theory provides a useful perspective to explore these questions. The rational choice theory is a framework that theorizes and models social and economic behaviors. In economics, the rational choice theory posits an individual pursues the maximum utility by choosing the best choice among alternatives, and his/her preferences among alternative choices plays a central role in the best choice selection (Blume & Easley, 2008). Economic theory

defines utility as “how consumers rank different goods and services” (Samuelson & Nordhaus, 2004, p.84), and preference as the representation of “a variety of cultural and historical influences”, and this term may reflect “genuine psychological or physiological needs” (p.48). Nevertheless, economic theory posits utility is not a psychological function (Samuelson & Nordhaus, 2004). To overcome this contradiction, Samuelson (1938) proposed “revealed preference” by arguing that an individual’s preferences are exhibited by his/her purchase choices under the rationality assumption. However, this construct has raised some criticisms. For instance, Mishan (1961) argued that it has nothing to do with preference and simply is a shorthand description of consumers’ choices. To address this contradiction, some economist developed the theory of bounded rationality in order to incorporate psychological factors without abandoning the concept of rationality (Gigerenzer & Selten, 2002).

Notwithstanding its criticisms, the rational choice theory is still working as a fundamental framework of neoclassical economics. And it has been applied as a framework to analyze people’s time allocations among different activities.” (Page 8-9)

**Comment:**

- iv) *The authors could have engaged with the literature in a more critical way, particularly in relation to sharing information on SNS “in a timely and thoughtful manner” and discussing the difficulty in neatly separating work from leisure within SNSs use.*

**Response:** The following paragraph was added in the revision

“Although people obtain various gratifications from SNSs, the impacts of SNSs on their lives are not always positive. Besides the positive effects, such as building social capital (Valenzuela, Park, & Kee, 2008), strengthening weak ties and maintaining existing relationships (McEwan, 2013), boosting self-esteem (Toma & Hancock, 2013), and promoting social support (Nabi, Prestin, & So, 2013), scholars noted that SNSs could have negative effects. For example, SNS usage is related to exhibitionism (Wang & Stefanone, 2013), narcissism (Mehdizadeh, 2010), and voyeurism (Mäntymäki & Islam, 2014). Social comparisons made on SNSs can be detrimental to one’s self-esteem (Johnson & Knobloch-Westerwick, 2014). SNSs could be used as conduits for cyberbullying, stalking, and online harassment (Kwan & Skoric, 2013). And false news spread faster, deeper, and more broadly than true news on SNSs (Vosoughi, Roy, & Aral, 2018). To alleviate the negative effects, Moorcroft (2008) suggested that the bottom line is to use SNSs in a thoughtful manner. Some scholars also posited that the overall negative effects of SNSs are associated with the time spent on them. For example, Bevan, Gomez, and Sparks (2014) found the negative correlation between the time spent on Facebook and the quality of life. Kross et al. (2013) revealed the time spent on Facebook is associated with a significant decrease in well-being.” (Page 5-6).

**Comment:**

- v) *The influential work on time and technology by Judy Wajcman is missing and would offer a deeper understanding of this topic in the lit. review and discussion.*

**Response:** Wajcman’s works were discussed in the literature review and discussion section in the revision. In the literature review, they were cited along with other sources as the follows:

“Wajcman (2008) discussed the relationship between technological acceleration and the growing scarcity of time. She argued that information communication technologies (ICTs) have changed people’s time practices and transformed communication patterns and social networks.” (Page 6)

“Wajcman (2014) posited ICTs change the quality of work in terms of extending working time to leisure time and increase temp of work. And ICTs also intensify leisure because of multitasking/multiscreen activities. Therefore, she argued that ICTs are the major driver of time pressure. However, other research also argued that people could use ICTs for leisure at workplace. For example, Boczkowski (2010a) demonstrated that many people read online news in the office. Therefore, the boundary between work and leisure is becoming blurred (Wajcman, 2008). As one of the major ICT platforms, SNSs are further blending work and leisure. Specific SNSs have been created for professional connectivity, such as LinkedIn and Academia.edu. And SNSs have become a popular marketing platform and created their own niche in the business world (Ramsaran-Fowdar, & Fowdar, 2013).” (Page 7)

In the discussion, they were cited along with other sources as the follows:

“Wajcman (2008, 2014) argued that ICTs accelerate time pressure/scarcity by extending working time to leisure time and intensifying leisure. The significant association between working time and SNS production frequency for both the resident sample and student sample provided support for this argument. Although people with tight time budgets feel more time pressure/scarcity than people with loose time budgets, they are still engaged in producing more SNS content. Many of them would use leisure time to do this as the mobile media such as smartphone make SNS content production possible at any time and in any place. This production activity intensifies their leisure time.” (Page 22)

***Comment:***

*In the Method section, core information is missing:*

- *Information on type of statistical analysis – authors have to mention that they carried out correlation and regression analyses and which software was used.*

**Response:** The following paragraph was added in regard to the statistical method:

“Correlation and regression tests were conducted to find the answers for the research questions. The statistical software SPSS 20 was used to perform these tests.” (Page 16)

**Comment:**

*It is not clear why the authors chose these two samples – please explain rationale and comparative purposes. The resident sample could have also included students...More descriptive information is also needed regarding the sample characteristics; the reader needs sociodemographic data to assess and contextualize the results, specially since these are used as controls. How many female/male participants? Ages (range, average, and SD)? Income average? Etc.*

**Response:**

The reason for using both students and general population was because of the difference in social media use and the two population are non-overlapping as college students are not reachable by household mail surveys. We added this explanation in the method section as the follows:

“These two populations were chosen because college students are heavy social media users (Ha et al., 2018) while the general adult population are older and use less social media (Smith & Anderson 2018). Because college students typically do not stay at their parents’ home, they cannot be reached by regular household surveys.” (Page 13)

“None of the respondents in the mail household survey were college students.” (Page 14)

The description of demographics was added as the follows:

“The range of age of the resident respondents was 20-89. The average age was 54.87 (SD = 15.98). 46.46% of these respondents were males, and 53.54% of them were females. 52.2% of them were employed, and 47.8% of them were unemployed or retired. 30.5% of them had the household income under \$30,000; 27.4% of them had the household income between \$30,001-\$60,000; 19% of them had the household income between \$60,001-\$90,000; 18.6% of them had household income between \$90,001-\$150,000; and 4.4% of them had the household income over \$150,000. 2.7% of them had the education level of Grades 9-11; 21.2% of them had the education level of high School graduate or equivalent; 35.8% of them had the education level of 1 to 3 years of college or technical school; 19% of them had the education level of college graduation (4 years); 21.2% of them had attended or completed graduate school. 16.4% of them were single. 17.3% of them were divorced or separated. 58% of them were married or co-habituated with a partner. And 8.4% of them were widowed.

For the student sample, the range of age was 16-38. The average age was 19.60 (SD = 2.23). 43.91% of them were males, and 56.09% of them were females. 59.6% of them had the household income under \$30,000; 11.9% of them had the household income between \$30,001-\$60,000; 15% of them had the household income between \$60,001-\$90,000; 9.4% of them had household income between \$90,001-\$150,000; and 4.1% of them had the household income over \$150,000. 95.9% of them were single, and 4.1% of them were married of co-habituated with a partner.” (Page 16-17)

**Comment:** *The 20 items could be in a table to facilitate readability.*

**Response:** A new table (Table 1) was added to improve readability.

**Comment:** *There are five variables not “four variables” (p.12) included in the analysis.*

**Response:** Corrected

**Comment:** *Did an ethics committee/review board approve this study? Was the survey piloted? Or reviewed by a panel of experts?*

**Response:** The IRB of the university approved it before we conducted the study. We added this info in the manuscript. The survey questionnaire was pretested with a group of students and fine-tuned before the actual survey was implemented.

**Comment:**

*The results are reported in an organized and concise fashion; yet, there are a few inconsistencies that need to be clarified:*

- *In the first sentence, please add on average to “5.24 hours of working time”.*
- *In the first paragraph, last sentence, you report “consumption frequency” twice; second “consumption” should be production according to Table 1.*
- *Results from regression models should be reported as “associations” or “relationships”, not “correlations” or “correlated” – this needs to be corrected in the results and discussion section (and in the abstract as well).*
- *Were there no associations between sociodemographics and SNS activities or sociodemographics and working time?*

**Response:**

The suggestions have been incorporated in the revision. As shown in Table 3, there were more significant associations between sociodemographics and SNS production frequency. The associations between sociodemographics were reported in Figure 1. For the resident sample, age, gender, income (\$60,001-\$90,000), marital status (widowed), and education (graduate school) had significant associations with SNS production frequency. For the student sample, income (\$60,001-\$90,000) had significant association with SNS production frequency. For the resident sample, the significant correlation was also found between working time and income level ( $r = .27, p < .001$ ). These positive relationships suggest people with longer working time tend to be more successful in generating higher income.

**Comment:**

*The discussion, although interesting, also needs some work:*

- *I would be cautious with “SNSs are the place where content presumption takes place” (one of the places?) This is a strong statement with no supporting references.*

**Response:**

Previous study of Ritzer and Jurgenson (2010) has been added. “The place” was changed into “one of the places”.

**Comment:**

- *I am not convinced that “people with full time jobs (...) are more active in the society and may want to exert more influence through sharing and producing content”. Or that “employed people need to continuously add new content to SNSs” These come across as simplistic, not backed up by evidence, and should be better developed. Unemployed people could also need to use SNSs more often to build relationships, identities, and access resources...A critical stance on rational action/choice theories are needed here.*

**Response:**

These arguments and the relevant parts are revised based on the rational choice theory, time budget, and U&G theory as the follows:

“The rational choice theory, the time budget theory, as well as the U&G theory would work jointly to interpret this surprising finding.

The rational choice theory (in economics) posits that an individual pursues the maximum utility by choosing the best choice among alternatives (Blume & Easley, 2008). The time budget theory holds that an individual allocates time budget in the same manner as he/she does with income budget (Converse, 1968; Jackel & Wollscheid, 2007). These two theories are inherently jointed in the argument that an individual makes a rational decision to allocate his/her limited time among different activities in order to maximize his/her utilities. The U&G theory posits that one of the core functions of SNSs is building relationships and social identities. From an economic perspective, the relationships and identities people build on SNSs are the utilities obtained from SNSs.

Although both employed and unemployed people build relationships and identities on SNSs, the utilities they obtained are different. For the employed people, the persons with whom they build relationships with would most likely be colleagues, peers, customers, and stakeholders, who would have impacts on their professional careers. The social identities they build are most likely professional that are also crucial for their successes. For the unemployed people, the persons with whom they build relationships with would be much different from those of employed people. These persons are most likely their family members, relatives, and personal friends. And their social identities on SNSs are less likely professional. Therefore, the utilities the employed people get from SNSs are basically professional successes, while the utilities the unemployed people get from SNSs are basically personal/family connections.

From the economic perspective, the utilities the employed people get from SNSs are related to their income as professional successes are always connected with promotion and increase of income. The utilities the unemployed people get from SNSs are not directly associated with income. If these two kinds of utilities are comparable, according to the propositions of the rational choice theory and time budget theory, the associations between working time and SNS production frequency indicated the utilities related to professional successes and money are larger than the utilities related to personal/family connections, so that employed people make rational choice to produce more SNS content than unemployed people. They also suggested that the utilities related to money is a stronger driver for SNS production than the utilities not related to money.

As more production means more active on SNSs, the findings of this study also suggested that people with tight time budgets are more active than people with loose time budgets. In other words, busy people are more active SNS users, while non-busy people are more passive SNS users.” (Page 19-21)

“From an economic perspective, these advantages are the utilities students obtain from SNSs. As argued above, people make rational choice in time allocation to maximize their utilities, and the utilities related to professional successes and money are larger than the utilities related to personal/family connections. In the college environment, the first type of utilities should be utilities related to academic and future professional successes. Self-driven students should have more study/working time and tighter time budget than other students because they always have stronger desires to be successful and work harder than other non-driven students. The positive association between students’ working time and SNS production frequency suggested the utilities related to academic and future professional successes are larger than the utilities related to personal/family connections, so that self-driven students produce more content on SNS than non-driven students. (Page 21)

***Comment:***

- *A better engagement with the literature presented in the first part of the manuscript would enhance the contribution of this study to the field.*

**Response:**

The following passage was added in the discussion section:

“Previous studies explored the prosumption, i.e., the integration of consumption and production, on SNSs (e.g., Beer & Burrows, 2010; Comer, 2011; Denegri-Knott & Zwick, 2012; Ha & Yun, 2014 Ritzer & Jurgenson, 2010), but did not explore the variations in the SNS consumption and production among different groups of people. This study filled this lacuna by examining the relationships between time budget and the frequencies of various SNS activities.” (Page 22)

***Comment:***

- *Limitations need to be extended to include a reflection on the increasing difficulty of separating consumption and production online, non-representativeness of the data beyond the Northwest Ohio resident database/college students, and a discussion on the disadvantages of mail surveys (all formats have both advantages and disadvantages).*

**Response:**

We added these methodological limitations in the method section as well as in the discussion.

**Comment:**

*Other: Typos and readability: “and developed a concept time budget” (should be “the” concept, p.2); “He called the third wave is the “rise of prosumer”); Boyd should be ‘boyd’; “necessary to differentiate these two kinds of activities”; “one may wonder these three SNS activities” (if these three SNS activities?)*

*The writing is a bit too colloquial at times (“huge numbers”, the authors repeat that we only have 24h in a day a few times, etc.) and should be adjusted. Please note that you do need “on one hand” to use “on the other hand”. In-text referencing of more than 3 authors is not following the journal’s referencing style.*

**Response:**

Corrections have been made as per the reviewer’s suggestion.

**Reviewer B:**

**Comment:**

*Comments about literature: While grounded in the literature, I would encourage the author(s) to synthesize more. At times, the reading became choppy because it was a listing of recent studies boiled down to a sentence each, instead of a synthesis of the literature.*

**Response:**

The literature review was further synthesized especially in the U&G and time budget sections. The revised parts were listed in the response to the Reviewer A, and highlighted in the color in the revision.

**Comment:**

*Comments about methodology: The author(s) do a fine job of explaining the survey process, but neglect to talk about data analysis. Add a line or two about that. Also, what were*



*some of the characteristics of the sample. Was it diverse ethnically/racially? Socio-economically? It might be nice to know more about the sample....maybe a quick table?*

**Response:** The sociodemographics of the respondents of both samples were added in the revision, which were listed in the response to the Reviewer A, and highlighted in the color in the revision.

**Comment:**

*IRB on file? Was the survey piloted? Or reviewed by a panel of experts? Were stats run on the multiple-point items to see if any could be dropped? Reliability / validity measures? A graphic showing the associations might help the reader.*

**Response:**

The IRB of the university approved it before we conducted the study. We added this info in the manuscript. The survey questionnaire was pretested with a group of students and fine-tuned before the actual survey was implemented.

Because the scale is an additive measure and items are not equivalent, we cannot run regular reliability test such as Cronbach's alpha or factor analysis on the items for each activity type. The items were compiled based on various previous studies on the uses of SNSs.

We added a diagram (Figure 1) to illustrate the difference between General Population and Student Sample in how working time and other variables affect SNS production frequency which is one of our important findings.

**Comment:**

*About findings/conclusion/future study: The discussion feels a bit rushed. I'd connect back to the research questions. Also, what are the real implications here? What does it mean for practitioners? Social media managers? Employers? Teachers? You might entertain adding a section about this.*

**Response:**

We revised the discussion by referring back to the research questions and adding the implications to different groups. A section has been added on the implications to practitioners and other groups:

“Apart from the scholarly contribution to time budget and presumption research, this study's findings on busy people doing more production on SNSs have important implications to employers, SNS managers and educators. To employers, encouraging employees to share their personal life experiences by posting on SNSs among the co-workers can enhance relationships among the employees. SNSs can be beneficial to employees who work long hours or travel on business trips to maintain a healthy social relationship with their friends and families.

Based on this study, SNS managers should know that many of its most active SNS users are busy people and should make it as easy and time-saving as possible to facilitate them to upload and compile materials. Indeed, Facebook has created a lot of default memory pages for the users on the pictures they post in past years and about a user's friend's pictures in their news feeds so that busy users can just post with a simple click instead of compiling the information themselves.

Educators and teachers should also promote the healthy use of SNS in maintaining relationships with friends in daily lives and families rather than simply dismissing SNS use as a waste of time. They may even encourage their students to post something they learned in class or their school experience to increase their sense of belonging. After all, time is precious. but when it is used well, it is good time budgeting.” (Page 24-25)

***Comment:***

*Comments about clarity, style, writing and organization: The writing feels choppy at the first. I would rewrite the intro. It settled down by the RQ1. There are some typos and missing words throughout.*

**Response:**

The introduction was rewritten. The follows are the several paragraphs:

“The integration of consumption and production has become increasingly prominent in the social networking sites (SNSs). And many studies explored this trend using the concept of “prosumption” coined by Toffler (1980) (e.g., Beer & Burrows, 2010; Comer, 2011; Denegri-Knott & Zwick, 2012; Ha & Yun, 2014 Ritzer & Jurgenson, 2010). Toffler (1980) defined prosumption as the “unpaid work done directly by people for themselves, their families, or their communities” as the sector A of an economy, which is a counterpart of the sector B that is the production of goods or services for sale in the marketplace (p. 283). SNSs facilitate the fusion of production and consumption with a greater extent than ever since it enables users to consume and produce content collaboratively. In this regard, Ritzer and Jurgenson (2010) noted that SNSs become the “most prevalent location of prosumption” (p. 20).

SNSs play a significant role in the contemporary society. They attract a huge number of Internet users. Pew Research Center (2015a) reported that 65% of worldwide online adults use SNSs in 2015, rising up from 7% in 2005. The major SNSs, such as Facebook, Twitter, and Instagram are among the top 20 most accessed websites (“List of most popular websites”, n.d.). The prosumption perspective is crucial for the study of SNSs as most of the content on these SNSs are user-generated for the sake of users themselves and other people in the networks, and the production of this user-generated content is unpaid.

The significance of SNSs is also reflected by the increasingly large amount of time people spent on SNSs (Ipsos, 2013). Globalwebindex (2015) reported that users’ average daily time spent on SNSs climbed from 1.61 hours to 1.72 hours from 2012 to 2014 in the globe. This trend is prominent in the era of time famine, that is, people feel

more time pressure to do things than ever before (e.g., Robinson, 2017; Warren, 2003; Jacobs & Gerson, 2001; Robinson & Godbey, 1999). (Page 1-2).

The typos and missing words are fixed.

**Comment:**

*Other things to check: SNS vs SNSs and spelling it out. (see page 5)*

**Response:**

We put all plural form of SNS as SNSs.

**Comment:**

*In intro: Coming along with this trend is another parallel trend: people have more feeling of time famine than ever before (e.g., Garhammer, 2003; Jacobs & Gerson, 2001; Robinson & Godbey, 1999; Schor, 1991). -- kind of old lit. I can imagine our time famine is worse now? Maybe find a recent study to add.*

**Response:**

A recent 2017 article added: Robinson (2017).

**Comment**

*Page 2 - cite needed? Economists explored this scarce resource and developed a concept time budget, which is the time availability for different activities, to investigate people's rational decisions on time allocation.*

**Response:**

A citation added: Converse (1968).

**Comment:**

*Page 5 - Linder's (1970) argued - Linders?*

**Response:**

It should be Linder. Corrected.

**Comment:**

*Page 14 - In light of the positive correlation between working time and SNS production frequency, we can conclude that people with tight budget actually more likely to be exploited in social media production labor than those with loose budget. - missing words*

**Response:**

The sentence was rewritten as the follows:

“Along with the positive association between working time and SNS production frequency, the positive correlation was also found between working time and income level ( $r = .27, p < .001$ ) for the resident sample. These positive relationships suggest people with longer work time tend to be more successful in generating higher income, which partially might be the benefit of SNS production activity.” (Page 18)

**Comment:**

*Ref list - needs some APA work.*

*Lancaster, K., Hughes, C.(space)E. & Spicer, B. (2012). News media consumption among young Australians: Patterns of use and attitudes towards media reporting. Media International Australia (comma) 143: (comma not colon) 16-27.*

**Response:**

It was corrected. Other documentary errors were also corrected.

**Comment:**

*Comments about manuscript's contribution: I think the study is interesting and breaks ground. Massaging the lit review and bolstering the discussion will go a long way to getting this ready to publish. A few tweaks in the methods to clarify and it could really add to the literature.*

**Response:**

Thanks for your valuable comments. Revision and corrections were made to clarify the writing as well as the content.