

## ORIGINAL RESEARCH ARTICLE

### Measuring the correlation between digital media usage and students' perceived writing ability: Are they related?

Jean Parrella\*, Holli R. Leggette and Tobin Redwine

*Department of Agricultural Leadership, Education, & Communications, Texas A&M University, College Station, TX, USA*

*(Received: 17 August 2020; Revised: 18 November 2020; Accepted: 27 November 2020*

*Published: 15 January 2021)*

The purpose of our correlational, quantitative study was to determine if time spent using digital media (i.e. text messaging and social media) influences students' media writing self-perceptions (MWSPs). We measured students' perceived writing ability using the MWSP scale and their time spent using digital media with the social networking time use scale (SONTUS). Correlations between students' MWSP scores and SONTUS scores were statistically insignificant, suggesting that time spent using digital media does not negatively influence their perceived writing abilities. However, results from further analyses indicated that as students' social media use increased, so did their ability to recognise the difference between writing for social media and writing for professional publications. We also found that the more students text the more they use social media and vice versa. We present directions for future research and practice.

**Keywords:** digital media; social media; text messaging; writing development; writing perception

#### Introduction

Society has an infatuation and dependence on digital media and communication.

In a 2017 study, Twilio, a cloud communication service company, found that the average consumer sends 72 text messages per day, which was down since 2010 (Angster, Frank, and Lester 2010; Nielsen Wire 2010). In 2010, college students sent an average of 112 text messages per day (Angster, Frank, and Lester 2010), and 13 to 17-year-olds spent more time texting than other age groups with an average of 3300 text messages sent and received per month (Nielsen Wire 2010). In terms of time, Marketing Charts (2013), an online market research company, found individuals aged 18–34 spent 3.8 h per day on social media (SM), individuals aged 35–49 spent 3 h per day and individuals aged 50–64 spent 2.4 h per day. Similarly, in 2015, VanMetera, Grisaffe, and Chonko (2015) found the average American spent nearly 22.4 h per week on SM or about 3.2 h per day, and in 2011, Poellhuber, Roy, and Anderson (2011) found 18 to 24-year-olds used SM more often than other age

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\*Corresponding author. Email: [jparrella@tamu.edu](mailto:jparrella@tamu.edu)

groups. More specifically, Krajina *et al.* (2016) surveyed 113 college students aged 19–35 to determine the time students spent daily on Facebook. They discovered that 26.1% spent less than 30 min, 26.1% spent 1–2 h per day, 15.3% spent 2–4 h per day and 7.2% spent 4–6 h per day (Krajina *et al.* 2016).

College students, a population represented within several of the studies aforementioned, spend a considerable amount of time composing digital media content (e.g. text messages, SM posts) without considering that the content they are creating is *real* writing (Pew Research Center 2008). Generally, students do not believe that writing for digital media influences their quality of writing. However, 64% acknowledged that the informal writing practices of texting and SM, or textisms – ‘the language used in text messages characterized by the use of abbreviations, single letters and symbols’ (Textism 2010, para. 1) – occasionally appear in their professional or academic writings (Pew Research Center 2008). College students in Kamnoetsin’s (2014) study did admit, however, that they might have developed informal writing practices from frequent use of digital media.

Written communication has drastically changed with the emergence and prevalence of digital media – operationalised for our study as SM and text messaging (TM) (Sweeny 2010). Chien (2012) defined digital media as ‘any electronic media that is created and displayed using computer technology, such as mobile devices’ (p. 3). In a culture that relies on digital media to communicate across the masses, users are less concerned with developing a professional, well-articulated message and more concerned with saving time and effort when communicating. Consequently, digital media often occupy an informal writing style that incorporates textisms, which has generated a new language built on the foundation of grammar and spelling errors. Because students are using digital media to write more now than ever before (McGuire 2017), logically, one must question if students’ perpetual use of digital media has negatively influenced their perceived ability to write.

Writing skills are a vital component of students’ academic success and essential for workforce success. Employers frequently complain that the millennial generation, individuals born between 1981 and 1996 (Dimock 2019), lack proficient workplace communication skills and, more specifically, effective writing skills (Risto 2014).

According to Simba Information (2012), 75% of high school teachers believed texting negatively impacts students’ writing skills while 69% believed that SM negatively impacts their writing skills. Furthermore, the National Center for Education Statistics conducted a similar study in 2011 and found 27% of high school seniors could write proficiently. As students lack writing ability and simultaneously engage in more digital media use, the potential causal relationship cannot be dismissed. Yet, conflicting evidence exists.

Many studies investigating the impact of digital media on students’ writing development explored an adolescent population. For example, Cingel and Sundar (2012) found a negative correlation between TM and adolescent grammar skills, while Plester, Wood, and Joshi (2009) contrastingly found a positive correlation between students’ use of text language and their vocabulary, reading ability and phonological awareness scores. Risto (2014) explored the impact of digital media use on students’ academic writing ability and found that students put forth maximum effort if they considered the assignment important. Yet, Risto (2014) also found textisms within those assignments, which she labelled as habitual mistakes because many media consumption

behaviours are habit-prone (LaRose and Eastin 2004). In contrast, if students deemed the assignment unimportant, they used their most familiar form of writing – elements of textism – both on purpose and by habit (Risto 2014). Therefore, both positive and negative correlations existed between students’ digital media use and writing ability based on perceived assignment importance.

In similar studies, Rosen *et al.* (2010) found negative correlations between textism use and formal writing and positive correlations between textism use and informal writing, and Shafie, Azida, and Osman (2010) and Cullington (2011) studied the appearance of textisms in students’ academic writing and found that most students avoided using textisms in formal course assignments and examinations. Similarly, Grace *et al.* (2013) found that college students could differentiate appropriate and inappropriate instances of textisms in their writing. These studies indicate, therefore, that students knew which language to use for formal and informal contexts. Students who did incorporate textisms into their work, however, lacked proficiency in the English language and had extensive spelling errors, suggesting that the carelessness for proper spelling of TM may negatively influence students’ ability to recall proper spelling when necessary (Gómez-Camacho, Hunt-Gómez, and Valverde-Macías 2018; Shafie, Azida, and Osman 2010).

As digital media platforms have increased in both number and popularity, researchers have attempted to measure time spent TM and using SM through various methods. Yet, using those methods is problematic because of the substantial differences in reported time spent (Olufadi 2016). For example, categorical measures of time are limited because people are tempted to provide responses they believe will place them in a favourable light and because they want to consider themselves ‘average’. Therefore, they are more likely to select the answer that would represent the average range (Olufadi 2016). Time spent (in minutes) per day and the use of daily/weekly diaries are also questionable measurements as it is challenging for participants to recall the exact amount of time spent using the sites (Olufadi 2016). Thus, it is likely that inconsistent measures of the time students spend using digital media influences the varied findings regarding the effect of digital media usage on students’ writing ability.

### ***Conceptual framework***

The framework of two established measurement scales guided the conceptual framework for our study. The media writing self-perception (MWSP) scale measures students’ media writing perceptions (Lingwall and Kuehn 2013), using five constructs: elaborative/surface, reflective/revisionist, writing self-efficacy, writing apprehension, and SM/professional. The social networking time use scale (SONTUS) measures the time people spend using social networking sites (SNSs) (Olufadi 2016). The multi-dimensional construct contains five subscales with independent measurements of time spent on SM during four types periods (relaxation and free, academic-related, public place-related and stress-related) and motives for SM use (Olufadi 2016).

Currently, the literature base related to the relationship between students’ time spent using digital media and their MWSPs is unclear, and the evidence is insufficient. Yet, understanding this relationship helps writing instructors design course content that addresses formal and informal writing contexts.

### ***Purpose of study***

The purpose of the quantitative study was to describe the potential relationship between students' time spent using digital media and their perceived media writing ability. Eight research questions guided the study described herein:

RQ1: When do students use text messaging and social media?

RQ2: Which user category do students align with in terms of their social media usage?

RQ3: Which user category do students align with in terms of their text messaging?

RQ4: What are students' perceived media writing abilities?

RQ5: What is the relationship between students' demographic characteristics and their SONTUS and MWSP scores?

RQ6: What is the relationship between students' SONTUS social media scores and their MWSP scores?

RQ7: What is the relationship between students' SONTUS text messaging scores and their MWSP scores?

RQ8: What is the relationship between students' SONTUS social media scores and SONTUS text messaging scores?

### **Method**

An interest in understanding the correlation between students' use of digital media (SM and TM) and their MWSPs was motivation for the study.

### ***Sample***

Because we are agricultural communications faculty and assist faculty throughout colleges of agriculture in developing more effective communicators, we were purposeful in our sampling and distributed the questionnaire to all students enrolled in the College of Agriculture and Life Sciences at Texas A&M University. In spring 2019, the college under study enrolled 7734 students in 14 departments, offering 31 undergraduate, 37 master's, 24 doctoral and six online graduate degrees. The students in our sample were primarily women aged 21 or older, who classified themselves as undergraduate seniors or graduate students (see Table 1).

### ***Instrument***

We used two published instruments for the descriptive study: Lingwall and Kuehn's (2013) MWSP scale and Olufadi's (2016) SONTUS scale.

### ***MWSP***

The MWSP, a 'reliable and effective tool to discriminate between different types of writers' (p. 379), has often been used to measure students' writing perceptions within four areas: writing approaches, writing self-efficacy, writing apprehension, and SM/professional. To establish the MWSP, Lingwall and Kuehn (2013) conducted a factor analysis with 860 students studying communication at 13 universities. They identified the relationship amongst writing approaches, writing self-efficacy, writing

Table 1. Participants' demographic characteristics as they relate to age, gender and classification ( $n = 127$ ).

Characteristic	<i>f</i>	%
<b>Age</b>		
19	5	3.9
20	12	9.4
21	25	19.7
22	20	15.7
23	12	9.4
24	11	8.7
25+	42	33.1
<b>Classification</b>		
Freshman	7	5.5
Sophomore	12	9.4
Junior	23	18.1
Senior	42	33.1
Graduate student	43	33.9
<b>Gender</b>		
Woman	90	70.9
Queer	3	2.4
Man	34	26.8

apprehension and SM/professional use (Lingwall and Kuehn 2013). MWSP constructs, scores and score indicators as described by Lingwall and Kuehn (2013) can be found in Table A1. Lingwall and Kuehn (2013) found the MWSP scale reliable with a 0.73 Cronbach's alpha coefficient.

### SONTUS

The SONTUS scale is 'a promising measurement instrument though deep conceptualization of SNSs [social networking sites] usage time by taking into account the reasons for use, and places or situations where it is use[d]' (Olufadi 2016, p. 465). Olufadi (2016) implemented the SONTUS scale to categorise SM users into low, average, high and extremely high categories based on a 29-factor scale dividing usage into specific scenarios (relaxation and free periods, academic-related periods, public place-related periods, stress-related periods and motives for use). To establish the SONTUS, Olufadi (2016) conducted a factor analysis with 2049 participants who used a variety of SM platforms. Olufadi (2016) began with 52 items in the factor analysis and ended with 29 items that ultimately became the instrument (individual items are presented in the results). Olufadi (2016) measured the 29 individual items across 11 time frames. SONTUS scores and score indicators, as identified and described by Olufadi (2016), can be found in Table 2.

We used the SONTUS scale to measure time respondents spent using SM and time spent TM. To modify the instrument, we replaced SM with TM throughout the instrument. Therefore, the five SONTUS components were summed to identify both the SM and the TM SONTUS global scores. We justify modifying the SONTUS to measure time spent TM because the scale includes questions that address the primary 'categories of situations, places, or reasons' in which people use SM

Table 2. SONTUS scores and score indicators.

SONTUS scores	Score indicator
5–9	Indicates a low user
10–14	Indicates an average user
15–19	Indicates a high user
More than 19	Indicates an extremely high user

Source: Olufadi, Y. (2016) ‘Social networking time use scale (SONTUS): A new instrument for measuring the time spent on social networking sites’, *Telematics and Informatics*, vol. 33, no. 2, pp. 452–471. doi: 10.1016/j.tele.2015.11.002

Note: SONTUS, social networking time use scale.

(Olufadi 2016, p. 457). Olufadi (2016) found the SONTUS scale reliable with a Cronbach’s alpha coefficient of 0.92 for the global scale and a Cronbach’s alpha coefficient ranging from 0.83 to 0.91 for each of its five components.

### ***Validity and reliability***

To combat threats to validity and reliability in quantitative survey research, each member of the research team independently examined the instrument and conducted a pilot study with students enrolled in the University of Idaho College of Agricultural and Life Sciences. The Cronbach’s alpha coefficient for both the SONTUS scales for time spent TM (0.94) and for time spent using SM (0.95) was reliable. Furthermore, the Cronbach’s alpha coefficient for the MWSP scale was 0.68, which Vaske (2015) described as low but adequate.

### ***Data collection procedures***

We used the University’s bulk mail service and followed Dillman, Smyth, and Christian’s (2014) recommendations for survey design and distribution to Texas A&M University students. After sending the invitation email to students, we sent four reminder emails 1 week apart. We achieved a 4.49% response rate ( $n = 347$ ). We removed incomplete responses and arrived at 127 usable responses, which equates to a 1.64% usable response rate. We anticipated a potentially small response rate because of the length and complexity (Revilla, Saris, and Krosnick 2014) of the SONTUS 1–11 rating scale. However, because ‘no attempts [have] been made in the past to develop a psychometrically tested scale capable of measuring time spent by people on the SNSs’ (Olufadi 2016, p. 454), we chose to implement the 11-point SONTUS scale, despite the potential for a low response rate.

### ***Data analysis***

To analyse the data, we used Microsoft Excel and Statistical Package for Social Sciences 25 (SPSS 25). The five individual MWSP constructs and the overall MWSP score were the dependent variables in our study with time spent using SM and TM serving as our independent variables. We used descriptive statistics, Pearson product-moment correlation coefficients and one-way ANOVAs to interpret the data. We also used a Cronbach’s alpha to calculate the reliability of the MWSP and SONTUS constructs.

### **Assumptions and limitations**

Firstly, our response rate was low, which prohibits us from generalising to the larger population, and we do not know if non-respondents would have produced different results. Secondly, our sample consisted of only students in the college of agriculture. Thus, we recommend expanding the study to students in other colleges. Thirdly, based on a review of the literature, we believe we are the first researchers to adapt the SONTUS scale to measure time spent texting. We assumed – based on the body of knowledge about digital media use – the same user categories (e.g. low user, average user, high user and extremely high user) had applications beyond SM users and into digital media use.

### **Results**

To answer RQ1, we used descriptive statistics to identify the situations, places or reasons respondents primarily used SM and TM (see Table 3). We found that respondents were most likely to use SM and TM while sitting at home idly. They were also more likely to use SM during stressful time periods than they were to text during stressful time periods, and they were more likely to use SM during stressful time periods than they were to use SM during any other time period with the exception of sitting at home idly.

In addition, respondents primarily used TM as means to communicate with families and friends ( $M = 7.17$ ,  $SD = 2.80$ ) and to maintain contact with existing friends ( $M = 6.70$ ,  $SD = 2.93$ ). Thus, respondents were more likely to have a motive for use when TM as opposed to when using SM. Finally, respondents were least likely to use SM and TM while watching a movie at a cinema house (SM,  $M = 2.01$ ,  $SD = 1.22$ ; TM,  $M = 2.22$ ,  $SD = 1.46$ ) and while sitting in a religious place waiting for sermon or prayer to begin (SM,  $M = 2.03$ ,  $SD = 1.53$ ; TM,  $M = 2.13$ ,  $SD = 1.52$ ).

We sought to determine respondents' user categories (low user, average user, high user and extremely high user) on the SONTUS scale (RQ2 and RQ3) using descriptive statistics (see Table 4) and found that respondents were frequently low social media users ( $f = 66$ ; % = 51.97) with a mean just above the cut point between low and average SM use, indicating they were average SM users ( $M = 9.68$ ;  $SD = 3.51$ ). Additionally, we found that respondents were frequently low text message users ( $f = 77$ ; % = 60.63) with a mean just below the cut point of low and average TM use, indicating they were low text message users ( $M = 8.93$ ;  $SD = 3.52$ ; RQ4).

Means and standard deviations for respondents' MWSP scores can be found in Table 5. Respondents' elaborative/surface construct mean ( $M = 10.75$ ;  $SD = 6.84$ ) indicates that students in our sample write without much thought and can be characterised as surface-level writers. Their reflective/revisionist construct mean ( $M = 3.41$ ;  $SD = 6.45$ ) indicates that most students in our sample do not think much about preparing to write and seldom engage in the revision process. Respondents' self-efficacy construct mean ( $M = 22.55$ ;  $SD = 3.41$ ) indicates that students in our sample believe they are somewhat competent writers but believe there is room for improvement, and their writing apprehension construct mean ( $M = 7.01$ ;  $SD = 6.39$ ) indicates they experience low to moderate levels of anxiety when thinking about writing.

Furthermore, respondents' social media/professional construct mean ( $M = 16.02$ ;  $SD = 3.33$ ) indicates they tend to consider some writing on social media as professional

Table 3. Means and standard deviations of individual SONTUS items describing the situations, places or reasons respondents use social media and text messaging ( $n = 127$ ).

SONTUS items	Social media		Text messaging	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
When you are at home sitting idly	8.32	2.79	7.23	2.83
When you need to reduce your mental stress	6.75	3.32	5.34	3.28
When you have gone through a lot of stress	6.61	3.57	5.43	3.21
When you want to reduce the pressure of your daily routines	6.00	3.43	5.04	3.03
When you need to reduce your emotional stress	5.98	3.56	4.94	3.01
When you need to communicate with your families and friends	5.96	3.16	7.17	2.80
When you need to maintain contact with existing friends	5.90	3.22	6.70	2.93
When you are doing a school or job-related assignment at home	5.40	2.73	5.32	2.70
When you are in bed about to sleep	5.39	3.27	4.61	2.78
When you need to find people you haven't seen for a while	5.37	3.16	4.55	2.63
When you are a passenger in a car/bus/train for at least 2 min	5.36	3.13	5.31	3.14
When you are watching TV, news, football, films, sports, etc.	5.17	2.93	5.46	3.14
When you are waiting for someone (e.g. friends) either in their house or at a pre-arranged place	5.12	2.85	4.82	2.87
When you are online doing school or job-related works (e.g. project and homework)	5.00	2.98	5.14	2.62
When you are at a place to repair your car, house appliances, etc.	4.58	3.44	4.29	3.26
When you need to find out more about people you met offline	4.43	2.84	3.61	2.88
When you are listening to music, radio, religious lectures, etc.	4.05	2.95	4.68	3.08
When you are at a social gathering like wedding ceremony, birthday party, reception, etc.	3.79	2.64	3.41	2.39
When you are trying to forget your financial challenges	3.59	3.28	3.20	2.74
When you go to the stadium to watch football, basketball, etc.	3.39	2.57	3.43	2.64
When you are in class receiving lecture	3.35	2.40	3.53	2.50
When you are reading in the library for academic purposes (e.g. recommended text for class)	3.31	2.65	3.53	2.59
When you are in the company of friends/family/colleagues having fun	3.24	2.08	3.61	2.09
Watching academic-related video lectures or those related to your job	3.22	2.45	3.37	2.53
When you are at a seminar/workshop or training program	2.76	2.22	2.71	2.26
When you are waiting for your boss in her office for at least 2 min when she is not attending to you	2.50	2.21	3.12	2.64
When you are in a meeting	2.32	1.68	2.54	1.87
When you are sitting in a religious place (e.g. church, mosque) and activities like a sermon or prayer is yet to start	2.03	1.53	2.13	1.52
When you go to the cinema house to watch a movie	2.01	1.22	2.22	1.46

Note: SONTUS, social networking time use scale; statistics presented in descending order from highest to lowest SONTUS means for social media use; refer to Table 2 for SONTUS scores and score indicators.

but for the most part believe that professional settings require more professional writing than social media settings. Last, students' total MWSP mean ( $M = 13.68$ ;  $SD = 16.96$ ) indicates that respondents moderately enjoy writing and are somewhat confident in their writing ability.

Table 4. Frequency distributions, means and standard deviations for students' user categories of time spent using social media and sending text messages ( $n = 127$ ).

	Low		Average		High		Extremely		high	
	<i>M</i>	<i>SD</i>	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
SONTUS social media	9.68	3.51	66	51.97	45	35.43	15	11.81	1	0.79
SONTUS text messaging	8.93	3.52	77	60.63	43	33.86	6	4.72	1	0.79

Note: SONTUS, social networking time use scale; 5–9.50, low user; 9.51–14.50, average user; 14.51–19.50, high user; 19.51 ≤ extremely high user.

Table 5. Means and standard deviations for students' elaborative/surface, reflective/revisionist, self-efficacy, writing apprehension, social media professional and media writing self-perception scores ( $n = 127$ ).

Construct	<i>M</i>	<i>SD</i>
Reflective/revisionist	3.41	6.45
Writing apprehension	7.01	6.39
Elaborative/surface	10.75	6.84
MWSP media writing self-perception	13.68	16.96
Social media professional	16.02	3.33
Self-efficacy	22.55	3.41

Note: Refer to Table A1 for MWSP (media writing self-perceptions) scores and score indicators.

Table 6. Pearson product-moment correlation coefficients to represent the associations between students' MWSP scores and the SONTUS scores for time spent using social media and for time spent texting ( $n = 127$ ).

Construct	EL	RR	SE	WA	SMP	MWSP
SONTUS social media	-0.09	-0.12	0.10	0.16	-0.37 *	-0.05
SONTUS text messaging	0.05	0.07	0.24	0.02	-0.13	0.11

Note: \*indicates statistical significance at the 0.05 alpha level. MWSP, media writing self-perceptions; SONTUS, social networking time use scale; EL, elaborative/surface; RR, reflective/revisionist; SE, writing self-efficacy; WA, writing apprehension; SMP, social media/professional.

However, they do not spend much time preparing to write or revising their work and might not understand the difference between SM writing and professional writing.

Additionally, we calculated Pearson product-moment correlation coefficients to investigate the relationship between students' SONTUS scores for SM/TM and their MWSP scores (RQ6 and RQ7; see Table 6). We calculated ANOVAs to compare group means between students' SONTUS scores for SM/TM and their MWSP scores where we found one statistically significant difference. Amongst the six MWSP scores and the two SONTUS scores, we found the strongest relationship, although weak,

between students' MWSP SM/professional construct scores and SONTUS construct scores for SM. The relationship was negative ( $r = -0.37$ ,  $p < 0.05$ ) and statistically significant ( $F[16,126] = 1.932$ ,  $p = 0.024$ ,  $r = 0.22$ ). In addition, we found one weak positive correlation ( $r = 0.24$ ,  $p < 0.05$ ) between students' MWSP writing self-efficacy construct scores and SONTUS construct scores for TM. Last, we found a moderate positive correlation ( $r = 0.61$ ,  $p < 0.05$ ) between students' global SONTUS scores for SM and global SONTUS scores for TM (RQ8).

## Discussion and recommendations

Based on the data described above, we recommend future research investigate the effectiveness of SM as a stress-reducer amongst college students because respondents primarily used SM in an effort to reduce stress. Additionally, the majority of the respondents within our study classified themselves as low users of digital media. When considering the SONTUS user categories for SM and TM, respondents in our study spend less than 3.2 h per day on SM (VanMetera, Grisaffe, and Chonko 2015) and send less than 72 text messages per day (Twilio 2017).

We found a statistically significant relationship between the amount of time spent using SM and respondents' MWSP SM/professional scores, indicating that as SM use increased so did one's ability to recognise the difference between writing for SM and writing for professional publications. This finding was a surprise as previous research supports that habit strength – a frequent behavioural pattern that causes gradual cognitive numbness to that behaviour – is a key determinant of one's SM practices (LaRose and Eastin 2004). Specifically, LaRose and Eastin's (2004) finding indicated that the more students practiced informal writing on SM the more difficult it would be for them to differentiate between formal and informal styles and the more their habitual patterns would cause informalities to intersect with professional writing. However, our results suggest otherwise.

McGuire (2017) explained that although students write more now than ever before, most of their written communication is facilitated through the use of smartphones, tablets and SM platforms. Therefore, students are intimidated by writing in the classroom (McGuire 2017) likely because they associate the setting with increased professionalism and expectations. Fortunately, students seem to recognise that the writing they complete and the communication they perform goes beyond the classroom and serves an important purpose in different facets of life. Thus, we recommend college faculty emphasise the importance of writing for different purposes using varied outlets and address the key differences between each without criticising SM as a writing platform.

Similar to findings from Shafie, Azida, and Osman (2010), Grace *et al.* (2013), and Cullington (2011), our results suggest that college-level students perceive they can decide when it is appropriate to use informal, broken language in their writing and when they should reflect professionalism in their work. Thus, discussing with students how their increased use of technology can benefit them and diversify their skills using ubiquitous tools and spaces while also improving their ability to reach larger, more diverse audiences will help them to understand the utility of both informal writing and professional writing.

Furthermore, we found a positive, although weak, correlation between time spent TM and respondents' perceived writing self-efficacy, indicating that increased use of TM could positively impact one's confidence in their writing abilities. Perhaps this

result is because the use of TM is leading to the composition of more written words, regardless of the level of formality, and more writing practice as a result of increased production. Such writing practice, then, is increasing their level of writing confidence. Future studies should investigate if perception actually matches ability. Still, we recommend faculty address with students the possible negative effects that text- and SM-style writing might have on their writing ability and how it might cause poor writing habits to develop. This lesson would not only make students aware of how they approach writing in their text messages, but it might also heighten their awareness of informal writing.

Students' average MWSP scores may indicate that they have low MWSPs, which is a critical reality but not different from previous studies (Leggette, Redwine, and Busick 2019; Meier, McCarthy, and Schmeck 1984). Therefore, college faculty, especially those who teach discipline-specific communications and writing courses, should consider integrating curriculum into their courses that focuses on increasing students' perceived and actual writing abilities. This curriculum could include assignments designed to help students become elaborative writers who understand the writing process as well as how to revise and reflect on their work. In doing so, faculty could increase students' writing self-efficacy and decrease students' writing apprehension.

Because students will most likely continue to use SM and TM as frequent forms of communication, we recommend writing instructors discuss how writing for SM differs from professional writing. This lesson would also benefit non-native English speaking students learning a new language because the informal writing style used on digital media platforms can cause confusion and mistakes in their academic writing (Gómez-Camacho, Hunt-Gómez, and Valverde-Macías 2018). Our current study provides evidence to address concerns that texting language damages students' ability to write effectively. Our findings alone do not indicate a need for faculty to address the informal writing style students use with SM or TM, but we recommend future studies in this area especially as generations begin using digital media at younger ages and 'potentially prior to the cementing of early reading and writing skills' (Grace *et al.* 2013, p. 805).

Media scholars have contemplated the impact of new media and technology on students' writing ability, but educators have been slow to accept that changes in practice are necessary (McGuire 2017). Our recommendations for practice provide opportunities for educators to adapt their teaching strategies alongside changing digital technologies, and our suggestions for future research allow scholars to continue monitoring the impact digital tools have on students' skill development.

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**Appendix**

Table A1. MWSP constructs, scores and score indicators.

MWSP constructs	Score	Score indicator
Elaborative/surface construct with scores ranging between -13 and 31	18-31	Indicates students consider themselves deep writers who enjoy the writing process
	6-17	Indicates students write without thinking about their writing
	-13 to 5	Indicates students are surface-level writers and write just enough to complete the assignment.
Reflective/revisionist construct with scores ranging between -19 and 25	13-35	Indicates students maximize their ability to write by reflecting, revising, and preparing for the writing process.
	0-12	Indicates students do not prepare to write or revise their writing
	-19 to 1	Indicates students write a single draft and do not revise their work
Self-efficacy construct with scores ranging between 3 and 39	25-39	Indicates students are confident in their writing
	12-24	Indicates students feel confident in their writing with room for improvement
	3-11	Indicates students have low confidence in their writing
Writing apprehension construct with scores ranging between -13 and 31	18-31	Indicates students are highly anxious when thinking about writing
	6-17	Indicates students experience minimum anxiety about writing
	-13 to 5	Indicates students enjoy writing
Social media/professional construct with scores ranging between -4 and 28	18-28	Indicates students believe the informal language of social media is professional and appropriate for the workplace
	8-17	Indicates students believe social media writing and professional writing are not the same
	-4 to 7	Indicates students believe social media writing is informal and professional writing is formal
The MWSP with an overall score ranging between -88 and 112	45-112	Indicates students enjoy the writing process and feel confident in writing after spending time planning and revising their work
	10-44	Indicates students are fairly confident in their writing ability but do not spend time preparing or revising their drafts
	-88 to 10	Indicates students do not enjoy writing formally and experience high apprehension and low confidence

Source: Lingwall, A. & Kuehn, S. (2013) 'Measuring student self-perceptions of writing skills in programs of journalism and mass communication', *Journalism and Mass Communication Educator*, vol. 68, no. 4, pp. 365-386. doi: 10.1177/1077695813506991

Note: MWSP, media writing self-perceptions.