Digging Into Digital: Investigating the Self-perceived Social Media Competency of Oklahoma Extension Master Gardeners

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Abstract. **Social media platforms exhibit the capacity to serve as a beneficial tool for Cooperative Extension Service (CES) outreach endeavors. However, Extension educators face barriers adopting these platforms, including time constraints and lack of training. This study investigated whether Oklahoma's Extension Master Gardeners (OK-EMGs) volunteers could support local CES social media efforts to combat horticultural misinformation by assessing their self-perceived social media competency. Overall, 219 OK-EMGs completed an online survey with 28 Likert-type scale questions representing the following four competency constructs: technical usability, content interpretation, content generation, and anticipatory reflection. Scores were relatively high across constructs. Statistical differences existed between digital natives and digital immigrants for technical usability only, indicating that generational technology exposure affects platform navigation abilities. No correlation occurred between competency and OK-EMG tenure, thus inferring skills come from external social media experience rather than training. Tailored programming by age and incorporating social media into curriculum could elevate competencies. The OK-EMGs demonstrate potential for assisting with local Extension online efforts of combatting horticultural misinformation and guiding community members to credible CES resources.**

Extension educators have several roles to fulfill, including disseminating educational content to stakeholders in their counties and fulfilling the mission of the Cooperative Extension Service (CES) to improve the lives of everyday people through research-based information. Social media platforms, such as Facebook (Meta Platforms, Inc., Menlo Park, CA, USA), Instagram (Meta Platforms, Inc.), and YouTube (Google, San Burno, CA, USA), can supplement conventional approaches, such as in-person workshops, factsheets, newspaper, radio, television, and site visits, to reach new audiences and perhaps increase efficiencies (Gharis et al. 2014; Kinsey 2010).

Social media platforms can be used as innovative extension tools for building knowledge networks, coordination, communication, outreach, and education (Lubell and McRoberts 2018). However, not all Extension professionals have the technical knowledge to effectively use social media platforms or effectively integrate communication across multiple platforms (Lubell and McRoberts 2018). Furthermore, social media should not be used to simply post content or be the primary vehicle of digital engagement. Websites should be central to any digital communication strategy. Social media can be fickle and change regularly, and it cannot be solely relied on to effectively communicate with stakeholders (Blare et al. 2022). Therefore, Extension professionals should both master the technical aspects of social media platforms and understand the most appropriate and strategic ways to engage with stakeholders in a digital realm.

Although social media makes it easy to share and find information, it can also easily spread misinformation (Cato et al. 2022; Waszak et al. 2018). The open nature of social media allows anyone to share content, regardless of expertise or accuracy (Vraga and Bode 2017). However, without proper fact-checking, people can easily spread false information, also known as misinformation (Chung and Kim 2021). Misinformation can range from innocent misconceptions to assertions meant to mislead consumers. The field of horticulture has been subject to this misinformation; for example, one widely circulated misconception that circulated online was that large fruit size of strawberries indicated that they were genetically modified organisms (Cato et al. 2022). Therefore, the University of Arkansas System Division of Agriculture CES created a "Fact or Fiction" series of blog posts designed to target common horticulture myths such as this (Cato et al. 2022).

Extension educators' full workloads, which include, but are not limited to, assessing county needs, preparing and delivering public programs, coordinating youth activities, responding to client requests for information and assistance, and performing administrative functions (Human Resources, Division of Agricultural Sciences and Natural Resources 2024), make it difficult for them to invest time in social media (Gharis and Hightower 2017; Newbury et al. 2014). It may take too much time to learn how to use social media and maintain an active web presence. Volunteers or other outsourcing should potentially be considered to help combat misinformation; one group with this potential in Oklahoma is the Oklahoma Extension Master Gardeners (OK-EMGs).

Extension Master Gardeners

As a national Extension program, the EMGs provide volunteers with the opportunity to increase their gardening knowledge and educate the public about horticulture (Davenport-Hagen et al. 2018; Dorn et al. 2018; Waliczek et al. 2002). In the United States, EMG programs were first established in 1972 (Corle-Bennett 2015). The EMG program took life when "horticulture extension agent D. Gibby, overwhelmed by the volume of requests for gardening information, devised a plan to train volunteers in exchange for assistance in educating the public" (Bauske et al. 2011, p. 150). Since its

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origin in Washington, EMG programs have been established in all 50 states, Canada, and South Korea (Bauske et al. 2011; Corle-Bennett 2015). As of 2022, more than 84,000 EMGs have obtained certifications and are actively engaged in volunteer work globally (Lawrence 2022).

Extension programs are facing budgetary constraints and challenges addressing educational needs related to horticulture among the increasing urban population. EMGs serve as a resource for Extension professionals to disseminate horticulture information to the public (Meyer et al. 2010). They provide one-on-one assistance by answering gardening questions from the public; this can be accomplished through phone calls, emails, or in-person consultations. The EMGs also deliver presentations and workshops about various horticulture topics, establish school gardens, conduct workshops, mentor students participating in hands-on gardening activities, and organize community events (Hazzard et al. 2011; Peronto and Murphy 2009; Proctor 2023). This group is actively engaged with Extension clientele, providing unbiased, research-based guidance. This engagement could be enhanced by using social media platforms, which offer new opportunities for interaction and information sharing.

The OK-EMG and other state programs have not made connecting with audiences through social media a priority for volunteer activities (Vines et al. 2016). In 2016, a nationwide study explored incorporating social media training into the EMG curriculum (Vines et al. 2016). Based on the survey results, EMGs were interested in social media training, warranting the development of a social media training opportunity for volunteers (Vines et al. 2016). The results indicated that using online platforms and guiding online discussions were areas of discomfort for EMGs (Vines et al. 2016), solidifying the need for social media training. As of 2024, national training has not yet been created, even though EMGs are well-positioned to assist Extension educators with social media. This represents an opportunity for state-level CES to discern what social media training opportunities may be right for their EMGs. With proper training and coordination, EMGs could create online content, manage social media accounts, and engage audiences, thereby allowing Extension personnel to focus their efforts elsewhere. However, it remains unclear whether EMGs themselves feel competent and comfortable engaging with social media. Therefore, it is important to determine the self-perceived social media competency of EMGs.

Social media competency

The concept of social media competency (SMC) pertains to an individual's ability to effectively use social media platforms to transmit messages, interact with others, and foster dialogue and involvement within a community (Alber et al. 2016). Furthermore, SMC involves understanding how to navigate various social media channels, such as Facebook and Instagram, and, sometimes, using their features to achieve specific goals. However, SMC can vary depending on individual goals and the context in which it is being applied, such as personal branding, marketing, customer service, or community management. Self-perceived SMC can be measured through a 28-item instrument, known as the SMC-CS, divided into the following four constructs: technical usability, content interpretation, content generation, and anticipatory reflection (Zhu et al. 2020).

Technical usability focuses on the ability to effectivity navigate and use social media platforms. These types of technical skills are considered fundamental for anyone who wishes to use social media (Kietzmann et al. 2011; Trainor et al. 2014). Content interpretation pertains to participants' ability to understand the meaning of social media content. Content interpretation is the capacity to sort through material and derive relevant meaning from a large amount of data (Zhu et al. 2020). Content generation refers to the user's capability of creating content, sharing content, and connecting with others. The capacity to communicate with other people through a variety of channels constitutes as content generation (Zhu et al. 2020). Anticipatory reflection refers to understanding one's actions and the impacts they could have on social media. Having the ability to anticipate the potential outcomes of one's actions before producing content is what is meant by anticipatory reflection (Zhu et al. 2020). In the context of the present study, we used the instrument to determine the self-perceived social media competency of OK-EMGs because they are a heavily relied upon volunteer resource of Extension and have the potential to help with social media outreach (see Supplemental Appendix 1). Assessing the self-perceived social media competency of the OK-EMGs provides insights into the comfort that OK-EMGs have with social media. These insights may inform suggestions for how to incorporate social media training in the OK-EMG training manual.

Digital citizenship

The term "digital natives" refers to individuals who have grown up in the era of widespread digital technology, such as computers, smartphones, and the internet (Prensky 2001). Coined by Marc Prensky in 2001, "digital natives" distinguishes this generation from those who were not exposed to digital technology during their formative years, who are referred to as "digital immigrants." Digital natives are typically characterized by their familiarity and comfort with using digital devices and online platforms. They have grown up surrounded by technology and have developed fluency in navigating digital interfaces and using various digital tools. Although no definitive age range defines a digital native, literature suggests those who grew up between the early 1980s and the present are in this category (Creighton 2018). Digital immigrants were not born into the technological era, but they have adapted to it later in life (Prensky 2001). Digital immigrants are individuals who were born before the 1980s and before the development of digital technology (Kesharwani 2020). These individuals may have had limited exposure to technology during their formative years.

Several studies examined the proficiency of digital immigrants when using social media platforms. One study demonstrated that digital immigrants do engage with widely used social media platforms like Facebook, Twitter, and YouTube (Fietkiewicz 2017). The prevalence of older adults engaging in online activities and using digital media has exhibited a consistent upward trend since 2000 (Anderson et al. 2017). According to Schehl et al. (2019), "older users have expressed an interest in using such technology in a variety of

ways, including for the obtaining of information, and interacting with others" (p. 223). Despite their limited exposure to technology, digital immigrants are gradually adapting to the present technologically driven world (Prensky 2001).

Social cognitive theory

The social cognitive theory (SCT), initially described in 1986 by Albert Bandura, claims that behavior is a result of the interaction between an individual's cognitive, behavioral, and environmental factors. These factors do not act independently; rather, they interact with and influence each other in a reciprocal manner. Thoughts, beliefs, and attitudes greatly influence how we perceive and respond to the world around us (McLeod 2024). The environment also influences behavior. The places where people choose to live and work each have their own unique environments, which, in turn, influence the people who inhabit those environments. Our surroundings, including the people we interact with, societal norms, and cultural values, can shape our thoughts, attitudes, and actions. Personal factors and environmental influences impact behavior, and behavior itself can also shape and modify these factors (Bandura 1986).

Study purpose and research objectives

The purpose of this study was to determine the self-perceived social media competency of OK-EMGs. Oklahoma was selected as the focus state for this study because of access to the population and lack of knowledge about the self-perceived social media competency OK-EMGs. As social media continues to become an accepted form of communication within Extension, having data regarding existing capabilities can help determine effective support and training programs suited to Extension volunteer groups. The research objectives were as follows:

1. Describe the demographics and background characteristics of OK-EMGs.
2. Describe the self-perceived social media competency of OK-EMGs.
3. Describe the difference between the social media competency of digital natives and that of digital immigrants in the OK-EMG program.

Methods

Research design

In this study, an online survey was used to measure the level of self-perceived social medial competency of OK-EMGs. Survey research involved collecting data from a sample of individuals via their responses to questions about their attitudes, beliefs, perspectives, and experiences regarding a specific topic (Creswell 2012). Online surveys are a convenient and efficient way of collecting self-reported information from a large population (Dillman et al. 2014). Questionnaires allow for data collection from a large sample in a cost-effective and timely manner. This protocol was reviewed and approved by Oklahoma State University's Institutional Review Board on 24 May 2023 (approval number: IRB-23-256).

Population and sampling

The target population for this study was OK-EMGs. A census data collection method was used because we aimed to include all OK-EMGs. A list of the OK-EMGs from each county was obtained from the OK-EMG State Coordinator, with a total of 1372 OK-EMGs. To increase response rates, the OK-EMG State Coordinator was asked to distribute the survey because he had an established relationship with the population (Dillman et al. 2014). A total of 219 OK-EMGs completed the survey, resulting in a response rate of 15.96%. To address the nonresponse error, we compared early and late survey respondents' answers based on four constructs (Lindner et al. 2001). Early respondents were defined as those who answered before 5 Sep, when the last e-mail reminder was sent. Late respondents were defined as those who answered the day after 5 Sep. No significant differences were found.

Data collection procedures

To distribute the survey, two e-mails were sent. The initial contact e-mail, sent on 22 Aug 2023, introduced the survey. The second e-mail sent 1 week later, on 5 Sep 2023, served as a reminder to complete the survey. This e-mail was sent to the entire population whether they had responded or not. The questionnaire itself was built in Qualtrics (Qualtrics, Seattle, WA, USA) but sent via the personal e-mail of the OK-EMG State Coordinator. The questionnaire was open for 1 month.

Instrument design

The instrument used in this study was based on an already existing instrument that measures social media competency (Zhu et al. 2020). This instrument, which is called SMC-CS, consisted of 28 questions scored using a 5-point Likert-type scale and measured using four constructs: technical usability, content interpretation, content generation, and anticipatory reflection.

The 28 questions asked participants to rate their level of agreement as follows: strongly agree, 5 points; agree, 4 points; neutral, 3 points; disagree, 2 points; or strongly disagree, 1 point. The instrument also included five demographic questions about county, the number years participating in the OK-EMG program, gender, age, and ethnicity. The demographic questions provided the opportunity to investigate the potential relationships between social media competency and factors such as time participating in the OK-EMG program and age.

Reliability and validity

For each construct, the subscale coefficient values were 0.92 for technical usability, 0.94 for content interpretation, 0.95 for content generation, and 0.95 for anticipatory reflection (Zhu et al. 2020). An internal consistency of 0.7 is considered acceptable, 0.8 is good, and 0.9 is excellent (Kline 2000; Nunnally and Bernstein 1994).

Data analysis

The data collection process resulted in 273 survey responses. After removing incomplete responses, there were 219 usable surveys. The Statistical Package for the Social Science for Mac version 28 (SPSS Inc., Chicago, IL, USA) was used to perform all statistical analyses in this study.

Limitations

The sample of this study was limited to OK-EMGs. The results cannot be generalized to other EMG programs. The use of self-reported data about social media competencies relied on accurate assessments by participants regarding their own abilities. Because the survey was only distributed via e-mail, the sample was reduced to

only those OK-EMGs who were on the e-mail list; this was an additional limit of this study. The groups represented in this sample were not equal. Representation of the digital immigrants greatly outweighed the representation of digital natives. This uneven representation was mitigated by the statistical tests chosen to interpret results (i.e., Kruskal-Wallis) (McKight and Najab 2010).

Results

Research objective 1: Describe the demographics and background characteristics of OK-EMGs

National EMG demographics from previous studies have shown that the average EMG is typically 50 years of age or older, white, and female (Dorn et al. 2018; Takle et al. 2017). The population of this study had similar demographics, with 133 respondents who were 65 years of age or older, 186 white respondents, and 174 female respondents.

Participants' years of involvement in the OK-EMGs program are outlined in Table 1. Years of participation in the program ranged from 1 to more than 20 years. The largest proportion of participants (n = 59; 26.9%) reported being involved for 1 year, and 28 (12.8%) reported being involved for 2 years. Ten respondents (4.67%) had remained active in the OK-EMG program for 7 years. Ten respondents (4.67%) reported participation in the OK-EMG program for 20 years or more. Fewer than 1% of the participants were between the ages of 18 and 24 years (Table 2). There were 52 respondents (23.7%) in the group 55 to 64 years of age. Most participants, specifically 133 (60.7%), were 65 years of age or older.

Table 1. Years of participation in the Oklahoma Extension Master Gardeners Program (n = 219).

Years of participation	f	%
1	59	26.9
2	28	12.8
3	17	7.8
4	12	5.5
5	12	5.5
6	7	3.2
7	10	4.6
8	8	3.7
9	12	5.5
10	10	4.6
11	6	2.7
12	7	3.2
13	6	2.7
14	2	0.9
15	5	2.3
16	2	0.9
17	2	0.9
18	2	0.9
19	2	0.9
20+	10	4.6

Table 3 represents the racial and ethnic identities reported by the survey participants. One participant was Asian or Pacific Islander. Two participants (0.9%) reported they were African American or Black. Of the participants, 15 (6.8%) responded they were Native or Alaskan Native. Many of the participants (n = 186; 84.9%) reported they were either White or Caucasian. Two respondents (0.9%) identified as multiracial or biracial.

The distribution of gender within the respondents was significantly female (n = 174; 79%). Forty (18.3%) male individuals participated in the survey. Table 4 illustrates the gender of the participants.

Research objective 2: Describe the social media competency of OK-EMGs

Descriptive statistics were run for the four constructs to determine the social media competency of the OK-EMGs. Of the four constructs, content interpretation had the greatest mean score of 4.12. Content generation had the lowest mean score of 3.58. Table 5 displays all the constructs and their descriptive data.

Research objective 3: Describe the difference between the social media competency of digital natives and that of digital immigrants in the OK-EMG program

The six age categories (18–24 years; 25–34 years; 35–44 years; 45–54 years; 55–64 years; 65 years or older) were further categorized as either digital natives or digital immigrants. Those 18 to 44 years of age comprised the digital native group, and those 45 years or older comprised the digital immigrant group.

Table 2. Age range of Oklahoma Extension Master Gardeners (n = 218).

Age range	f	%
18–24 years	1	0.5
25–34 years	4	1.8
35–44 years	11	5.0
45–54 years	11	5.0
55–64 years	52	23.7
65 years or older	133	60.7
I do not wish to identify	6	2.7

Table 3. Ethnicities of Oklahoma Extension Master Gardeners (n = 219).

Ethnicity	f	%
Asian or Pacific Islander	1	0.5
Black or African American	2	0.9
Native American or Alaskan Native	15	6.8
White or Caucasian	186	84.9
Multiracial or biracial	2	0.9
A race/ethnicity that is not listed	1	0.5
I do not wish to identify	12	5.5

A Mann Whitney U test revealed a statistically significant difference between digital natives (mean rank = 153.69) and digital immigrants (mean rank = 102.65) regarding the technical usability construct (U = 81.3; P = 0.001). Digital natives had a higher score than digital immigrants. In this case, the null hypothesis was rejected (Table 6).

The content interpretation scores of digital natives (mean rank = 130.78) and digital immigrants (mean rank = 104.52) were not statistically significantly different (U = 130.78; P = 0.098). Because there was no significant difference between the group mean scores, we failed to reject the null hypothesis (Table 7).

The scores for content generation between digital natives (mean rank = 131.75) and digital immigrants (mean rank = 103.340) were not statistically significantly different (U = 1132.00; P = 0.072). Because no significant difference was found, we failed to reject the null hypothesis (Table 8).

For anticipatory reflection, there was no significant difference between digital natives (mean rank = 113.06) and digital immigrants (mean rank = 105.420) (U = 1447.00; P = 0.629). Because there was no significant difference between the groups, we failed to

Table 4. Genders of Oklahoma Extension Master Gardeners (n = 219).

Gender	f	%
Female	174	7
Male	40	18.3
I do not wish to identify	5	2.3

Table 5. Social media competency descriptive statistics (n = 219).

	n	Min	Max	M	SD
Technical usability	219	1.00	5.00	4.01	0.89
Content interpretation	219	1.00	5.00	4.12	0.71
Content generation	216	1.00	5.00	3.58	0.88
Anticipatory reflection	217	1.44	5.00	4.03	0.49

Scale of 1 to 5: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.
M = mean; Max = maximum; Min = minimum; SD = standard deviation.

reject the null hypothesis. Table 9 illustrates the lack of differences between digital natives and digital immigrants. When compared with digital immigrants, digital natives exhibited a much greater level of technical usability. However, no other competency scores differed between groups.

Conclusions and implications

The results showed relatively high levels of self-perceived social media competency across all four constructs. This aligns with previous literature that reported that Extension volunteers and EMGs tend to be highly engaged (Dorn et al. 2018; Meyer et al. 2010). The relatively high mean scores also indicated that OK-EMGs felt confident in their ability to understand information on social media and their critical thinking skills to evaluate the credibility and reliability of the social media content. Because OK-EMGs are trusted to disseminate information, their confidence in their social media competency is promising in terms of their willingness to help with social media outreach efforts because the social cognitive theory proposes that self-efficacy is correlated with higher motivation to engage in behaviors (Bandura 2010). The overall high competency scores inferred that OK-EMGs will be more willing to use social media on behalf of Extension.

Digital natives had higher scores for technical usability compared with those of digital immigrants. The higher scores of technical usability indicate that digital natives are confident in their capability to navigate the technical aspects of various social media platforms. This includes the ability to use social media platform features and understand terminology. There was no significant difference between digital natives and digital immigrants for the other competency constructs (content interpretation, content generation, and anticipatory reflection). Digital natives viewed themselves as more adept at technical usability, and both groups had similar confidence when it came to comprehending social media content, creating quality content, and self-awareness of understanding the effects of the content they post before doing so.

The significant difference in technical usability among digital natives may be attributed to their generation's exposure to digital platforms as compared with those of digital immigrants. These findings align with the concept of mastery experiences according to Bandura's self-efficacy (Bandura 1997). Digital natives, who have grown up in a technology-driven world, have lived every day with technology, which has resulted in their accumulation of master experiences (Bandura 1997). The results of research question three brought about the following questions: 1) should Extension and the EMG program adapt their training content to build social media competency for all volunteers? and 2) should OK-EMGs help with social media outreach efforts?

Recommendations

Recommendations for the OK-EMGs

The overarching recommendation from this study is that EMGs should help with social media outreach after proper training. Based on the results of this study, there are several reasons why implementing social media in EMG training should be considered. There were significant differences in SMC across different age categories, thus inferring that not all members felt capable of using social media effectively. Developing tailored programs by age or digital citizenship could help address the specific needs and learning styles of the OK-EMGs.

Considering social media is always changing, OK-EMGs need to stay up-to-date. It is important for them to continue expanding their knowledge of social media tools and best practices; this could be done through workshops, online resources, or even peer learning. Those with a higher level of self-efficacy within the social media constructs could help with peer learning. Perhaps peer learning between digital natives and digital immigrants could help build the digital immigrants SMC. By observing those who are confident when using social media, volunteers could learn from their experiences, which could lead to an increase in their self-efficacy. This is an example of learning through vicarious experiences (Bandura 1997). There could be value in the OK-EMGs partnering with social media influencers in the horticulture space. These partnerships, by capitalizing on the large following of influencers, could elevate awareness of the Oklahoma CES and followership to help drive traffic to the Oklahoma CES resources. These partnerships would require additional and extensive training and guidelines.

Recommendations for the Oklahoma Extension

State level extension. With the new understanding that some OK-EMGs lack confidence in their social media skills, Extension State Specialists should develop programming for EMGs that covers different social media platforms and how to use them effectively. This programming needs to be adaptable for people with varying degrees of experience and skill with social media platforms. Having universal programming would give Extension State Specialists the flexibility to use the social media training in other areas of Extension and other volunteers if desired. Training should

Table 6. Technical usability score by digital citizenship (n = 212).

Categories	n	Mean rank	U	z	P
Digital natives	16	153.69	81.3	−3.238	0.001***
Digital immigrants	196	102.65			

Scale of 1 to 5: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.
$P < 0.05$ was considered significant.

Table 7. Content interpretation score by digital citizenship (n = 212).

Categories	n	Mean rank	U	z	P
Digital natives	16	130.78	1179.50	−1.654	0.098
Digital immigrants	196	104.52			

Scale of 1 to 5: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

be divided into four units based on the social media competency constructs. Technical usability refers to being capable of working social media (Zhu et al. 2020). Working with the Oklahoma State Digital Media Specialist to develop a best practices social media toolkit would be beneficial. For states that do not have State Digital Media State Extension Specialists, EMG State Coordinates could work with Extension communication teams to develop similar tools. The Extension Foundation could also serve as a hub for online training for EMGs and other Extension volunteers.

The EMG Coordinators need to assess the current EMG curriculum to include training on social media. Feeling competent in this area is a critical skill to have in today's world of information dissemination. Furthermore, the training material should be regularly assessed to ensure it remains relevant and effective. Results of a national EMG survey found that participants were open to and interested in receiving coordinated social media training on a national scale (Vines et al. 2016). At the time of this study, training had not yet been created; therefore, we would suggest working to develop training. Offering social media training in a hybrid (both in-person and online) format would reach wider audiences and provide them with a dynamic learning experience of adapting to and learning how to use technology. Training should also be formatted to allow EMGs to observe peers and Extension personnel using social media, which could help strengthen their self-efficacy beliefs through the vicarious experiences of seeing others using it (Bandura 1997).

Extension educators. From the results of this study, it is now known that OK-EMGs generally feel confident in their social media competency depending on the age group. So, those who feel efficacious using social media could potentially help with social media outreach efforts. It is important to encourage OK-EMGs to regularly use social media, thereby helping to increase their comfort level and competency with the platforms. Bandura (1997) said that individuals are more likely to persist in pursuing their interests when they possess a sense of self-assurance in their abilities to successfully attain the associated goals. Extension educators play a role in shaping the self-efficacy of OK-EMGs. By providing encouragement and positive feedback throughout the process of OK-EMGs who are learning to use social media, they are engaging in verbal persuasion. Bandura (1997) said that verbal persuasion can help boost confidence and motivation. Therefore, the support offered by Extension educators could help OK-EMGs build higher self-efficacy in their social media competency.

According to Solis-Toapanta et al. (2020), misinformation is rife on social media platforms, particularly regarding horticulture information. Through training and those who feel confident in their social media capabilities, EMGs could use their skills to debunk horticulture misinformation spread on social media and guide users to Extension's credible and research-based resources. The OK-EMG program has not given priority to social media as a qualifying activity for volunteer hours (Vines et al. 2016). Because prevalent social media platforms are an information resource, we suggest social media outreach should be allowed as a qualifying volunteer hours activity for the OK-EMGs.

Extension literature has alluded to the challenge of how Extension will stay relevant in a technology-driven world (Diem et al. 2011). Extension could provide more professional development opportunities for Extension personnel to enhance their social media skills. It is important to emphasize social media training for the OK-EMGs and other volunteer groups within Extension. Policies should be developed to support and guide Extension professionals in their use of social media. Barriers to social media use by Extension educators is a well-documented topic (Diem et al. 2011; Newbury et al. 2014). However, more than simply recognizing those barriers is necessary. If Extension systems implement training, develop resources, and establish guidelines and best practices to support educators and volunteers, then, eventually, all Extension personnel and volunteers could develop skills and build the self-efficacy needed to use social media effectively.

Recommendations for future research

Conducting interviews or focus groups with OK-EMGs and their local Extension leaders would help further the understanding of their perspectives and experiences with social media. This would provide more details and specific needs for training that the survey did not capture. Interviewing digital natives and digital immigrants would reveal differences in attitudes and challenges among the different generations using social media. Expanding this study to other states would also show whether our results can be generalized more widely or are unique to the OK-EMGs.

If social media training becomes available, then it would be interesting to conduct a pretraining and post-training study to evaluate changes in the social media competency of OK-EMGs. Replicating this study with other Extension groups such as 4-H volunteers would provide insight into social media skill

Table 8. Content generation scores by digital citizenship (n = 210).

Categories	n	Mean rank	U	z	P
Digital natives	16	131.75	1132	−1.801	0.072
Digital immigrants	194	103.34			

Scale of 1 to 5: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

Table 9. Anticipatory reflection score by digital citizenship (n = 211).

Categories	n	Mean rank	U	z	P
Digital natives	16	113.06	1447.00	−1.801	0.072
Digital immigrants	195	105.42			

Scale of 1 to 5: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

levels throughout Extension. Rather than using survey methodology again, conducting a qualitative content analysis of existing social media output by OK-EMGs would uncover their strengths and knowledge gaps. It is also vital to assess the willingness of OK-EMGs to use social media to support the horticulture outreach of Extension and their Extension leader's level of engagement in the social media work.

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