

Transformation of Faculty Dissemination Practices Via Social Media

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Transformation of Faculty Dissemination Practices via Social Media

Abstract

An expected outcome for academic researchers includes dissemination of their research in traditional venues such as peer-reviewed journals and at academic conferences. With a growing emphasis on broadening the participation of diverse audiences within science, technology, engineering, and mathematics (STEM), federal agencies are encouraging researchers to diversify the ways that they are communicating their research findings and are presenting themselves to nonacademic audiences. Aligned with this goal of broadening participation is Golde and Walker's idea of transformation,¹ which focuses upon the ability of scholars to communicate their technical research in a variety of ways via activities such as out-of-class teaching, oral presentations, and outreach activities.

This paper reports findings of an exploratory study that investigates avenues through which transformation within STEM occurs via social media (e.g., Twitter and Facebook) along with ways that underrepresented minority (URM) faculty researchers are branding themselves across a variety of social media platforms. This study is similar to Pearson's work that explored faculty's use of social media and their concerns about social media usage.² It differs, however, in its focus on ways in which URM faculty are disseminating information about their scholarship via social media, their reasons for selecting the social media that they choose, their frequency of social media use for academic purposes, and their perceived understandings of the effects of such use. Research results and expertise from a nationally recognized entrepreneur and media personality will be used to inform a discussion about ways that underrepresented minority STEM researchers, a group that has traditionally been marginalized and isolated within the academy, may expand their reach to society via social media and may disseminate their work efficiently and effectively given the rigorous demands of academic life.

Introduction

Social media is becoming increasingly popular among people of all ages and stations of life. In 2012, the Pew Research Center estimated that 67% of adults over age 18 use social media (i.e., Facebook (67%), Twitter (16%), Pinterest (15%), Instagram (13%), and Tumblr (6%)),³ with 42% using more than one social media platform.⁴ Among underrepresented populations, Twitter has been found to be most appealing to African-Americans, and Instagram has been found to be most appealing to African-Americans and Latinos.⁴ Those with college educations are most likely to use Pinterest.⁴ With approximately 70% of all households in the U.S. having access to broadband or dial-up internet connections, 90% with access to cell phones, and 58% of U.S. adults reporting use of smartphones,⁵ social media networks such as Facebook and Twitter are sure to become increasingly popular at higher education institutions in and out of the classroom.

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conferences. With a growing emphasis on broadening the participation of diverse audiences within science, technology, engineering, and mathematics (STEM), federal agencies are encouraging researchers to diversify the ways that they are communicating their research findings and are presenting themselves to nonacademic audiences.

As the number of social media platforms increases, academic researchers have opportunities to communicate their research in nontraditional ways to broader audiences. Although such options exist, it is not clear to what extent faculty researchers, particularly those in STEM, utilize social media to connect professionally and personally.² Of particular interest is how social media might be used to address some of the barriers and challenges (e.g., marginalization, isolation, and pioneerism) experienced by underrepresented minority (URM) faculty in STEM fields.

Since no known articles have explored exclusively the personal and professional use of social media by URM faculty in engineering, this preliminary paper offers, via survey responses from a small sample of URM faculty in STEM, an initial glimpse of current practices and perceived barriers to social media use. It reports findings of an exploratory study that investigates avenues through which traditional faculty responsibilities (i.e., teaching, research, and service) within STEM occur via social media (e.g., Twitter, Facebook, and LinkedIn) along with ways that URM faculty researchers are branding themselves across a variety of social media platforms. This study is similar to Pearson's work² that explored faculty's personal and professional uses of social media and faculty's concerns about social media usage. It differs, however, in its focus on ways in which URM faculty are disseminating information about their scholarship via social media, their reasons for selecting the social media that they choose, their frequency of social media use for academic purposes, and their perceived understandings of the effects of such use.

Literature Review

Aligned with the idea of broadening participation is Golde and Walker's¹ idea of transformation, which focuses upon the ability of scholars to communicate their technical research in a variety of ways via activities such as out-of-class teaching, oral presentations, and outreach activities. More formally, Golde and Walker define transformation as "teaching in the broadest sense of the word" (p. 11).¹ One way to engage in transformation is via social media. Through on-line networks, faculty can communicate their work to audiences in new ways quickly and concisely. Examples of transformation as informed from interviews with engineering professionals include the following: communicating with multidisciplinary groups of people; teaching and outreach; verbal and written communication; and finding broad applications for knowledge, findings, and insights.

Faculty Use of Social Media Sites

Researchers have noted several benefits for faculty use of social media and have identified meaningful ways for faculty to engage in social media. Among these include

the ability for scholars to network and to collaborate with peers globally and outside of the academy; to stay abreast of scientific knowledge and discovery in their respective fields; to engage with others in informal conversations about a variety of topics; and to present research findings to larger communities, particularly the public.^{6,7} Scholarly uses of Twitter include information sharing, expanding learning opportunities beyond the classroom, requesting assistance and providing suggestions, living social public lives, digital identity and impression management, connecting and networking, and highlighting presence across multiple social networks.⁸ Consistent with research about the benefits of social media use is Cain's⁹ observation that a primary use of social media by faculty is in the area of networking with other professionals. Gruzd⁷ noted that the major portion of such networking via social media occurs among junior scholars. Debatin et al.¹⁰ expect that the benefits of social media use may outweigh any perceived concerns (e.g., privacy) that users may have.

Although faculty are increasingly using social media in various ways, tensions have been found to exist between personal and professional uses of social media. In fact, Veletsianos¹¹ noted that balancing personal and professional profiles can be difficult for faculty. For this reason and to address concerns about on-line content being used against them, faculty often create multiple professional profiles. Despite these difficulties, Veletsianos observed scholars' use of social media in nonprofessional settings and noted that sharing of nonacademic information (such as happy occasions like birthday celebrations or struggles like divorce) can serve as significant social bonds for a community.¹¹ Mazer et al.¹² also found that although scholars may fear sharing personal aspects of their lives, given potential loss of credibility, instructors who are able to personally relate to students are more likely to be perceived as credible.

Barriers to Social Media

Although known for their uses in personal settings, social media has been used less frequently in classroom environments. In a study of pharmacy faculty, Cain⁹ found that the majority of pharmacy faculty who completed questionnaires in their study use Facebook for teaching and learning, followed by blogs. This is not surprising, since Facebook was created as a primarily social network to connect friends and family, not as a professional network for teaching. Ajjan and Hartshone¹³ noted that few faculty use social media in the classroom and a vast majority of other faculty do not want to use social media in their teaching.

Despite the benefits of social media use by faculty, barriers exist. Cain identifies three reasons that faculty do not engage in social media to be (1) a lack of familiarity with various social media platforms, (2) uncertainty about how to use social media within the classroom, and (3) concerns about the implementation of social media applications.⁹ Also an emphasis is placed on privacy issues, which may restrict faculty from sharing personal aspects of their lives and may cause them to want to safeguard themselves against privacy violations despite having no knowledge of how to do this.⁹ In addition to these barriers, Gruzd⁷ identifies potential barriers of social media use to be faculty's limited time to use social media and copyright concerns, including loss of intellectual

property. Finally, Veletsianos⁶ found four areas of concern among faculty users of social media include “establishing personal and professional boundaries, maintaining appropriate and meaningful connections, structuring participation so that other see me in a certain light, and using my time efficiently.”

Despite the focus on faculty uses of social media in science, technology, engineering and mathematics (STEM), no studies have explored explicitly the use of social media by faculty of color in engineering. For this reason, the current research is being conducted.

Methods

Participants

Within this paper, detailed responses from 12 URM engineering faculty are examined. They are all members of underrepresented groups who are currently employed within engineering departments at academic institutions. These twelve responses were part of a larger sample of approximately 57 survey participants who represented a variety of STEM and non-STEM disciplines. Potential participants were identified and invited to partake in the survey through e-mail. An open call for participation was also posted through Twitter and Facebook. Groups were asked to pass recruitment requests to their professional networks. Explicit efforts were made to target STEM underrepresented faculty.

Data Collection

An online survey consisting of 33 closed-ended and open-ended items was created via Qualtrics, an on-line survey software that was adapted from a larger social media study conducted by Pearson.² The piloted survey was distributed within this preliminary study with a possibility of expanding and validating the study among a larger number of URM faculty in STEM in the future. In addition, demographics included information about participants’ sex, race, ethnicity, discipline, and rank. Closed-ended responses explored participants’ frequency of social media use for professional and personal use, as well as for teaching, research, and service. Finally, open-ended questions allowed participants to elaborate on their barriers for engaging in social media for professional and personal use. In addition to responding to potential social media barriers such as issues of privacy, value, time, and interest, respondents were asked to provide additional information about their concerns regarding social media use.

Data Analysis

The authors noted general trends across respondents related to their personal and professional social media use. Open-ended responses were methodologically coded using Glaser and Strauss’ constant comparative method.¹⁴ Both quantitative and qualitative findings were considered within the results section of the paper.

Results

Personal and Professional Use of Social Media

We first wanted to examine the frequency with which the twelve underrepresented faculty in the study use social media both personally and professionally. Participants were asked to indicate how frequently they used 11 social networking platforms, including Twitter, Facebook, Google+, LinkedIn, Foursquare, Instagram, Pinterest, Klout, Podcasts, Blogs, and Wikis. With regard to *personal use*, the most frequently used platforms were Twitter, Facebook, Google+ and LinkedIn (Figure 1). Respondents reported using these social networking platforms more often in a personal capacity (Figure 2) than in a professional capacity (Figure 3). Even for those platforms that respondents reported using, frequency of use was only occasional.

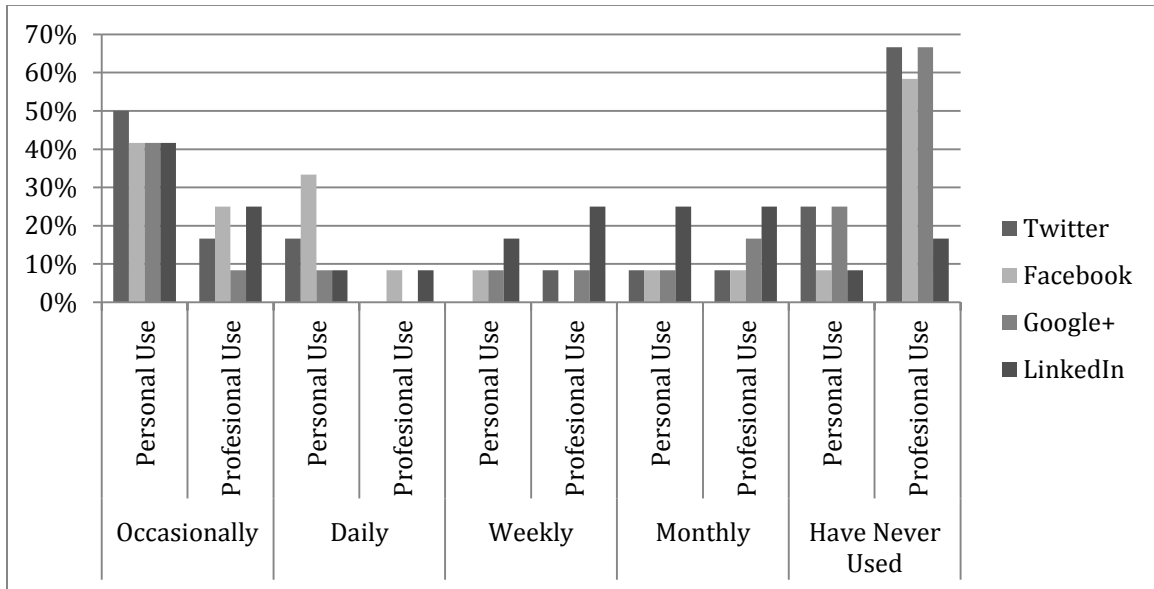


Figure 1- Frequency of Personal and Professional Use across Top Platforms

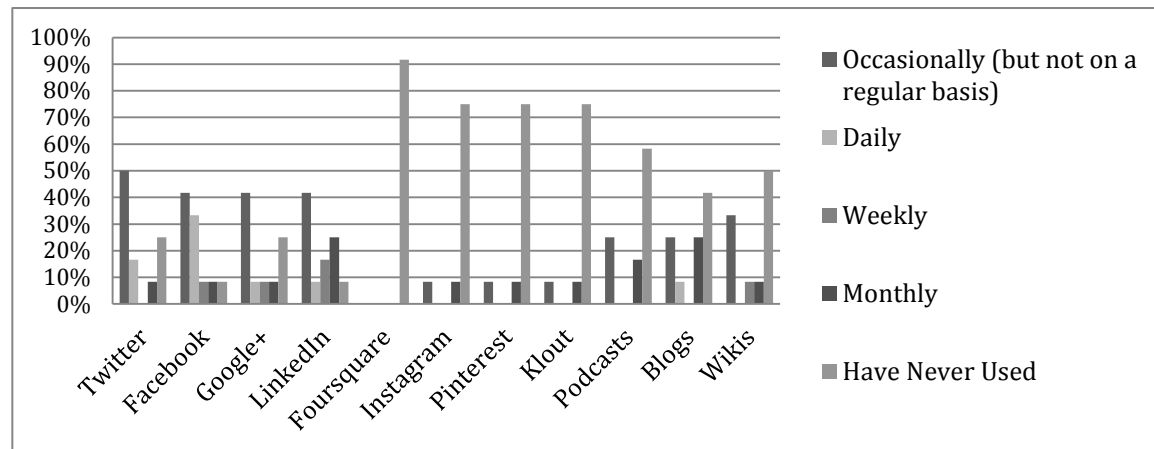


Figure 2- Percentage of Personal Social Media Use across Platforms

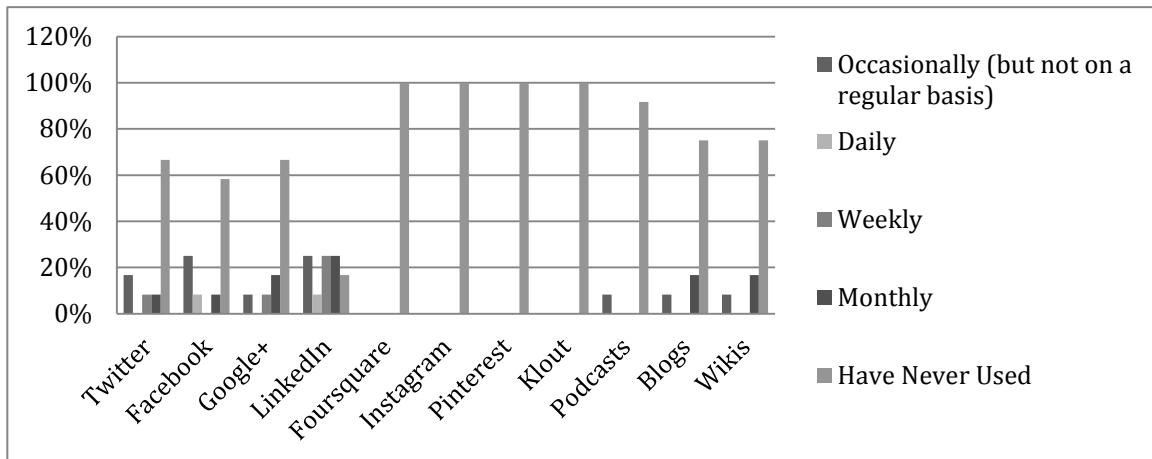


Figure 3- Percentage of Professional Social Media Use across Platforms

Frequency of Use across Popular Platforms

Because Twitter, Facebook, LinkedIn, and Google+ were used to some degree both personally and professionally we wanted to compare frequency of use for each platform. For Twitter (Figure 4), Facebook (Figure 5), and Google+ (Figure 6), 60% or more of respondents reported having never used those platforms in a professional context. All the platforms except LinkedIn (Figure 7) were used more often in a personal than a professional context.

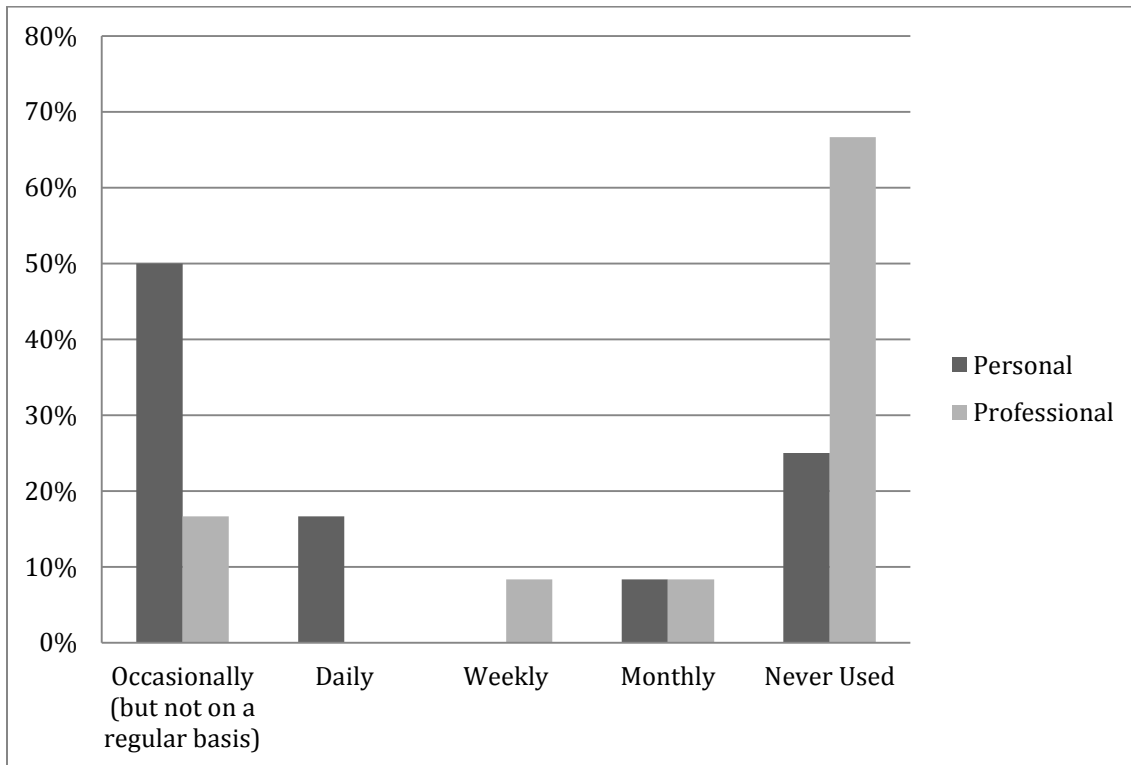


Figure 4- URM Faculty's Personal and Professional Use of Twitter

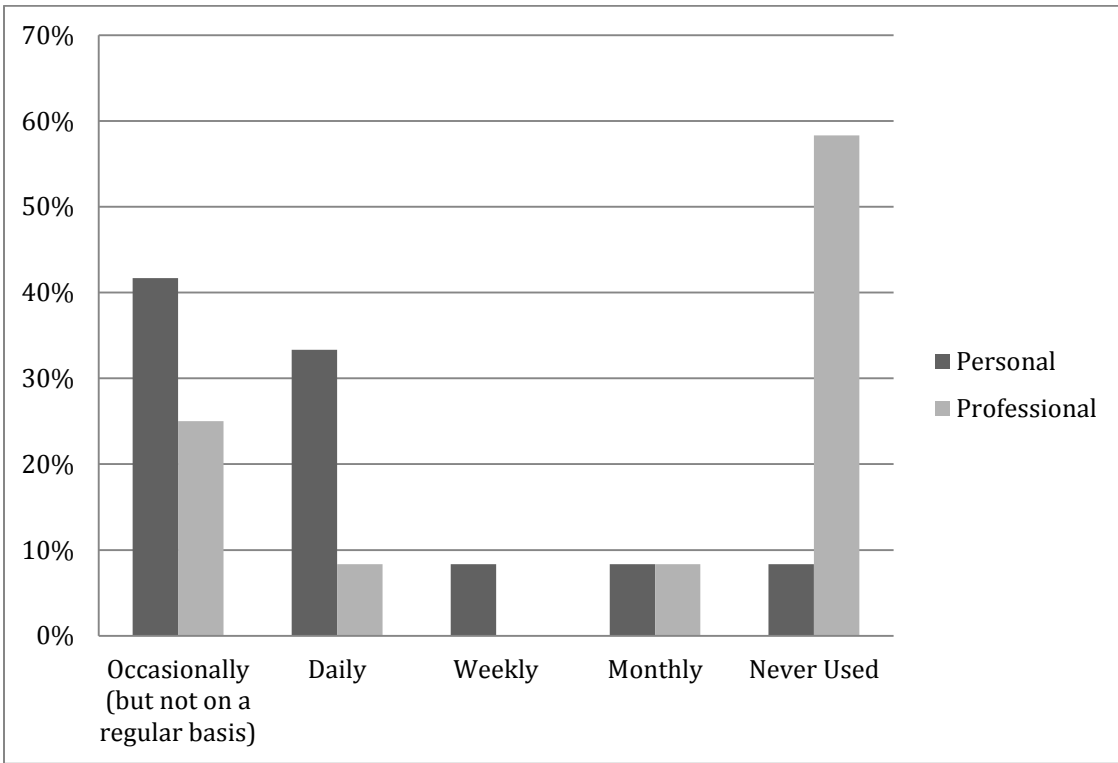


Figure 5- URM Faculty's Personal and Professional Use of Facebook

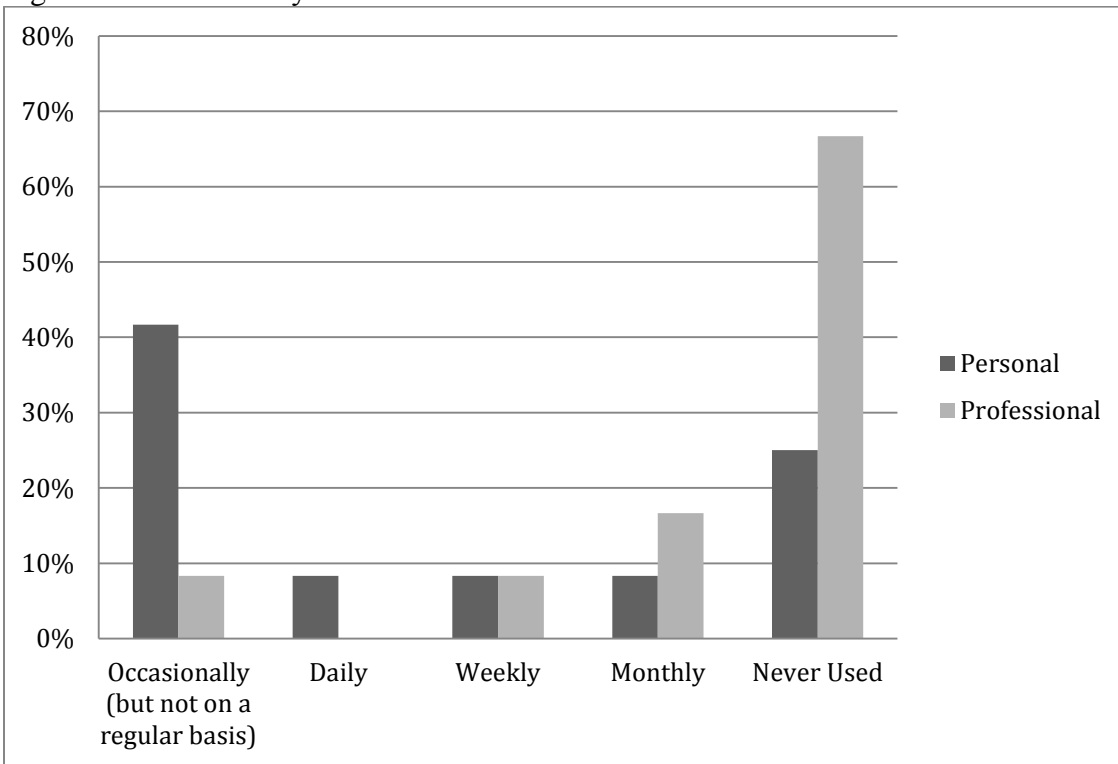


Figure 6- URM Faculty's Personal and Professional Use of Google+

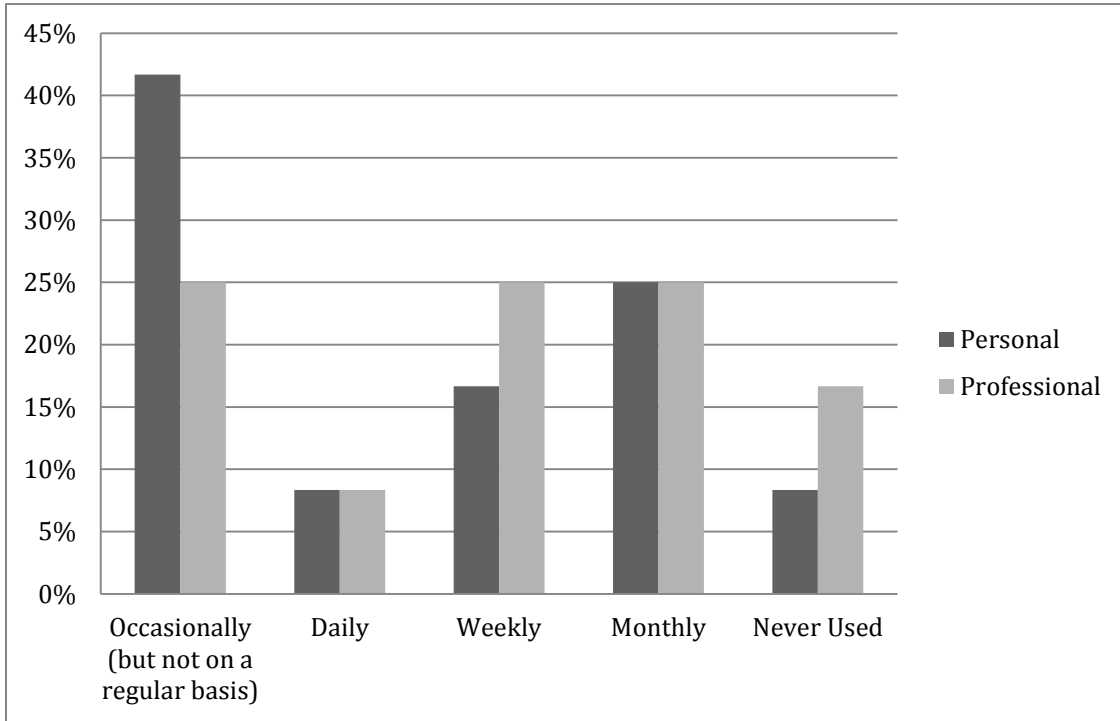


Figure 7- URM Faculty's Personal and Professional Use of LinkedIn

Social Media Use for Teaching, Research, and Service

Respondents were also asked to indicate whether they had ever used the selected platforms for teaching, research, or service (Figure 8). Results suggest that the majority of respondents do not use social media in any of those professional contexts. The most frequent context in which social media was used was research (though still only 8% of respondents reported using those social media platforms for research).

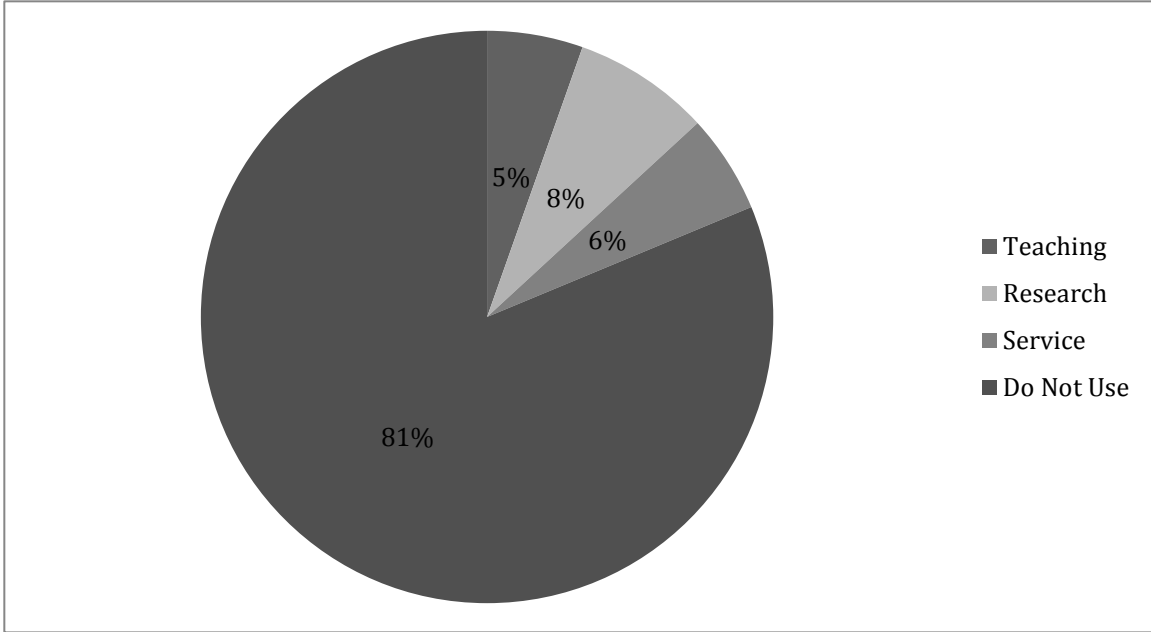


Figure 8- Social Media use for Teaching, Research, and Service

We again wished to examine use of the top four social media platforms with regard to use in teaching, research, and service. Although the majority of respondents reported not using these platforms, when they were used, there were differences in which context they were employed. Facebook was used most often for teaching (15%), LinkedIn was used most often for research (21%), and Twitter and Google+ were used most often for service (17% and 9%, respectively) (Figure 9).

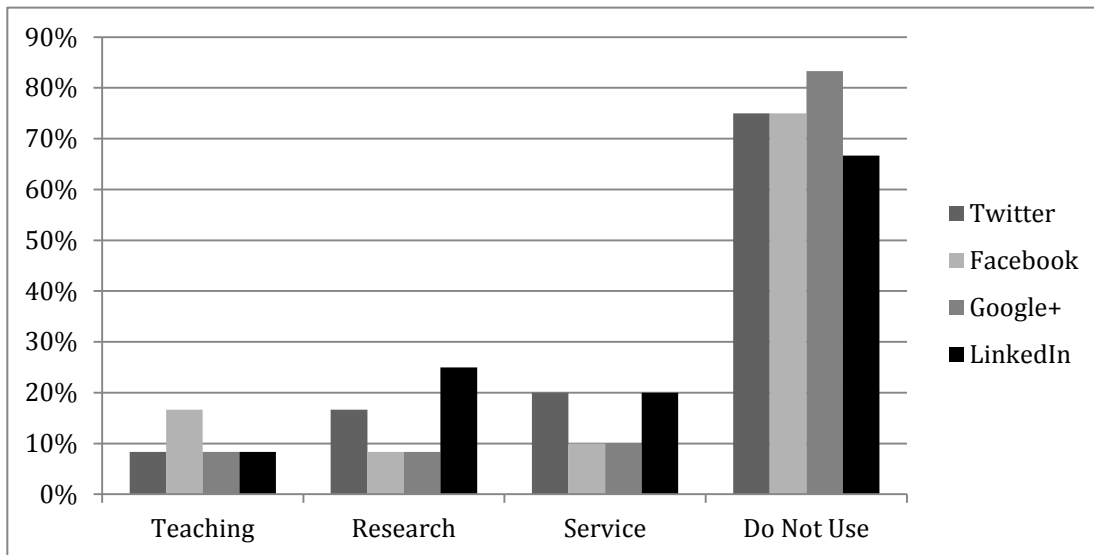


Figure 9- Social Use by URM faculty for Teaching, Research, and Service

Overall, results of the study suggest that underrepresented faculty members are not actively utilizing social media in a professional context. When social media is utilized, various platforms are employed at different rates for teaching, research, and service. These differences may reflect the nature of the platform, the target audience, and the capabilities of the platform.

Potential Barriers to Social Media Use

In addition to exploring closed-ended responses from URM engineering faculty, faculty were asked open-ended questions about potential barriers to using social media. A summary of responses for each of the barriers (i.e., time and privacy) is found below along with other concerns.

Barrier	Findings
Time	Time is a limited resource for faculty members. Building and maintaining an image on social media is time consuming, and faculty have other priorities.
Privacy	Separating what type of information you share with certain audiences can be difficult. Social media can jeopardize faculty credibility and subject them to unwanted feedback and/or criticism.
Interest in Using Social Media	Faculty are interested in learning how to improve usage of social media sites but vary in their interest in using social media to connect with younger audiences.
Value in Using Social Media	There is an overall consensus that social media has value for faculty members professionally in networking.
Other Concerns	Additional concerns include potential loss of credibility and harm to one's professional image.

Discussion and Recommendations

URM faculty, and faculty in general, have unique opportunities to use the new platforms and opportunities to “brand themselves.” URM STEM faculty may follow the examples of other minority faculty such as Melissa Harris Perry, Marc Lamont Hill, and Michael Eric Dyson, who successfully have used new media platforms to brand themselves. The key distinction point is whether or not academic staff see themselves as “media entities.” The value of this shift in thinking is evident in the successes that Harris Perry, Hill, and Dyson have had (i.e., more general audience reach for their ideas, greater influence among thought leaders, increased revenue opportunities, etc.). Additional

motivations for faculty to engage in a variety of social media sites and activities and to leave their comfort include the following:

- *Growth Happens Beyond Our Comfort Zone* - This sounds very philosophical but it's also rooted in science. Ask any physiologist about the growth of our muscles and they will underscore this concept. Expansion is impossible without moving beyond what we already possess.
- *Digital Trend Studies Are Clear* - Every week, Mashable and other leading technology resources profile new studies outlining how the world's economy is not only shifting but is forever altered by new media. Academics as an industry not only reflects the world's economy but in theory, should be ahead of it.
- *New Opportunities* - Whether it be new publishing projects, additional research funding, elevated thought leadership, wider professional circles, etc., social media creates new channels for success. Although networking is the primary focus of using social media sites, faculty must also "listen" to what other thought leaders are saying and doing via social media.
- *Better Research* - Also considered an opportunity but so important it deserves a separate silo. Research is the blood of vitality of academic staff. Social media allows for unprecedented outreach (and gathering efficiencies)

In response to faculty maintaining professionalism within the academy and benefitting from the strengths of social media interactions with students, professionalism may be maintained the same way CEOs, authors, pastors, and other thought leaders must operate in transparency. This transparency, coupled with the value of a Ph.D. may result in "leverage points" that may be all factored in a faculty member's platform and influence within their platforms. This is exactly why building platform is so critical for thought leaders.

A comprehensive approach is required in order to alleviate and more importantly, engage academics in active social media usage. There are several ways to alleviate some of the concerns that academics might have regarding social media interactions. Among these include the following:

- *Academic Institution Development/Training Courses* - Institutions stand the most immediate upside by their academic staff leveraging technology. Ultimately, a social media engaged faculty means more institutional visibility and more visibility leads to a variety of opportunity. Bottom line, institutions must invest in social media training (and to a certain degree, all of the following suggestions can be associated within a training program). This aligns with Veletsianos'¹⁹ work that suggests formal training for doctoral students and faculty so that they can engage in meaningful collaborations and research experiences via social media.
- *Bottom Up Approach* - Students are the low hanging fruit in the wave to shift faculty's mindsets about social media. Faculty would benefit from finding ways to engage actively with their students about a variety of topics that may be communicated via social media. Why? Students are already actively engaged in the medium of social media and have significant mind share with their professors.

Future research might address the following questions:

- (1) How can some of the concerns posed by faculty be alleviated regarding social media interactions?
- (2) Why should faculty engage in a variety of social media sites and activities, especially when they are in their comfort zones? If other words, if what they are doing works for them, why change?
- (3) How might minority faculty use the new platforms and opportunities to brand themselves in a world where such branding has never occurred? Why focus on this, and how might engagement in social media change the academia and the impact of its scholars?
- (4) What does professionalism look like on social media? How can one define it for professionals, and how can people be taught how to engage in professional behavior?

Conclusion

Although much research confirms that social media use is a growing trend, faculty still have concerns about using a variety of platforms to communicate personally and professionally. Through formal training and conversations addressing the challenges and barriers to social media use, we anticipate that platforms that were not designed for academic use may become ways for STEM scholars to communicate with the work about their research and about ways that this research impacts society.

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