Using a Modified Understanding by Design® Framework to Incorporate Social Media Tools in the Management Information Systems Curriculum for Generation Y and Z Students

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ABSTRACT

Students in the 21st century management information systems (MIS) classroom are seeking not only conceptual understanding but also methods of communicating that are familiar and accurately reflect how they learn and acquire knowledge. Concurrently, employers of 21st century job applicants are still looking for many of the same skills they sought more than a decade ago. As a result, teachers are tasked with curricular planning that involves a delicate balance between content, resources, tools, and environmental demand. In this paper, the authors propose a modification to a well-established course design framework – Understanding by Design® – as a solution to combining MIS content and sought-after soft skills with social media tools and resources favored by the current college-aged population: digital pioneers and natives of Generations Y and Z.

Keywords: Social media, Gen Y, Gen Z, Soft skills, Understanding by Design, Course development models

1. INTRODUCTION

The educational process is in a continuous state of change. Faculty frequently tweak their courses to keep pace with external changes in industry, education, culture, the environment, and employer expectations. However, as course content and instructional methods are adjusted, added, or enhanced, courses may deviate from their original learning objectives and content foci.

In this paper, we propose a method by which educators may address the changing learning proclivities of MIS student populations while simultaneously preserving content focus and objectives. Studies demonstrate that the addition of social media platforms (SMPs) to higher education curricula improves student engagement and the development of social soft skills, especially for *digital natives* – Generation Y and Z students. Despite this significant need for the integration of SMPs into learning plans and course curricula, few models or methods for accomplishing integration currently exist in the literature.

Therefore, because instructional designers and educators would benefit from a contemporary framework to guide the integration of SMPs and other social media tools into their course designs, the authors have adapted an outcome-based model – Understanding by Design® (UbD) – to include social media considerations. Beginning with the identification of knowledge, along with the understanding and skills educators seek to share and promote through the MIS classroom, UbD is a model that will help faculty in retaining appropriate content, focusing on skill development, and engaging students while they continue to incorporate new technologies and learning methodologies. We then apply the model – modified to accommodate student predilection for social media resources – to a graduate-level Master of Business Administration (M.B.A.) MIS course.

2. LITERATURE BACKGROUND

In this paper, the authors focus on the incorporation of social media tools into curricula to effectively educate the current

student body. With that in mind, in the following two sections, we examine three streams of literature: characteristics of the current population of students and their preferred learning styles, skills that current employers seek, and the evaluation and proposal of learning models that can be applied to effectively teach students the skills they need in an engaging manner.

2.1 Yers, Zers, and Social Media
Social media use is omnipresent among digital natives – students born in the early 1980s to mid-1990s (Generation Y/Gen Y/Millennials) and between 1996 and 2012 (Generation Z/Gen Z). While there are some differences between the generational groups – Generation Y individuals tend to collaborate, for example, while Generation Z individuals prefer to work independently – both populations are technologically savvy and have even been described as being "obsessed" with social media. The use of SMPs such as Snapchat and YouTube is not just a form of entertainment for Gen Y and Gen Z; rather, such SMPs represent integral forms of communicating and navigating through life.

While Gen Yers were the digital pioneers, embracing technological advancements as they developed, Gen Zers "have never known a world in which they could not instantly connect and have information and communication channels immediately at their fingertips" (Schwieger and Ladwig, 2018, p. 46). Generation Z, therefore, was born into a changed environment, where the question was not whether to use technology, but rather which platforms and devices would be their digital applications of choice.

As a result of the pervasiveness of technology and social media, both Gen Y and Gen Z members "want to be entertained in the social space" (Young, 2018, p. 1). While members of Generation Y focus their socializing energies on Facebook and Twitter, members of Generation Z concentrate on Instagram, YouTube, and Snapchat. Regardless of the time and platform, however, use of social media and "snackable, unobtrusive content" has become an integral part of how both generations live, play, work, and learn (Young, 2018, p. 1). Because the learning space for current generations of MIS students should reflect this vital dependence on SMPs, we believe that seamless integration of SMPs in curricula through an instructional framework would be a highly effective method of aligning social media tools with course content and objectives.

2.2 Digital Native Learning Preferences
There is evidence that this integration of technology, SMPs, and virtual collaborations occurs early in the learning process for digital natives. In the 2018 IEA International Computer and Information Literacy study of 8th grade students and teachers from around the world, an international cooperative surveyed 26,530 teachers and found that, on average, 59% of the respondents incorporated social media tools into their classroom teaching and learning, with 34% of U.S. teachers responding positively. An average of 18% of teachers worldwide and 7% of U.S. teachers indicated that they used social media tools in most lessons, every lesson, or almost every lesson (Fraillon et al., 2019). College-bound middle school and secondary school students therefore have the expectation that SMPs will be an integral part of their future learning experience as well.

It is unsurprising that, in a 2015 Barnes & Noble College Survey of 1,300 middle and high school students, most respondents demonstrated a preference for learning tools that are technology-based, interactive, and SMP-related (Figure 1). Students rated the usefulness of educational tools in the survey, demonstrating that 80% believed technology such as online videos (YouTube, etc.) was very important in their learning process, and 74% found significant value in social media tools. Other interactive materials that topped the list included smartboards (84%), do-it-yourself e-learning (81%), and digital textbooks and websites (both at 81%). The survey creators emphasized that while digital native students define themselves as highly technological and independent, they also "crave an environment where they can share and co-create their education with their peers" (Barnes & Noble College Survey, 2015, p. 9). Social media platforms and other collaborative tools are therefore a natural fit for these preferred learning styles of currently enrolled and up-and-coming higher education students.
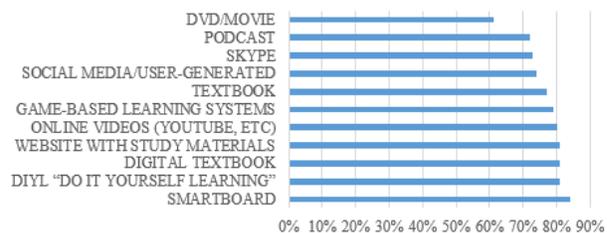

Figure 1. Students' Perception of Educational Technology Tools (Barnes & Noble College Survey, 2015)

The findings of the Barnes & Noble College Survey on digital natives' use of interactive tools and SMPs is also supported by other research into the personal-use habits of Gen Y and Gen Z members. In a 2019 study regarding social media use, the Pew Research Center found that 67% of 18- to 24-year-olds regularly used Instagram and 62% used Snapchat to communicate (Perrin and Anderson, 2019). Statista (Piper Sadler & Co., 2020) reported similar findings in a seven-year study of social media usage among U.S. teens (Figure 2). Gen Y and Gen Z students report making daily visits to YouTube, 72% and 52%, respectively (Claveria, 2017), and watching these user-generated short films has been identified as a favorite method of learning (Duffy, 2018).

As this and ongoing research demonstrates, internet video watching and social channels are now the primary focus of modern students' communications. It is therefore becoming increasingly important that teachers and employers recognize the importance of incorporating these popular technologies into the classroom and workplace.
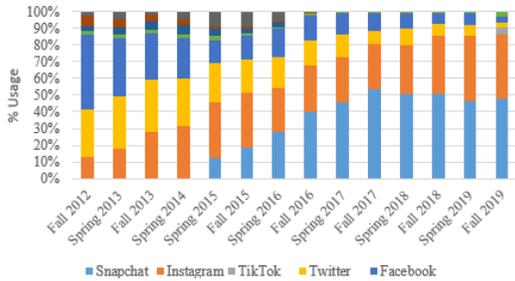
Figure 2. Social Network Popularity among U.S. Teens: Fall 2012 to Fall 2019 (Piper Sadler and Co., 2020)

2.3 Comparing Gen Y & Gen Z

Although some members of the most recent student population generations are only separated by a few years and share some preferences for learning styles, Gen Y and Gen Z members are also characterized by some discrete differences. Identifying these distinctions and incorporating SMPs through a framework that will engage both generations of learners should be important goals of MIS instructional design efforts.

For example, the way in which members of the two generations view privacy is an important distinction. Younger Generation Z members are very selective about what they share about themselves, as they realize negative content in cyberspace may very well haunt their futures indefinitely. Analysts believe this is one of the reasons this group is so attracted to media tools such as Snapchat, where the content – unlike that posted to Facebook or Twitter – is ephemeral. Conversely, Generation Y members have wholly embraced the contributing, sharing, consuming, and participating that characterize the internet sense of community. Writing reviews, posting to Facebook and other networking sites, sharing observations, and building social capital through interactions with family and friends are the hallmarks of Gen Y's online communication (Bolton et al., 2013).

Some believe that Generation Y's penchant for online digital tools has somewhat isolated its members from social interaction. The preference of this generation for corresponding through texting and instant messaging is contrasted with Generation Z's interest in communicating through Skype or FaceTime. Three-quarters of Gen Z's members surveyed would select face-to-face, but still online, communication with colleagues over less personable means (Jenkins, 2018). Therefore, an ideal mix of SMPs in the learning environment would incorporate digital tools that are familiar to both generations.

2.4 Social Media for Increased Engagement

Because technology and SMPs are an integral part of ordinary life for both Generations Y and Z, it makes sense to include in the classroom these tools that have "completely changed the way we communicate, share, and co-create information" (Siakas et al., 2017, p. 64). There is evidence that the increased use of social media among young people also improves motivation and results in enhanced learning outcomes. Seaman and Tinti-Kane (2013) noted that 59% of faculty believe the application of social media in the classroom results in better learning outcomes. The survey of 7,969 respondents also notes that while 41% of educators indicate that they use social media in the classroom, a considerably higher percentage, 59%, do not

incorporate SMPs into their classroom learning. Seaman and Tinti-Kane also found through their research that faculty use of social media was highest in the humanities and arts (45.8%) and lowest in mathematics and computer science (34.7%), although the latter discipline demonstrated the fastest rate of growth. Those educators who include SMPs and other social media technologies in the classroom see significantly positive effects on the quality of learning in terms of performance and motivation (Lau et al., 2014).

A study by Siakas et al. (2017) further investigated the advantage of social media adoption, specifically in the information technology/information systems (IT/IS) discipline. In a survey of 239 undergraduate IT/IS students, nearly 70% of respondents believed that social media use in the higher education classroom was important and influenced their learning in a positive way. Among social media tools, YouTube was ranked as the most popular, with 94% of students identifying the user-generated videos as their first choice to enhance learning. Students also named Facebook groups (81%) and blogs or wikis (77%). Siakas's group also suggested that the adoption of social media could provide opportunities for the enhanced learning of disadvantaged students such as the disabled, dispersed people in rural communities, or other remote learners.

2.5 Social Media for Incorporating Soft Skills

Not only can social media tools be used to deliver subject matter content, they can also be used to develop the soft skills employers seek in courses utilizing remote delivery. The National Association of Colleges and Employers (NACE) conducted its Job Outlook 2020 survey between August 1, 2019, and September 30, 2019, with results compiled from 150 respondents. The survey found that, aside from job applicants having a relevant major and a strong GPA, employers sought candidates with problem-solving skills and the ability to work as part of a team (Gray and Koncz, 2020). In addition, the authors found that employers sought candidates with a strong work ethic, leadership capabilities, both written and verbal communication skills, and analytical/quantitative skills. The authors noted that the top eight desired skills were also in the top eight sought-after skills in the previous year's survey. Almost all these same skills, excluding leadership, were also employers' most sought-after skills more than a decade ago (Beard, Schwieger, and Surendran, 2008). Table 1 illustrates the skills that more than 50% of the NACE respondents desired.

Skill	Percent of Respondents
Problem-solving skills	91.2%
Ability to work in a team	86.3%
Strong work ethic	80.4%
Analytical/quantitative skills	79.4%
Communication skills (written)	77.5%
Leadership	72.5%
Communication skills (verbal)	69.6%
Initiative	69.6%
Detail-oriented	67.6%
Technical skills	65.7%
Flexibility/adaptability	62.7%
Interpersonal skills (relates well to others)	62.7%
Computer skills	54.9%

Table 1. Skills Sought by Employers (Gray and Koncz, 2020)

The combination of technology and social media in the classroom is a method by which students may improve communication skills, yet this is only possible should students move beyond mere content consumerism and engage in active forms of social media interaction. In a 2016 workforce study of 410 employees, researchers found that conflict in the workplace was largely associated with Generations Z and Y's overconfidence and poor communication styles (Bencsik, Horváth-Csikós, and Juhász, 2016). To develop soft skills through SMPs and other tools, active users of social media can write blogs and create media to develop writing, reading, and critical thinking skills. They can use team applications to work collaboratively on projects and interact efficiently and effectively. Addressing soft skills such as these in the learning process is invaluable to students' education and can be incorporated into the learning process using models such as those described in the next section.

3. MODELS FOR INCORPORATING SOCIAL MEDIA

As courses are created, faculty typically focus course development on the main concepts they want students to learn. However, as faculty offer courses over multiple semesters, they adjust to accommodate topic relevancy, changes in student learning styles, technologies, and associated teaching techniques. For instance, with regard to student learning styles, a study by Statista of 2,096 U.S. K–12 students published in 2019 found that the attitude toward digital learning tools changed depending upon the respondents' age. The study found that the main reasons that high school students used digital learning tools were to help them learn things on their own (71%), to help them learn things at their own pace (68%), and to make school more interesting (64%) (NewSchools Venture Fund, 2019).

As faculty incorporate new technologies and teaching tools into their materials, they may need to reexamine their courses to ensure that they maintain focus on the content, add value to the learning process, and, when possible, allow students to learn at their own pace and time.

3.1 Instructional Design and Social Media
Conley and Sabo (2015, p. 294) identified a significant gap between how educators actually use social media in curricular design and how they should use social media; these authors thus identified the need for an instructional design model to "harness the power of social media tools in learning contexts." The authors also suggested that existing learning design principles and learning theories be updated to incorporate SMPs. They noted that "a corpus of empirical research examining the effect of social media use on learning outcomes within instructional contexts does not yet exist" and "instructional designers and educators need a new, contemporary framework for designing instruction that takes advantage of social media affordances" (p. 298). Although Conley and Sabo proposed a preliminary theoretical model, they emphasized that constructs of their model "still need to be innovated and continually tested to develop proven practices" of effective social media integration (Conley and Sabo, 2015, p. 8).

Therefore, it is evident that a valuable method of aligning and evaluating instructional design and the tools applied within a course is through the application of a relevant framework.

Applying an instructional design model in the preparation of an MIS course allows for identifying gaps in student knowledge and skills and analyzing learning needs. Utilizing a framework for designing course content provides an effective guide to facilitating long-term learning goals. By identifying and modifying an appropriate instructional design model for MIS courses, we believe that such a guide could contribute to the development of best practices for effective social media tool integration.

3.2 Learning Frameworks
Learning design frameworks allow for the organization of material and selection of delivery methods in ways that facilitate learning. Partial frameworks to incorporate social media in higher education courses have been designed to encourage innovation such as Social Media for Learning (SM4L) (Middleton and Beckingham, 2015) or create a collaborative social presence in the classroom like community of inquiry (Garrison, Anderson, and Archer, 2000). There are methods for incorporating mobile social media through creative projects (Cochrane and Antonczak, 2014), fostering personal learning environments (PLEs) (Dabbagh and Kitsantis, 2011), and integrating social interaction design (Tay and Allen, 2011). The selection of an appropriate framework for incorporating SMPs into the MIS curricula should consider characteristics of the student population (primarily Gen Y and Gen Z) as well as the model's responsiveness, flexibility, and time intensiveness. In evaluating a design for use in MIS courses, the authors considered several standard models that instructional designers traditionally use, including ADDIE (analyze, design, develop, implement, evaluate) and the Kemp model.

3.2.1 ADDIE. Instructional designers have frequently used traditional learning design models such as ADDIE for technology-based teaching, but such models are subject to limitations. While the ADDIE model is terminally iterative, it has been criticized as being too inflexible for the digital age (Bates, 2019). ADDIE's roots, which trace back to WWII and the management of the Normandy landings, do not allow instructors to nimbly respond to rapidly developing new content, apps, or technologies. According to Bates (2019, p. 142), the model is "too pre-determined, linear, and inflexible to handle more volatile learning contexts" such as rapidly changing social media tools.

3.2.2 Kemp Model. Another well-established instructional design model, the Kemp model (Kemp, 1985; Kemp, Morrison, and Ross, 1994), is unlike ADDIE in that it is highly iterative and focuses on the continuous implementation and evaluation of a process. However, this constant revision can quickly become the antithesis of timely planning and design. The many components and subcomponents of the model add flexibility but may be overwhelming to the time-constrained instructor.

3.2.3 UbD Model. By borrowing from the original ADDIE model, as well as adopting elements of Kemp's continuous improvement process, Jay McTighe and Grant Wiggins developed a new framework approach in 2012: Understanding by Design® (Figure 3). What is unique about the UbD model is that, while iterative, it focuses on "backward design" and the desired result of the teaching. Creators McTighe and Wiggins

explain that "you have to know exactly what you want your students to learn before you start planning how you're going to teach" (Gendler, 2016, p. 1). By gauging students' ability, or inability, to effectively use content and skills, instructors can better incorporate active learning and the associated SMPs that enhance that learning. Although some faculty in K–12 levels of education have found the model challenging due to the significant time and effort requirements of the desired results phase (Brown, 2004), the model aligns well with outcome-based assessment required by Higher Learning Commission (HLC)-accredited universities (HLC, 2020).
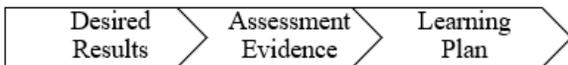

Figure 3. UbD® Model (McTighe and Wiggins, 2012)

While there are many approaches to both designing courses and incorporating generational learning styles, important considerations will always include a focus on content and desired skills, reaching and engaging the learner, and alignment with student comfort or familiarity with the social media tools and resources students will use in their educational journeys. In their study on social media usage in higher education, authors Tay and Allen (2011, p. 10) concluded that "in establishing and exploiting the use of social media … the design of the social *interactions* through [social media] tools is more important than the technologies themselves."

3.2.4 Model Selection. With a student-centric focus at the forefront, the authors propose the use and adaptation of a framework for MIS courses that, we believe, readily combines transfer of knowledge and understanding goals, professional content standards, and student learning styles. By modifying the UbD (McTighe and Wiggins, 2012) framework to include integration of social media tools and resources, course design can realize the goal of communicating information through social media formats that students will readily engage and have familiarity with (Figure 4). In the next section, we describe the UbD model and the modification proposed.
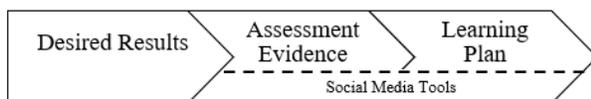

Figure 4. Modified UbD Model

4. MODIFIED UNDERSTANDING BY DESIGN MODEL

While there are many approaches to both designing courses and incorporating generational learning styles, important considerations will always include a focus on content and desired skills, reaching and engaging the learner, and alignment with student comfort or familiarity with the social media tools and resources students will use in their educational journeys. Wiggins and McTighe's (2005) model focuses on attaining the desired results that stem from professional content standards or knowledge requirements in the field of study. Learning goals and measurable objectives are then developed based upon addressing the content standards. The assessment evidence includes performance-based tasks that demonstrate the students' level of understanding. The learning plan includes the

activities that will be used to teach the students the concepts and skills that the instructor wants the students to learn and, thus, will be assessed. Social media tools may serve in a supportive role to learning or as the vehicle of assessment. In this section, the authors examine each element of the model.

4.1 Desired Results
The first stage of the model focuses on what faculty want students to learn. Faculty should ask themselves, "What do I ultimately want students to know, understand, or be able to do?" In this stage, the faculty member needs to prioritize long-term learning goals for the course and teach factual knowledge and skills that contribute toward meeting the learning goal (McTighe and Wiggins, 2012).

4.2 Assessment Evidence
In the second stage of the model, faculty determine what project or method will be used to evaluate students' understanding of the desired concept or skill. Faculty members may ask themselves, "What can I have students do that I can evaluate to determine students' understanding of the concept?" Examples of assessment tools might include a test, a project, a presentation, or a model (McTighe and Wiggins, 2012).

4.3 Learning Plan
The third stage of the model is where faculty teach, help students understand, and guide learners to inculcate the concepts or skills. McTighe and Wiggins (2012) noted that educators must address all three steps of this stage (transfer, understand, and acquire). Faculty can ask themselves, "What can I do to help students understand and learn the concepts or skills that I want them to gain?" (McTighe and Wiggins, 2012).

Most faculty probably already intuitively apply a similar mental framework to the development of their courses and curricula. However, like many process models, the UbD framework provides a structured approach to thinking about and addressing the creation and continual development of courses and works in alignment with course and program learning outcomes.

4.4 Social Media Tools
The authors propose the addition of a fourth element to the UbD model (Figure 4) in which faculty incorporate social media resources into both the assessment evidence and learning plan stages of the model. As faculty enhance courses to engage Gen Y and Gen Z by integrating social media tools, it is important to purposefully evaluate the contributions that these tools make to the learning process and how they ultimately achieve the course learning goals. In the next section, the authors apply the modified model to an M.B.A. MIS course that is taught at their institution.

5. APPLICATION OF THE MODIFIED MODEL TO AN M.B.A. MIS COURSE

The authors teach an M.B.A. MIS course three times per year in an online format for two semesters (6-week and 16-week) and in an in-person format for the third semester. Although the foundational objectives and desired results of the course have remained relatively constant over time (i.e., data analytics, critical analysis of IT in business, data management concepts,

Desired Results	Assessment Evidence	Learning Plan
	Social Media Tools	
• Community	• Forum submission content • Welcome video	• Detailed project instructions for forum submission • Tutorial video of using FlipGrid
	• Forum • FlipGrid video	• LinkedIn
• Virtual group collaboration • Teamwork • Project management • Verbal and written communication	• Virtual team group project deliverable including: • Research paper • Comparison grid • Presentation • Recording of virtual team meeting • Team member evaluation rubric	• Tutorial video of using/recording Zoom • Tutorial videos of using Microsoft One Drive/Google Drive/Teams
	• Forums • Zoom • FlipGrid • Recorded Zoom meeting	• Microsoft Teams/One Drive/Google Drive • Frequently asked questions forum
• Virtual presentation skills • Familiarity with MOOCs	• Online presentation	• Detailed project instructions • Tutorial video of using virtual presentation tool
	• eMaze • MOOCs • Canva • Powtoon	• Prezi • Frequently asked questions forum
• Data analytics skills • Written communications	• Data analysis report • Data analysis work file	• Lecture/written explanation of project • Data analysis video tutorials • Examples of data analysis results • Detailed assignment instructions
	• Instructional YouTube videos • Frequently asked questions forum	
• Hardware and software analysis • Written communication skills	• Request for proposal • Response to request for proposal	• Detailed assignment instructions • Links to online RFP information • Link to a complete RFP
	• Frequently Asked Questions forum	
• Process and systems thinking skills • Group collaboration	• Business case • Requirements definition • Diagrams • Swimlane • Data flow • Entity relationship	• Written explanation of project • Video of explanation of project • Annotated PowerPoint of systems analysis & design • Description and examples of business cases • Description of diagrams • Tutorial videos of diagrams • Detailed assignment instructions • Detailed explanation of assignment instructions
	• Zoom • Instructional YouTube videos	• Open Textbook Library • Frequently asked questions forum
• Database management skills	• Case analysis solution • Database	• Written explanation of project • Annotated PowerPoint of databases • Tutorial videos of developing a database • Suggested Open Textbook chapter supplemental readings
	• Zoom • Open Textbook Library	• Frequently asked questions forum

Table 2. Application of the Modified Model

and communication-focused soft skills), the content and auxiliary technologies used in the course have changed. New technologies and exercises were added at the recommendation of alumni, and some were replaced due to technology trends.

Social media tools were initially incorporated into the online version to provide tutorials for applications covered, to develop a sense of community in the classroom environment, and to answer student questions. However, the teaching faculty member found the social media resources to be beneficial in providing support in the learning environment, no matter the format, so decided to use the same tools in the in-person format. This section describes the application of the model to the course and the incorporation of social media tools in exercises and support for achieving the overall learning goals of the course (see Table 2).

5.1 Desired Results Stage
Overall, the learning goals of the course have been rather constant, with projects focusing on using case studies to analyze

the strategic use of MIS in business; gaining data analytics skills; becoming informed technology purchasers; learning general systems analysis, design, and database concepts; and strengthening workplace soft skills. Social media tools have taken a supporting role in learning the skills as well as completing the projects. However, there are some learning goals in which the social media tool has been the vehicle used to gain employer-sought skills, such as community building, virtual collaboration, and virtual presentations (see Desired Results column in Table 2).

5.1.1 Community. To start building a sense of community in the face-to-face course, students introduce themselves on the first day of class. In the online sections, we used online forums to introduce students to their classmates, allow them to learn more about each other, and attempt to start developing a sense of community. To include a more personal element in the introductions, we recently added FlipGrid. Students create a short welcome video to accompany their introduction so

everyone can connect a name to a face. FlipGrid.com is a free online instructional resource that provides an intuitive interface for easily creating and posting 90-second or shorter videos. The introductions allow students to get to know their classmates and begin developing a level of connection as well as to utilize written and oral communication skills.

Although not specifically required as an assignment in the M.B.A. MIS course, students are encouraged to strengthen their professional community by creating or updating their LinkedIn presence. The campus career services department provides students with the opportunity to have a free, professional headshot to post on their LinkedIn profile.

5.1.2 Teamwork. Alumni, the college's executive board, and recruiters have frequently mentioned teamwork and collaboration as some of the soft skills to emphasize (Beard, Schwieger, and Surendran, 2008; Gray and Koncz, 2020). However, most of the students work full time and, for the online courses, live scattered around the world. To incorporate teamwork building skills into the course, students work in virtual teams on two projects. One of the first projects of the semester requires the students to work virtually as a team to research collaborative work apps. Not only do students learn about new technologies, but they also have an opportunity to work as a virtual team on a small project in preparation for a larger project later in the semester. Over the life of the course, the virtual collaboration tools have changed from Google+ and Google Drive to Office365 and OneDrive to the current tool, Microsoft Teams.

5.1.3 Communication skills. We used online presentation tools to strengthen students' professional communication skills, both written and oral, which are skills job recruiters look for. Students research a massive open online course (MOOC) they would be interested in taking and use an online presentation tool such as eMaze, Canva, Powtoons, or Prezi to present their findings. The purpose of this exercise is to not only introduce students to MOOCs and an online presentation tool but to also encourage them to continue their learning outside a degreed program.

5.2 Assessment Evidence Stage
Assessments for evaluating achievement of the skills and content objectives for the course incorporate a mixture of test questions, exercises, team projects, and team evaluations. For some projects, such as those mentioned in the previous section, the graded deliverable is submitted as a social media artifact.

5.3 Learning Plan Stage
The learning plan focuses on the content to be conveyed to the students and the methods by which the information is to be delivered. Social media resources that Gen Y and Gen Z students prefer supplement standard text-based information delivery means such as textbook materials, instructor notes, and detailed assignment descriptions.

5.4 Social Media Tools
Depending on the desired result, social media tools may be part of the assessment evidence stage, learning plan stage, or both. Section 5.1 mentions exercises in which we use social media tools to produce the deliverable for course assignments. The

next section describes the incorporation of social media tools to support the learning environment. As new social media tools that engage the interests of the current generations of students are introduced, the authors will need to evaluate the value generated by the tools, taking into consideration the achievement of course learning objectives.

6. SOCIAL MEDIA TOOLS USED IN A SUPPORTIVE ROLE

The learning plan and social media support go hand-in-hand, as the social media tools are used, in part, to incorporate soft skills, transfer knowledge, and improve student understanding of the concepts. Surveys indicated that students have a proclivity to learn on their own; thus, we incorporated social media tools, such as frequently asked question (FAQ) forums, instructor-created YouTube videos, links to selected online instructional videos, and links to open access textbooks and materials, to allow students to answer their own questions and develop their skills on their own time. The next section describes the social media tools used to support the learning process.

6.1 Frequently Asked Questions
Introduced as a tool in the online version to reduce repeated questions, we added the FAQs to the learning management system (LMS) for each of the instructor's courses. We created FAQs for the course in general as well as for each of the individual large projects that are covered over the timeframe of the semester as a support tool to help students answer their own questions.

6.2 Online Conferencing and Screen Sharing
Sometimes, however, the questions for technology projects are not generic and, to provide an appropriate answer, must be examined individually. Having the student email the project, along with the question(s), will often work. However, when a project needs to be examined synchronously with the student, online screen sharing or conferencing tools such as TeamViewer, Windows Quick Assist, Skype, Screenleap, CrankWheel, or Zoom can provide beneficial support.

6.3 Instructional Videos
The course introduces graduate students to several applications and builds upon the knowledge that they should have developed during their undergraduate programs. However, because students enter the classroom with varying degrees of technology expertise, we created instructor-developed YouTube videos covering skills they will need to successfully complete the projects. We also provided links to other online videos and resources in case students need additional support. For projects that are rather detailed and somewhat complicated, the instructors have also created YouTube videos that guide the students through the projects' instructions.

6.4 Open Textbook Library
The textbook for the M.B.A. MIS course addresses managerial concepts. However, the course content covers a combination of IT management concepts and technical productivity skills. The instructional videos described in the previous section provide students with support in using the applications to create their projects. The authors have found textbooks available through

the Open Textbook Library to supplement course content regarding systems analysis and design, data management, and databases.

Although the authors have successfully incorporated several different social media tools into their coursework to provide additional support for achieving learning objectives, other tools have not been successfully incorporated. There are also some tools for which the authors have some reluctance to incorporate.

7. SOCIAL MEDIA TOOLS NOT INCORPORATED

As with any course, instructors try new projects and ideas that they think will be successful. Unfortunately, not everything develops in the way one would expect. This section identifies social media tools that were not successfully incorporated or that have not been implemented in the classroom.

7.1 Facebook Groups
In the M.B.A. MIS course, student groups have been encouraged to use Microsoft Teams for group communication and collaborative efforts. However, some instructors have successfully used Facebook Groups for facilitating student interaction and outside class discussion.

7.2 GroupMe
Although one of the authors uses GroupMe to communicate with the executive officer team of a student group she advises, she has not incorporated the app into her classroom. Individual student groups, however, have utilized the tool on their own. The author uses the LMS's group communication tool for communicating with classroom groups and individual students.

7.3 Twitter
The LMS used for the course provides a forum for news and announcements. This has been successfully used to communicate with students. However, as Twitter started gaining popularity in industry, the instructor unsuccessfully attempted to make the switch to Twitter for course announcements and reminders as well as answering students' questions. The instructor found that she was the only one using Twitter for class and that some students did not even subscribe to the class feed. Instructors may find that using the LMS's communication tools are the best way to provide consistent communication with their students across classes.

8. BENEFITS AND CHALLENGES OF THE MODIFIED MODEL

Although the model provides an intuitive framework for developing the initial course, instructors should revisit the model as they evaluate and update their courses. The following section addresses benefits and challenges associated with applying the model to the incorporation of social media tools into the classroom.

8.1 Benefits
The model serves as a framework for focusing exercises on the main concepts to be addressed throughout the course. In the application of the framework to the M.B.A. MIS course, the model provides a helpful visual illustrating the exercises; this

visual addresses each desired result along with the social media tools supporting the learning process. As faculty consider introducing concepts or adding or removing exercises, the model can help pinpoint where an item fits into the provision of the material. For instance, one of the authors has occasionally added new skills and projects into the M.B.A. MIS course without replacing a project that is currently there. This has caused the course to occasionally become project-dense. The model collectively illustrates where projects and exercises fit into the overall scheme of the class in relation to the rest of the materials. The instructor has been able to use the model to identify overlaps in learning goals and thus eliminate projects that are not making a significant contribution to the value of the course.

The model also shows the application of different forms of social media to similar course projects. As generations of students and social media technologies change, the centralized collection of exercises and associated resources can help faculty easily determine what resources need to be updated. This is illustrated in the progression of virtual collaboration technologies listed in the social media tools section of Table 2.

8.2 Challenges
Not all projects necessarily require a social media aspect. A project may be sufficiently supported by text-based resources. Thus, the model may mislead faculty into thinking that all model components need to be addressed. In addition, social media, video-based tools (e.g., YouTube, Vimeo, etc.) that support regularly updated software may need to be correspondingly updated. Creating clean instructional videos can be quite labor intensive, especially when oral resources must be accompanied by Americans with Disabilities Act (ADA)-compliant transcripts.

Although the current generation of students seem to favor online videos, faculty may also errantly assume that social media support resources provide sufficient direction to replace, rather than supplement, in-class tutorials. For instance, to make up for lost class time due to holidays, one of the authors asked her in-person students to watch, outside of class time, software tutorial videos that she had created for the same exercise for her online course. Some of the end-of-the-semester course evaluation comments indicated that students who chose to take the in-person format did so to have in-person tutorials. Comments from international students also indicated a preference for face-to-face instruction rather than video tutorials. In addition, the benefit of being able to ask questions immediately and hear those of their peers was also lost.

9. CONCLUSIONS

Keeping courses relevant, up to date, appropriately balanced, and engaging for students is an ongoing process. In this paper, the authors propose a modified framework for designing, delivering, and evaluating course content while taking into consideration student characteristics and social media trends. The authors examined research addressing learning styles and technology preferences of Gen Y and Gen Z students, as well as the soft skills sought by current employers.

Research demonstrates that social media tools and platforms are an integral part of learning and everyday life for members of Generations Y and Z. Students populating the

current MIS classroom are familiar and comfortable with co-creating and collaborative SMPs such as YouTube, Instagram, Facebook, Snapchat, and Twitter. Teachers of these generations have incorporated social media tools into the classroom since grade school. Higher education faculty, especially in computer science and mathematics, are rapidly assimilating SMPs into their lessons and material delivery. This accelerated SMP adoption rate among MIS and IT instructors is motivated by studies that demonstrate that most IT students believe that social media tools are essential for their learning.

To support a systematic evaluation of SMP incorporation in MIS courses, the authors considered the use of an instructional design model. While there is substantial evidence that digital native students favor and expect social media use, less is known about how to integrate these tools to effectively impact learning outcomes. After evaluating popular instructional design models such as ADDIE and Kemp, the authors proposed a curricular design model based upon a modification to the UbD framework to address the incorporation of social media tools. The authors selected the UbD model because it combines the flexibility of Kemp and the moderately iterative nature of ADDIE with a backward design that focuses on the desired results for learning. The authors then applied the modified model to a graduate-level MIS course to illustrate the connection between applying social medial tools to achieving desired course results.

Examining courses through the lens of an instructional design framework provides a structured process for course development and revision. Methodically evaluating a course is especially important as faculty incorporate student-oriented social media tools to engage Gen Y and Gen Z students without detracting from the learning process.

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