PRESERVICE TEACHERS' INTENTION TO TEACH MEDIA & INFORMATION LITERACY IN THEIR FUTURE CLASSROOM: AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOR

By

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ABSTRACT

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This dissertation is a multi-phase study looking at preservice teachers' intention to teach Media & Information Literacy in their future classroom. Each of the three studies presented in this dissertation answered a specific question: 1) What do preservice teachers think about teaching MIL? 2) What predicts preservice teachers' intention to teach MIL? and 3) How can we support preservice teachers' intention to teach MIL? The first paper in this dissertation reported on an elicitation study conducted with focus groups of preservice teachers to understand, from their perspectives, the factors that would either impede or facilitate the teaching of MIL in their future classroom. The second paper described the design, validation, and results of a survey based on these factors. The third paper reported on an online module with reflective exercises designed around the results gathered in the aforementioned survey. Each paper describes the findings that emerged from its study, followed by implications for research and practice, along with questions for the field of Media & Information Literacy education.

This dissertation is dedicated to Pedro and Isaac.
Thank you for your constant support.

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INTRODUCTION. Dissertation Overview

In today's hyper-connected digital society, students are constantly exposed to messages that shape their personal identity and worldview. International organizations such as UNESCO, and educational reforms within the United States like the Next Generation Science Standards, are increasingly placing emphasis on enhancing students' critical thinking abilities by making evaluative judgments of mediatized information. As a consequence, educators need to embed Media & Information Literacy (MIL) skills in their classrooms to teach students how to assess the factual and social pertinence of digital information in their everyday lives. Yet, there are no existing policies or regulations to ensure basic MIL education in U.S. teacher education programs. Preliminary results suggested that preservice teachers recognize the importance of teaching Media & Information Literacy for students; yet, they also admit being ill-equipped to incorporate it in their teaching practices (Gretter & Yadav, NA). The question then becomes: How can we support the implementation of MIL in K-12 education by understanding what factors play a role in preservice teachers' intention to teach MIL in their classroom? One way to address this issue is through the Theory of Planned Behavior (TPB), a framework that explains the determinants of individuals' intention to perform specific behaviors (Ajzen, 1991). As such, the present dissertation accomplishes the following three objectives:

- Conduct an exploratory elicitation study to identify factors that play a role in preservice teachers' intention to teach MIL in their future classroom.
- Design, validate, and analyze a survey to understand preservice teachers' intention to teach MIL in their future classroom and the factors that predict said intention.
- Examine the effects of a TPB online module on supporting preservice teachers' intention to teach MIL in their future classroom.

Theoretical framework

The overarching theoretical framework guiding this dissertation is the Theory of Planned Behavior (TPB). The TPB fulfills different goals in this dissertation: it provides an orienting lens to study the phenomenon at hand, as well as a proposed explanation for the relationship among the variables being observed. The Theory of Planned Behavior was developed as an expectancy-value model to explain that human behavior is guided by the interplay between three factors: attitudes (i.e., whether the person is in favor of doing it), subjective norms (i.e., how much social pressure the person feels to do it), and perceived behavioral control (i.e., whether the person feels in control of the behavior in question) (Ajzen, 1991). In addition, each of these three factors are influenced by underlying beliefs: i) attitudes are influenced by beliefs about the outcomes of a behavior (behavioral beliefs), ii) subjective norms are influenced by beliefs about the norms and expectations of others in regards to this behavior (normative beliefs), and iii) perceived behavioral control is influenced by beliefs about the existence of factors that either facilitate or impede the implementation of the behavior (control beliefs) (Ajzen, 1991). The relationship between each element of the theory is depicted in the diagram below:

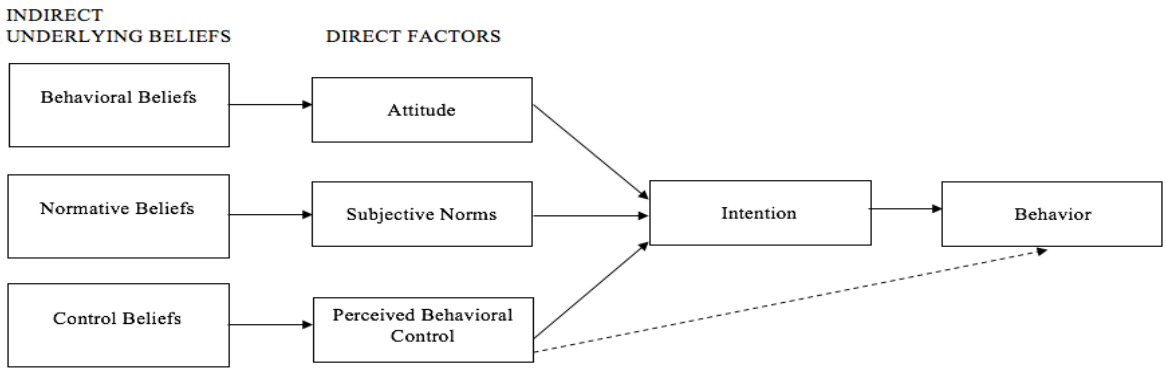

Figure 1. TPB relationships (adapted from Ajzen, 2006)

In this dissertation, the behavioral intention under study is preservice teachers' intention to teach MIL in their future classroom, and the TPB provides a framework to determine the factors that

play a role in preservice teachers' intention to teach MIL skills, while contributing to understanding whether these factors are related to attitudes/behavioral beliefs (i.e., preservice teachers do not think that MIL is important); social pressure/normative belief (i.e., faculty or K-12 administrators do not value MIL instruction); or volitional control/perceived behavioral control (i.e., preservice teachers do not know how to teach MIL). The TPB helps identify these factors and their influence on preservice teachers' intention, as well as guide future work addressing MIL in teacher education. Below, I look at how TPB materialized itself in the different studies of the present dissertation.

Dissertation Structure

This section provides a general overview of the dissertation structure. The intention to perform a behavior is considered to be the immediate antecedent of a behavior, and this intention is based on attitude toward the behavior, subjective norm, and perceived behavioral control (Ajzen, 2006). Given the fact that preservice teachers' beliefs and attitudes about digital and popular media can influence their pedagogical intentions related to the use of media texts, tools, or technologies (Hobbs & Tuzel, 2015), the purpose of this dissertation was to discover the underlying factors that influence preservice teachers' intention to teach Media & Information Literacy in their future classroom. The dissertation also sought to explore how to support these intentions through an online module with reflective exercises based on the analysis of these factors. It therefore addressed the following overarching research questions:

1. What is preservice teachers' intention to teach MIL in their future classroom?
2. What underlying factors support or hinder preservice teachers' intention to implement MIL practices in their future classroom?

3. How does a MIL module support preservice teachers' intention to implement MIL in their future classroom?

Taken as a whole, the dissertation is contained within a multiphase design (Creswell, 2014), where I conducted a series of studies with focus on a common objective. The studies built on each other to address the program objective (Creswell, 2014)—in this case the overall dissertation objective. The overall program objective here involved discovering the factors impacting preservice teachers' intention to teach MIL skills in their future classroom. The first study described in Paper 1 was a qualitative exploratory study aiming to elicit the factors impacting preservice teachers' intention to teach MIL in their future classroom. This first study informed the second study, described in Paper 2, which consisted of the quantitative analysis of a TPB survey. These results then informed the third study for final paper in this dissertation, which consisted of the qualitative evaluation of an online module to support preservice teachers' intention to teach MIL.

Paper one

The focus on the first paper was to conduct an elicitation study with focus groups in order to understand (i.e., elicit) the factors identified by preservice teachers as potential support or barriers in teaching MIL in their future classroom. In TPB studies, elicitation studies are first conducted in order to construct a TPB survey. The results from the elicitation study with preservice teachers, therefore, served as the foundation to create the TPB survey items. This study followed an exploratory sequential design (Creswell, 2014) where qualitative data from focus groups helped build a list of TPB factors related to MIL. The analysis and interpretation of the elicitation study provided the foundation for the second study in this dissertation.

Paper two

In the second study, preservice teachers took a TPB MIL survey based on the previous elicitation study. This study was descriptive in nature, and quantitative data analysis revealed the different factors or beliefs that participants identified as playing a role in their intentions to practice MIL in their classrooms. This study used multiple regression analysis to describe the relationship between attitudes, norms and perceived behavioral control (i.e., independent variables) and intention (i.e., dependent variable) in order to better understand which factors predict preservice teachers' intention to teach MIL in their future classroom.

Paper three

The third and final study in this dissertation explored the effects of a two-week MIL module on supporting preservice teachers' intention to teach MIL in their future classroom. The module provided students with MIL materials, which were developed to support their intention through their attitudes, subjective norms, and perceived behavioral control toward MIL. During the module, preservice teachers were asked to discuss their views of MIL and their intention to teach it in the future using reflective exercises.

The overall results provide an understanding of preservice teachers' intention to teach MIL in their future classroom. In addition, I identified potential barriers to MIL implementation in K-12 classroom—whether in preservice teachers' attitudes, subjective norms, or perceived behavioral control. The overall results of the dissertation also helped outline possible directions to address identified barriers in teacher education.

Contribution to the field

The present dissertation addressed the recognized need for the integration of MIL in teacher education. As such, this project is instrumental in the emerging body of knowledge on

Media & Information Literacy instruction (Potter, 2014), and contributes to better understanding preservice teachers' intention to teach MIL, along with designing exercises to support their intention. More importantly, this project significantly contributes to the preparation of preservice teachers in MIL. Tiede et al. (2015) suggested that research and development was needed in the field of pedagogical media competencies in order to lead to its comprehensive inclusion in teacher education. The TPB survey, along with the module, help yield recommendations for implementation in teacher education programs. In addition to preservice teacher education programs, the results of this dissertation have practical implications for different educational settings, such as inservice teacher professional development workshops, postgraduate teaching certifications, or even non-academic educational settings. More specifically, the overall results of this dissertation benefit the research community of educators working in MIL fields, as well as instructors who use new media in their courses, along with the K-12 students who will benefits from the educational applications of this study. The salient significance of this project is that by attending to the necessity for teachers to be prepared to instruct MIL skills, we can emphasize the role of educators as models for students in the way that they interact with online media and information in their daily lives.

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PAPER ONE. What Do Preservice Teachers Believe about Teaching Media & Information Literacy? An Elicitation Study Using the Theory of Planned Behavior

Abstract

Despite the numerous benefits of Media & Information Literacy (MIL) for students in today's digital society, the lack of teacher preparation in teaching Media & Information Literacy suggests that the societal rationale for students becoming media literate and the sustainable preparation of teachers in that area may differ. The purpose of this exploratory study was to explore the factors and beliefs underlying preservice teachers' intention to teach MIL in their future classroom according to the Theory of Planned Behavior. Findings suggested that preservice teachers' have positive attitudes towards MIL as an essential skill for students, yet do not feel that it is highlighted in their teacher education program, and that they would benefit from learning about MIL pedagogies from faculty and instructors. We provide recommendations for teacher educators and researchers to improve preservice teacher's intention to teach Media & Information Literacy in their future classroom.

Introduction

Nowadays, 92% of teenagers report going online on a daily basis through participation in digital media—particularly on social media such as blogs, social networks, forums, or video sharing websites (Boulianne, 2015; Lenhart, 2015). Consequently, students come across large amounts of unfiltered information online, and recent studies have showed that they can have difficulties distinguishing between real and fake information (Stanford History Education Group, 2016). National and international policy efforts are advocating that it has become essential for 21st century students to possess Media & Information Literacy skills (MIL)—the set of competencies they need to critically evaluate information communicated through different

multimedia sources (International Society for Technology in Education, 2015; Partnership for 21st century, 2014; Wilson et al., 2013). While public awareness about online misinformation is growing and MIL skills are progressively incorporated into educational standards (e.g., Next Generation Science Standards; Common Core Standards; College, Career and Civic Life for Social Studies Framework), the existence of teacher training in MIL and MIL pedagogies remains blurry (Earp, 2009; Hobbs, 2007; Kovalik, Jensen, Schloman & Tipton, 2011). Indeed, Tiede, Grafe & Hobbs (2015) examined teacher education courses at 316 universities in the United States and found that media literacy education was not consistently integrated in teacher preparation, even though institutions like UNESCO believe that "initial focus on teachers is a key strategy to achieving a multiplier effect: from information-literate teachers to their students and eventually to society at large" (Wilson et al., 2013, p. 17). There is, therefore, an urgent need to address the lack of connection between the need for preservice training in MIL and the absence of MIL integration in teacher training.

Given that the majority of preservice teachers grew up in an age of digital media, yet are not trained to teach MIL through their teacher education programs, we need to understand whether they see the relevance of MIL skills and whether they intend to teach these skills in their future classrooms. Research has showed that exposure to technology and fluency in digital media use does not imply that preservice teachers are inherently knowledgeable about it (Hargittai, 2010). Lindstrom, Schmidt-Crawford & Thompson (2016) noted that although preservice teachers are increasingly more equipped with technological skills, they "continue to have little experience and vision for how to use digital technologies in ways that develop the digital literacies their students need to fully participate in the public, private, and economic spheres that characterize contemporary society" (p. 3). Prior research in this area has also exhibited that

familiarity with digital media does not always translate into preservice teachers' use of technology-related pedagogies in their own classrooms (Kinash, Wood and Knight, 2013; Russell, Bebell, O'Dwyer & O'Connor, 2003). Furthermore, technical competence is only one of several factors that influences teachers' decision to teach *with* and *about* technology (Shiue, 2007; Teo & Lee, 2010; Teo & Tan, 2012; Valtonen et al., 2015). Other influences such as attitude (i.e., they might not teach MIL if they do not value it), and the opinion of others (i.e., they might be inclined to teach MIL if professors encourage it) also play an important role in determining their intention to teach MIL in their future classroom (Lee, Cerreto & Lee, 2010). The present exploratory study examined preservice teachers' perspectives about teaching Media & Information Literacy in their future classroom under the framework of the Theory of Planned Behavior (TPB). The TPB model was developed in an effort to describe the influences impacting individuals' behavioral decisions, while identifying both the direct and indirect determinants of individuals' intention to perform a behavior (Ajzen, 1991).

Theoretical background

The Theory of Planned Behavior (TPB) is commonly used to predict behaviors and design exercises to impact decision-making (Ajzen, 1991). As shown in Fig. 1 below, the theory explains that the immediate antecedent of a behavior is the individual's intention to perform it. This intention, in turn, is a function of three direct factors: i) attitudes, ii) subjective norms, and iii) perceived behavioral control. In other words, to predict whether a person intends to perform a behavior, we need to know i) whether the person is in favor of doing it (i.e., attitude), ii) how much social pressure the person feels to do it (i.e., subjective norm), and iii) whether the person feels in control of the behavior in question (i.e., perceived behavioral control) (Francis et al. 2004). In addition to these three direct factors, the TPB identifies three sets of indirect

underlying beliefs (i.e., behavioral, normative, and control beliefs) that underlie the constructs of attitude, subjective norms, and perceived behavioral control (Ajzen, 1991).

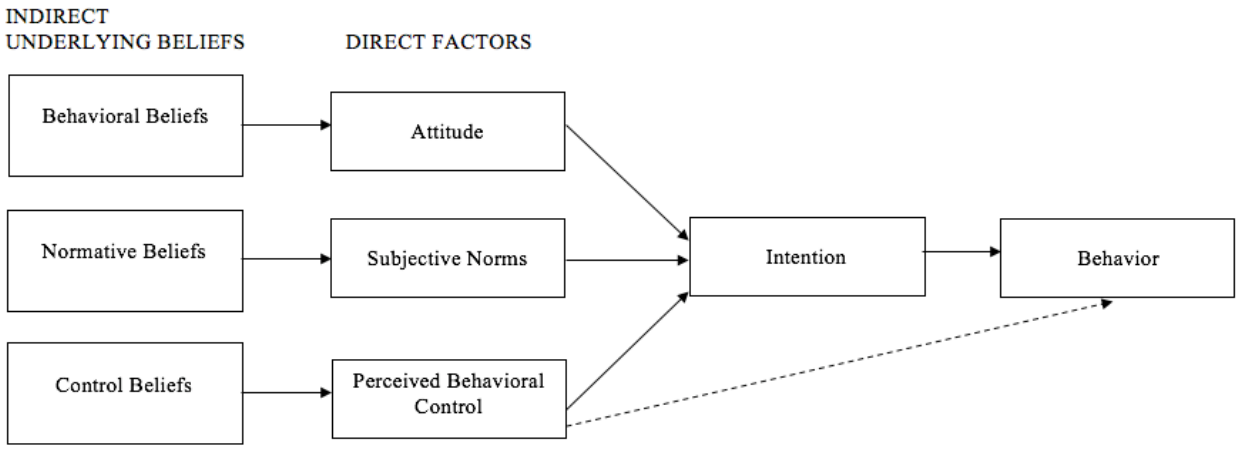

Figure 2. Theory of Planned Behavior (adapted from Ajzen, 2006)

The advantage of the TPB approach is that it helps identify both the direct factors and the underlying beliefs that impact individuals' intention to perform or not perform a specific behavior (Fancis et al., 2004). For instance, the model has been previously applied to educational technology to predict faculty decisions to adopt Web 2.0 technologies (Ajjan & Hartshorne, 2008), teachers' use of educational technology (Lee, Cerreto & Lee, 2010), preservice teachers' intentions to use and use of technology (Shiue, 2007; Teo & Lee, 2010; Teo, 2012; Valtonen et al., 2015), preservice teachers' intentions to use Web 2.0 technologies (Sadaf, Newby & Ertmer, 2012), student teachers' and experienced teachers' computer usage (Smarkola, 2008). As such, the TPB framework allows researchers to gain an understanding of the behavior in question by tracing its determinants back to their underlying beliefs.

The present study

This elicitation study aimed to explore preservice teachers' beliefs regarding the teaching of Media & Information Literacy in their future classroom—namely behavioral beliefs, normative beliefs, and control beliefs, according to the Theory of Planned Behavior.

Participants

This study was conducted with three focus groups including four participants each, for a total of 12 participants. The participants represented a criterion sample, that is, a sample of individuals who fit a particular set of predetermined criteria to purposively look at the research question from the perspective of participants who would best represent it (Hatch, 2002). In this case, I targeted individuals who were generally interested in technology-related issues in education. Participants were 12 female preservice teachers who had previously taken an elective introductory educational technology course where the concept of Media & Information Literacy had been introduced conceptually. There were eight seniors and four juniors. Ten of them studied elementary education and two of them secondary education.

Measures

Elicitation studies are recommended in order to identify a target population's salient beliefs about a behavior when using the TPB (Ajzen, 1991; Downs & Hausenblas, 2005; Francis et al., 2004). The protocol included six structured open-ended questions that participants discussed during the focus group (see Appendix A). The three sets of questions aimed to elicit i) behavioral beliefs, ii) normative beliefs, and iii) control beliefs in relation to preservice teachers' intention to teach media literacy in their future classroom. Behavioral beliefs were elicited by asking participants to list benefits and disadvantages of teaching MIL in their future classroom. Normative beliefs were elicited by asking participants who would approve or disapprove of them teaching MIL in their future classroom. Finally, control beliefs were elicited by asking respondents about circumstances that would make teaching MIL easy or difficult in their future classroom.

Procedure

Participants were recruited via email to participate in a focus group about MIL. Once potential participants expressed interest in the study, times were scheduled for the focus groups. The focus groups started with a brief description of MIL. Participants were asked to discuss the possibility of teaching MIL in their future classroom. It was emphasized that the researcher was interested in their opinions and that there were no right or wrong answers. The researcher moderated the discussion between the focus group participants using the interview questions. Each focus group lasted approximately 40 minutes. Participants were then compensated for their time with a twenty-dollar Amazon gift card.

Data analysis

Once the focus group answers were collected, a content analysis of their responses was performed in order to organize participants' responses from the focus group into themes. Using the qualitative software Nvivo, two researchers independently coded the content of participants' responses into themes. These themes were labeled and listed in order of frequency for each of the solicited beliefs for attitudes, subjective norms, and perceived behavioral control. Inter-rater reliability was established at 83.3%, with a Cohen's Kappa coefficient of .806, an agreement deemed acceptable to validate the coding scheme. Responses were categorized based on common words, concepts, or themes. The frequency of responses was collected to determine popular responses for each factor. The analysis resulted in a list of 44 themes across the three factors. They were then translated into salient behavioral, normative, and control beliefs about preservice teachers teaching MIL in their future classroom. The list of themes was ranked-ordered and frequently mentioned items were selected as the salient set, as recommended by Ajzen (1991).

Results

Table 1 presents the frequency of the three sets of beliefs—behavioral beliefs (advantages/disadvantages), normative beliefs (approval/disapproval) and control beliefs (facilitators/barriers) related to preservice teachers teaching MIL in their future classroom.

	Frequency (N=12)	Responses (%)
Behavioral beliefs		
Advantages		
Help students get ready for college	9	75
Teach students about Internet safety	7	58
Help students with their personal life	6	50
Teach students to evaluate information	4	33
Help students conduct research and write papers	4	33
Help students interact with others online	2	17
Teach students how to navigate media	2	17
Teach students to have educated opinions	1	8
Disadvantages		
Parents might disagree	8	67
Students will not use it at home	7	58
It takes time away from the curriculum	5	42
Students can misuse Internet at school	4	33
It could be taught in unsafe ways	1	8
It could make students dependent to technology	1	8
Students might think too much into it	1	8
Normative beliefs		
Approval		
Course instructors (where MIL was taught)	12	100
Teacher education faculty	10	83
Fellow students	9	75
Inservice teachers	7	58
People who know about MIL	6	50
Young parents	6	50
Administrative staff	2	17
Recent graduates	1	8
Tech support staff	1	8

Table 1. Identified behavioral, normative, and control beliefs

Table 1. (cont'd)

Disapproval		
Older generation of professors	8	67
Principals who are against technology	7	58
Parents who are against social media	6	50
People who don't know about MIL	6	50
Administrators who don't want to change	4	33
Families with no computers	2	17
People who had bad MIL experiences	1	8
Control beliefs		
Facilitators		
Being familiar with MIL	7	58
Having teachers modeling MIL	6	50
Having MIL in the curriculum	5	42
Having district funding for technology	5	42
Having available resources	4	33
Barriers		
Teaching in a poor district	8	67
Not having technology available	7	58
If administrators are against MIL	5	42
Students knowing more technology than teachers	4	33
Students not using media literacy at home	4	33
If students don't see MIL as a priority	3	25
Parents not implementing MIL at home	2	17
If students are not at grade level	1	8

"Helping students get ready for college" was the most mentioned advantage; it was reported by 75% of preservice teachers. Other reported advantages included "teaching students about Internet safety" (58%), "helping students with their personal life" (50%), "teaching students to evaluate information" (33%) and "helping students conduct research and write papers" (33%). The most frequently mentioned disadvantage was that "parents might disagree" (67%). In addition, preservice teachers identified "students will not use MIL at home" (58%), "it takes time away from the curriculum" (42%) and "students can misuse Internet at school" (33%) as disadvantages of teaching MIL in their future classroom. Faculty and instructors were frequently mentioned as salient social referents. "Course instructors" (from the elective course where MIL was taught) were the most frequently mentioned approving referents; they were reported by 100% of the

participants. “Teacher education faculty” (83%), “fellow students” (75%), “inservice teachers” (58%), “people who know about MIL” (50%) and “young parents” (50%) were also mentioned as positive social referents. The “older generation of professors” was the most frequently mentioned disapproving group, reported by 67% of preservice teachers as unsupportive, followed by “principals against technology” (58%), “parents against social media” (50%) and “people who don’t know about MIL” (50%). It is to be noted that parents were labeled as an approving group by some participants (50%) and disapproving by others (50%). The most frequently mentioned facilitator was “being familiar with MIL,” as reported by 58% of the preservice teachers. They also added “having teachers modeling MIL” (50%), “having MIL in the curriculum” (42%), “having district funding for technology” (42%) and “having available resources” (33%) as facilitators for teaching MIL in their future classroom. “Teaching in a poor district” was the most frequently reported barrier. This was reported by 67% of the participants. Similarly, 58% of the preservice teachers reported “not having technology available” (58%), “administrators against MIL” (42%), “students knowing more technology than teachers” (33%) and “students not using MIL at home” (33%) as barriers for teaching MIL in their future classroom. Among the responses in the present elicitation study, some were not considered salient when reported by less than a third of participants.

Discussion

The Theory of Planned Behavior explains that the extent to which individuals view a particular behavior (i.e., attitude), think that others also want them to engage in said behavior (i.e., subjective norms), and think that they know how to perform the behavior (i.e., perceived behavioral control), serve as direct determinants of the strength of their intention to carry out the behavior (Ajzen, 1991). The Theory of Planned Behavior further adds that each of the three

direct determinants of behavioral intention (i.e., attitude, subjective norms, and perceived behavioral control) is impacted by three indirect sets of beliefs (i.e., behavioral, normative, and control beliefs) about the behavior at hand. In this study, these sets of beliefs were elicited to understand preservice teachers' underlying beliefs about teaching MIL in their future classroom. Results about their behavioral beliefs showed that they viewed MIL as a beneficial set of skills to help students be prepared for college as well as their personal life. Nevertheless, these positive beliefs were counterbalanced by more negative ones about teaching MIL in their future classroom, such as parents disagreeing with that decision, students not using these skills at home or misusing the Internet at school, or MIL taking time away from teaching content already in the curriculum.

An analysis of participants' normative beliefs suggested that faculty and instructors were the main social referents for preservice teachers when it comes to teaching MIL. More specifically, preservice teachers identified instructors of a course that covered MIL as people who would most approve of them teaching MIL in their future classroom. Outside of their program, inservice teachers, young parents, and overall people who know about MIL seemed to be groups of people who would positively see MIL in the classroom, according to participants. On the contrary, they identified professors from older generations, administrators against technology, and parents against social media as individuals who would not support their choice of teaching MIL in their future classroom. Interestingly, these individuals were mentioned both as groups who could either approve and disapprove of that choice.

Finally, participants' perceived control beliefs reflected that they viewed knowledge and modeling of MIL, as well as curriculum, funding, and resources as factors that would help them teach MIL; while lack of funding, administrators against MIL, students not using MIL at home

and them knowing more about technology than teachers were viewed by preservice teachers as factors that would make it more difficult to teach MIL in their future classroom.

Implications and future directions

Altogether, findings from this study have both practical and theoretical implications for future research aiming to examine ways to prepare preservice teachers to embed MIL in their future classroom. For teacher educators, the study reflects the need to explicitly integrate MIL in their programs, so that preservice teachers are not only exposed to the concept, but also become knowledgeable about how to transform it into MIL pedagogies and practices that they could use in their future classroom. The study showed preservice teachers' desire to learn more about how to teach MIL, a wish that meets a need reflected in the research literature about the competencies they should possess to embed digital media and MIL in their classroom (Kovalik, Kuo & Karpinski, 2013; Schieble, 2010; Thompson, Schmidt-Crawford & Lindstrom, 2015; Tondeur et al., 2012; Wiseman, 2012).

The findings further suggested that teacher educators should capitalize on preservice teachers' positive attitudes about MIL as a starting point to introduce these pedagogies. As a first step towards this goal, we need to further understand preservice teachers' identities as digital educators and how their attitudes towards digital and social media can influence their motivations to use them for teaching (Hobbs & Tuzel, 2015). Future work in this field should explore preservice teachers' personal use of digital media and information in their personal lives, and investigate how that personal use transfers to their pedagogy (Carr, 2010). Moreover, the findings demonstrated a need for teacher educators to clarify how different factors could enhance or impede the teaching of MIL (e.g., resources, funding) they might face when deciding to teach MIL in their future classroom in order to dismiss misconceptions and address potential

challenges. This would help reinforce their positive attitudes towards using MIL while bolstering their proficiency and confidence in using it along with other technology-related concepts (Lei, 2009).

Based on findings that preservice teachers highly valued the opinion of faculty and instructors, one way to develop preservice teachers' digital wisdom (Prensky, 2009) and intention to teach MIL is for teacher educators to model teaching with and about technology in their own classes (Tiede et al., 2015). Previous research has suggested that when teacher educators successfully integrate digital media in teacher education classes, preservice teachers are more likely to replicate such use on their own (Yilmazel-Sahin & Oxford, 2010). Modeling by expert teachers has been found to be an effective approach at giving preservice teachers ideas to implement in the classroom (Vannatta, 2000; West & Graham, 2007), and research has shown that such modeling, or lack thereof, can significantly influence preservice teachers' use of digital media in classroom instruction (Brown & Warschauer, 2006; Vrasida & McIsaac, 2001).

In addition, another important finding was that preservice teachers considered their instructors from an elective educational technology course in which they covered MIL concepts to be positive social referents when thinking about teaching MIL in their future classroom. Teacher education programs should consider the benefits of such introductory or elective educational technology courses as ways to introduce MIL to preservice teachers (Polly, Mims, Shepherd & Inan, 2009). The UNESCO has designed a MIL curriculum for teacher that includes adaptable module-based curricula to introduce MIL to teachers (Grizzle et al., 2013), which could be integrated in such courses. As preservice teachers develop an understanding of MIL concepts in educational technology courses, they could learn to apply MIL to other classes (Kleiner, Thomas & Lewis, 2007) to learn about MIL within the context of their specific subject

area. Consequently, future research in this area should look more specifically at the effects of brief MIL exposure and training for preservice teachers (Pérez Tornero, 2008).

Lastly, for researchers, this formative research served two purposes. First, the qualitative data provided an understanding of the perspectives and beliefs that preservice teachers have about teaching MIL in their future classroom, which can be incorporated into designing effective interventions or exercises. Second, the information can be used to develop a quantitative instrument to examine the relative importance of both the direct factors and indirect underlying beliefs about the behavior in a larger-scale study, which can provide directions for future Media & Information Literacy education efforts. Both these practical and theoretical implications will not only respond to the current need to teach students MIL skills, but will also strengthen preservice teachers' intention to teach MIL to their students.

This study had some limitations that should be acknowledged when considering its findings. One of the limitations was that while qualitative research can provide an in-depth understanding of participants' perspectives on a specific issue, qualitative data from a small number of participants limits generalizability to the larger population of preservice teachers in the United States. Another limitation of this study was that it was conducted in a single institution at a large Midwestern university. Hence, researchers interested in examining preservice teachers' perspectives towards teaching MIL in their own settings should take into account the particular context of the present study. Nevertheless, given the ability for the TPB model to predict preservice teachers' intentions to use and teach with technology (Sadaf, Newby & Ertmer, 2012; Shiue, 2007; Teo & Lee, 2010; Teo, 2012; Valtonen et al., 2015), findings from this study raise new questions for teacher educators and researchers interested in developing and measuring preservice teachers' intention to teach MIL in their future classroom.

Conclusion

The present study elicited underlying beliefs related to preservice teachers' views of teaching Media & Information Literacy in their future classroom. Knowledge of these factors, along with their underlying beliefs, provides a foundation for teacher educators to promote the behavior in question. In addition, an instrument derived from the present results can serve as a model for quantitative research on preservice teachers' intentions to teach media & information literacy in response to the need for students to possess these skills in the digital age.

APPENDIX

Focus group items

Behavioral beliefs
There are many perspectives about teaching media literacy in the classroom.

1) What do you see as the advantages of teaching MIL in your future classroom?
2) What do you see as the disadvantages of teaching MIL in your future classroom?

Normative beliefs
When it comes to teaching MIL in your future classroom, there might be individuals or groups who would think you should or should not perform this behavior.

1) Please list the individuals or groups who would approve of you teaching MIL in your future classroom.
2) Please list the individuals or groups who would disapprove of you teaching MIL in your future classroom.

Control beliefs
When it comes to practical aspects of teaching MIL in your future classroom, there might or things that would make it easier to do it or challenges that might impede you to do it.

1) Please list any factors or circumstances that would facilitate the teaching of MIL in your future classroom.
2) Please list any factors or circumstances that would be a barrier for you to teach MIL in your future classroom.

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PAPER TWO. What Predicts Preservice Teachers' Intention to Teach Media & Information Literacy? Instrument Development and Validation Using the Theory of Planned Behavior

Abstract

This is the first theory-based tool designed to understand the factors influencing preservice teachers' intention to teach Media & Information Literacy (MIL). The purpose of this study was to develop a survey based on the Theory of Planned Behavior (TPB) to assess these factors. Internal consistency was conducted for direct measures, and test–retest reliability was assessed for indirect measures. The final version of the survey consisted of 75 items, and construct validity was demonstrated by significant, fair-to-moderate correlations of all of the direct measures and indirect measures of intention. Multiple regressions were computed to assess which factors were significant predictors of preservice teachers' intention to teach MIL. Results showed that preservice teachers' intention to teach MIL was high; yet "attitude" was the only predictor in the model. We provide recommendations for adapting and using this instrument in teacher education.

Introduction

Twenty-first century new media provide informal, out-of-school, interactive spaces for 21st century youth (Gee, 2015), and teens today actively use new media on a daily basis—particularly social media such as blogs, social networks, forums, or video sharing websites (Boulianne, 2015; Lenhart, 2015). Many educational organizations recognize that the Internet has become a principal resource for students to access information, and have highlighted the need for them to possess Media & Information Literacy (MIL) skills in the 21st century (Governors Association Center for Best Practices, 2010; International Society for Technology in

Education, 2015; Next Generation Science Standards, 2013; Partnership for 21st century, 2014). This, however, also implies that K-12 teachers need to possess skills to help students critically engage with media messages to understand how information can affect their own personal lives, beliefs, behaviors, or perceptions of others (Bandura, 1994; Lemke, 2006). While there have been efforts to create instruments to measure students' acquisition of media literacy skills, little has been done to look at media literacy from preservice teachers' perspective (Thompson, Schmidt-Crawford & Lindstrom, 2015). In addition, there are no specified requirements in teacher education programs to teach about new media pedagogies, which leads to inconsistencies in MIL instruction in teacher education (Tiede, Grafe & Hobbs, 2015). As a result, teaching media literacy often becomes a matter of individual preferences (Silverblatt, 2013), instead of the familiar set skills scholars and educators would like it to be (Buckingham, 2013). There is, therefore, a discrepancy between this newly established need for students to be media and information literate in the 21st century and whether or not preservice teachers are prepared in that domain. In order to address this issue in teacher education, it is important to first assess preservice teachers' intention to teach MIL and understand the factors that play a role in their decision to teach it in their future classroom. In this study, I developed an instrument to identify the factors that play a role in preservice teachers' intention to teach MIL in their future classroom, using the Theory of Planned Behavior (Ajzen, 1991). The following sections further explain the relevance of MIL in 21st century education, and describe the use of the Theory of Planned Behavior as a theoretical framework for this study.

Media & Information Literacy in the 21st century

The skills that students need to critically evaluate new media and information have been coined under the umbrella term Media & Information Literacy (MIL). Media & Information

Literacy is a set of competencies needed to understand how information providers operate and convey messages (i.e., information literacy), and how to critically evaluate the content of the information they present (i.e., media literacy) (Wilson et al., 2013). MIL, therefore, addresses a range of cognitive skills (e.g., critical thinking, analysis, message composition) and socio-emotional skills (e.g., bias detection, ethical thinking, active participation through collaboration with others) (Grizzle et al., 2013). As such, media and information literate students know how to access information appropriate to their needs, know how to evaluate its veracity, and use it in ethical ways. Additionally, they understand media functions and purposes, and know how to engage with it for self-expression (Wilson et al., 2013). As a result, MIL skills are both trans-disciplinary and discipline-specific: they can be applied across subjects (e.g., assessing media messages) or in a specific domain (e.g., assessing media messages about scientific facts) (Grizzle et al., 2013).

Given that students need these skills for life and career readiness, we need to prepare preservice teachers to not only teach using new media and tools, but also prepare them to teach new media competencies such as Media & Information Literacy (Grizzle et al., 2013). It implies that teacher education programs need to prepare preservice teachers to teach *with* new media as well as to teach *about* new media (Tiede et al., 2015) in order for teachers to embed Media & Information Literacy skills and practices in their classrooms (Buckingham, 2015; Wiseman, 2012; Wilson et al., 2013). However, despite the growing need for this skillset, MIL instruction is not a required part of teacher education, and preservice teachers are not always prepared to implement them in their future classroom (Kovalik, Kuo & Karpinski, 2013; Schieble, 2010; Tondeur et al., 2012).

Media & Information Literacy in teacher education

About a decade ago, Kellner & Share (2007) asserted that "educators need to move the discourse beyond the stage of debating whether or not critical media literacy should be taught, and instead focus energy and resources on exploring the best ways for implementing it" (p. 59). Fast forward ten years, there are still no policies or regulations in U.S. teacher education to ensure basic new media education (Tiede, Grafe & Hobbs, 2015). Schools of Education continue to often focus on teaching *with* new media and technology (i.e., using technology tools) instead of also teaching *about* new media (i.e., talking about new media content). A recent report showed that only 2% of 316 universities surveyed offered courses in media education or media pedagogy—and only at the Masters level (Tiede, Grafe & Hobbs, 2015). This reality is coupled with the fact that while millennials are often accustomed to using new media, research has shown that this familiarity does not necessarily transfer to teaching and learning (Kinash, Wood & Knight, 2013; Thompson, Schmidt-Crawford & Lindstrom, 2015).

Today, the majority of preservice teachers in teacher education programs are at ease with the use of new media to communicate with others, search for information, and stay connected with family and friends (Smith, 2011). However, exposure to new media and fluency in new media use does not necessarily mean that preservice teachers are knowledgeable about its pedagogical uses (Hargittai, 2010). Lei (2009) found that while preservice teachers' familiarity with technology and new media led to positive attitudes towards using them in the classroom, their proficiency in using them as a teaching tool was limited. Lindstrom, Schmidt-Crawford & Thompson (2016) also noted that although preservice teachers are increasingly more equipped with new media skills in their personal lives, they "continue to have little experience and vision for how to use digital technologies in ways that develop the digital literacies their students need

to fully participate in the public, private, and economic spheres that characterize contemporary society" (p. 3). As a result, preservice teachers would benefit from gaining the skills needed to embed new media in their classroom (Kovalik, Kuo & Karpinski, 2013; Schieble, 2010; Tondeur et al., 2012). The inconsistency between the established need to train teachers in MIL (Martens, 2010; Tyner, 2014; Wilson et al., 2013) and the lack of MIL training in teacher education (Tiede et al., 2015) highlights a need to better understand if preservice teachers intend to teach MIL to their future students and to identify the factors that influence their intention to implement MIL in their classroom. This study used the Theory of Planned Behavior as a framework to address this issue.

Theoretical Framework

The Theory of Planned Behavior (TPB) was developed as an expectancy-value model to explain that human behavior is guided by the interplay of three direct factors in forming an intention: i) attitudes (i.e., how an individual feels about performing the behavior), ii) subjective norms (i.e., the social pressure an individual feels around performing the behavior), and iii) perceived behavioral control (i.e., the amount of volitional control an individual feels about performing the behavior) (Ajzen, 1991). In addition, each of these three factors are influenced by indirect underlying beliefs: i) attitudes are influenced by beliefs about the outcomes of a behavior, or behavioral beliefs, ii) subjective norms are influenced by beliefs about the norms and expectations of others in regards to this behavior, or normative beliefs, and iii) perceived behavioral control is influenced by beliefs about the existence of factors that either facilitate or impede the implementation of the behavior, or control beliefs (Ajzen, 1991).

Ajzen (1991) further described how the three types of indirect underlying beliefs impact their direct counterpart in the TPB. *Behavioral beliefs* (i.e., indirect measure) influence *attitudes*

(i.e., direct factor), and are formed when we associate a behavior to a specific outcome. These beliefs are valued as positive or negative by individuals, and they automatically guide their attitude toward the behavior. In other words, people favor behaviors that are considered to have positive consequences, while they hold unfavorable attitudes toward behaviors that they associate with negative consequences. *Normative beliefs* impact an individual's *subjective norms,* which is whether others who are important to the individual approve of performing the given behavior or not. Finally, *control beliefs* influence *perceived behavioral control*, which deals with the resources and opportunities available to perform the behavior. Taken together, the three direct factors (i.e., attitudes, subjective norms, and perceived behavioral control) and their underlying beliefs contribute to the formation of a behavioral intention (i.e., an intention to perform the behavior); and the more favorable they are, the stronger the intention to perform the behavior is.

Typically, the more favorable the attitude and subjective norms, and the greater the perceived behavioral control, the stronger the intention to perform the behavior. This means that given sufficient degree of control over the behavior, people are expected to carry out their intention when the opportunity arises. As such, intention is seen as the immediate antecedent of behavior. However, given the possibility of limitations over volitional control (i.e., unforeseen barriers to implementing the behavior), the concept of perceived behavioral control can serve as a proxy for actual control (Ajzen, 1991). The relationship between each element of the theory is depicted in Figure 1 below.

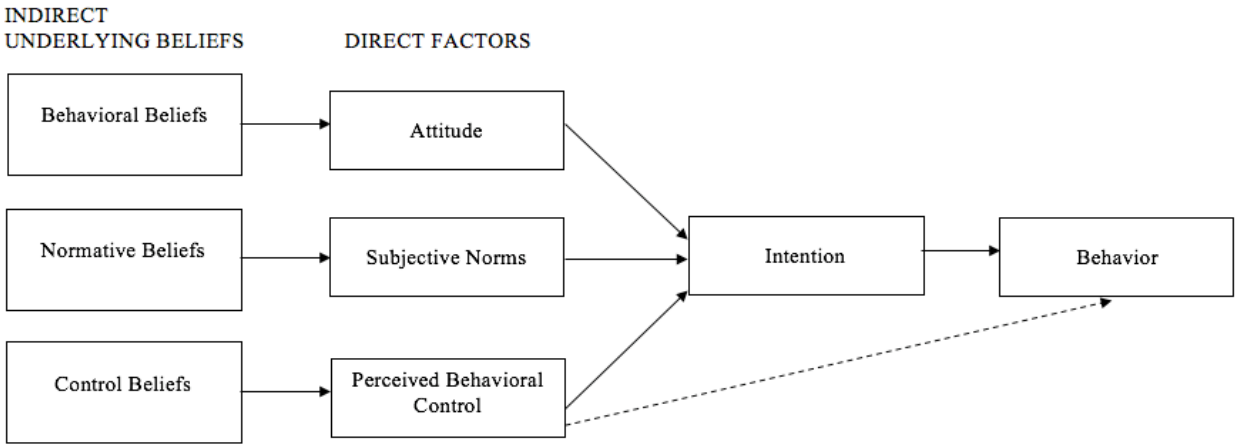

Figure 3. TPB model (adapted from Ajzen, 2006)

The TPB model is commonly used in health sciences, and has been found to predict participants' intention in health-related behaviors such as exercising, alcohol consumption, condom use, or smoking, for instance (Ajzen, 1991; Armitage & Conner, 2001; Blue, 1995; Conner & Sparks, 1996; Godin, 1993; Godin & Kok, 1996; Hausenblas, Carron, & Mack, 1997; Jonas & Doll, 1996; Manstead & Parker, 1995; Van den Putte, 1991). More recently, however, the model has been applied to educational technology to predict faculty decisions to adopt Web 2.0 technologies (Ajjan & Hartshorne, 2009), teachers' use of educational technology (Lee, Cerreto & Lee, 2010), preservice teachers' intention to use and use of technology (Shiue, 2007; Teo & Lee, 2010; Teo, 2012; Valtonen et al., 2015), preservice teachers' intention to use Web 2.0 technologies (Sadaf, Newby & Ertmer, 2012), student teachers' and experienced teachers' computer usage (Smarkola, 2008). While the TPB has been previously used to predict educators' use of technology, no research has been done to apply the TPB to Media & Information Literacy. Consequently, I conducted an elicitation study to better understand preservice teachers' views of MIL.

Elicitation study

I conducted an elicitation study to identify underlying beliefs that could influence preservice teachers' intention to implement MIL in their future classroom (Gretter & Yadav, NA). An elicitation study was conducted in order to call forth the behavioral, normative, and control beliefs that preservice teachers associated with teaching MIL in their future classroom (Ajzen, 2006; Francis et al., 2004; Glanz et al., 2008). Content analysis of the data was performed, and themes were labeled and listed in order of frequency for each of the three solicited set of beliefs (Gretter & Yadav, NA). The list of themes was then used to construct a TPB survey, and the most common themes were included in the survey as statements for survey items. The survey was piloted with five participants from the elicitation study, and a final draft of the survey was written to reflect pilot participants' feedback.

The present study

The present study used a Theory of Planned Behavior survey to examine preservice teachers' intention to implement Media & Information Literacy in their future classroom. More specifically, it addressed the following research questions:

1. Do preservice teachers intend to teach MIL in their future classroom?
2. Which factor(s) in the TPB model predict preservice teachers' intention to teach MIL?

Method

Participants

Forty-six preservice teachers enrolled in an elective introductory educational technology course participated in the study. Participants included 42 females and three males (one participant declined to answer), with an average age of 20.85 years. There were three

sophomores, 22 juniors, and 20 seniors (one participant responded "Other"). Thirty-seven participants were elementary education majors, two were secondary education majors, and seven did not report any majors. Of the 46 participants, 37% (N=17) reported having been previously exposed to MIL, while 13% (N=6) said no, and 50% (N=23) were unsure.

Measures

A TPB survey was used to assess the factors that influence preservice teachers' intention to teach MIL in their future classroom. The survey focused on assessing preservice teachers' intention as well as the direct factors (i.e., attitudes, subjective norms, perceived behavioral control) and indirect underlying beliefs (i.e., behavioral beliefs, normative beliefs, and control beliefs) impacting their intention. The survey contained 75 items, which were derived from the results of a previous elicitation study (Gretter & Yadav, NA). Response scales were unipolar (1 to 7) or bipolar (-3 to +3) depending on whether the survey item was to be measured unidirectionally (i.e., if the item was a judgment of probability) or bidirectionally (i.e., if the item was evaluative) (Francis et al., 2004). In addition, it also contained five demographic questions and ten background questions about preservice teachers' media use and previous exposure to MIL in their teacher education program (see Appendix A for a list of all survey items).

Direct Measures.

The survey contained a series of 15 items looking at the direct factors of the TPB model: intention, attitude, subjective norms, and perceived behavioral control.

Intention.

The survey contained three items that measured preservice teachers' intention to teach MIL in their future classroom. Using a seven-point Likert scale, the items examined the degree to which preservice teachers expected, wanted, and intended to teach MIL in their future

classrooms. An overall intention score was calculated for each participant by averaging their responses on the three items.

Attitudes.

Four items were used to measure preservice teachers' attitudes towards teaching MIL. The questions asked participants to qualify how they perceived the teaching of MIL in their future classroom on a series of seven-point bipolar scales. Specifically, the four items assessed the degree to which preservice teachers viewed teaching MIL from good to bad; harmful to beneficial; pleasant to unpleasant; and worthless to useful. An overall intention score was calculated for each participant by averaging their responses on the four items.

Subjective Norms.

Four items were used to measure subjective norms and gauge how preservice teachers perceived social pressure around teaching of MIL in their future classroom. Using a seven-point Likert scale, items measured participants' perceptions of how others valued and/or expected them to teach MIL. An overall intention score was calculated for each participant by averaging their responses on the four items.

Perceived Behavioral Control.

Four items were used to measure perceived behavioral control and examine preservice teachers' confidence in teaching MIL and whether they felt any control over teaching MIL in their future classroom. Using a seven-point Likert scale, participants were asked about their perception of control and abilities towards teaching MIL in their future classroom. An overall intention score was calculated for each participant by averaging their responses on the four items.

Psychometric properties of direct measures.

The internal consistency and reliability of the direct measures was examined using Cronbach's alpha and used the recommendation that alpha =>.6 coefficients were deemed acceptable for TPB studies (Francis et al., 2004; Nunnally, 1967; Robinson, Shaver & Wrightsman, 1991). The direct measure of intention scale consisted of three items with alpha =.923, the direct measure of attitude scale consisted of four items with alpha =.863, the direct measure of subjective norms scale consisted of four items with alpha =.608 and the direct measure of perceived behavioral control scale consisted of four items with alpha =.621.

Direct measures	Cronbach alpha
Intention	.923
Attitude	.863
Subjective Norms	.608
Perceived Behavioral Control	.621

Table 2. Internal consistency and reliability coefficients

These coefficients showed moderate to high internal consistency for the direct measures of attitude, subjective norms, and perceived behavioral control in the TPB survey.

Indirect Measures.

The survey also contained a series of 60 items looking at indirect underlying beliefs of the TPB model: behavioral beliefs, normative beliefs, and control beliefs. It is important to note that in the TPB, and unlike direct measures which are represented as mean scores, each of the indirect measures represents a composite score. As seen in figure 2 below, behavioral beliefs are a composite of belief strength and outcome evaluation, normative beliefs are a composite of belief strength and motivation to comply, and control beliefs are a composite of belief strength and perceived power.

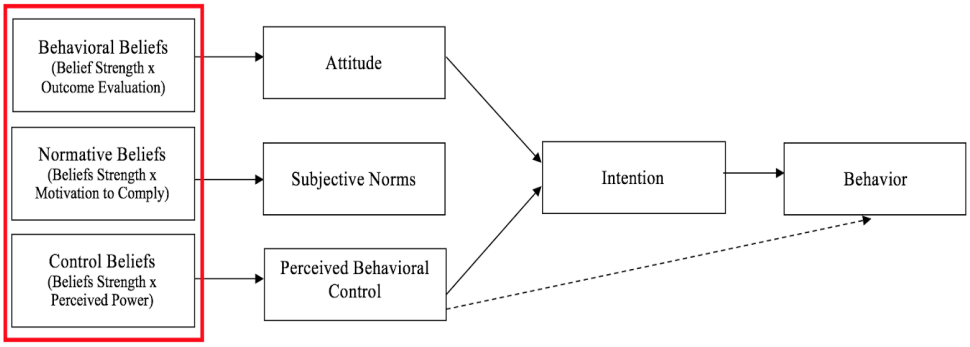

Figure 4. Indirect measures

Behavioral beliefs.

Participants were asked to rate a series of ten statements to measure belief strength associated to behavioral beliefs. Using a seven-point Likert scale, statements gauged participants' beliefs about the benefits of teaching MIL and its importance for students. Participants then rated a series of ten corresponding statements to express a positive or a negative evaluation of each belief statement (i.e., outcome evaluation of their beliefs). For the outcome evaluation, each statement was on a -3 to +3 scale.

Belief strength • If I teach Media & Information Literacy, I will feel that I am helping students to get ready for college and for their personal life Strongly disagree 1 2 3 4 5 6 7 Strongly agree
Outcome evaluation • Helping students get ready for college and for their personal life is Very undesirable -3 -2 -1 0 +1 +2 +3 Very desirable

Table 3. Example of behavioral beliefs

The belief strength and outcome evaluation scores were used to calculate a composite behavioral beliefs score (Francis et al., 2004). In order to calculate the composite score for behavioral beliefs, the following formula was used.

BE = (b1 x bo1) + (b2 x bo2) + (b3 x bo3) + (b4 x bo4) + (b5 x bo5) + (b6 x bo6) + (b7 x bo7) + (b8 x bo8) + (b9 x bo9) + (b10 x bo10)

where, BE = composite behavioral beliefs
b(n) = scores for each of the 10 behavioral belief strength statements
bo(n) = scores for each of the 10 outcome evaluation statements

Normative beliefs.

Participants were asked to rate a series of ten statements to measure belief strength associated to normative beliefs. Using a -3 to +3 scale, statements gauged participants' beliefs about specific groups of influence that would approve or disapprove of them teaching MIL in their future classroom. Participants then rated a series of ten corresponding statements to further evaluate each belief statement (i.e., motivation to comply to their beliefs). For the motivation to comply, each statement was seven-point Likert scale.

Belief strength • TE faculty think that I Should not teach MIL -3 -2 -1 0 +1 +2 +3 Should teach MIL
Motivation to comply • TE faculty approval of my practice is important to me Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Table 4. Example of normative beliefs

The belief strength and motivation to comply scores were used to calculate a composite normative beliefs score (Francis et al., 2004). In order to calculate the composite score for normative beliefs, the following formula was used.

NO = (n1 x nm1) + (n2 x nm2) + (n3 x nm3) + (n4 x nm4) + (n5 x nm5) + (n6 x nm6) + (n7 x nm7) + (n8 x nm8) + (n9 x nm9) + (n10 x nm10)

where, NO = composite normative beliefs
n(n) = scores for each of the 10 normative belief strength statements
nm(n) = scores for each of the 10 motivation to comply statements

Control beliefs.

Participants were asked to rate a series of ten statements to measure belief strength associated to control beliefs. Using a seven-point Likert scale, statements gauged participants' beliefs about the factors that would either facilitate or hinder teaching MIL in their future classroom. Participants then rated a series of ten corresponding statements to express a positive or a negative evaluation of each belief statement (i.e., perceived power over their beliefs). For perceived power, each statement was on a -3 to +3 scale.

Belief strength • I can't teach Media & Information Literacy if my class isn't at grade level Strongly disagree 1 2 3 4 5 6 7 Strongly agree
Perceived power • When my class is not at grade level, I am Less likely to teach MIL -3 -2 -1 0 +1 +2 +3 More likely to teach MIL

Table 5. Example of control beliefs

The belief strength and perceived power scores were used to calculate a composite control beliefs score (Francis et al., 2004). In order to calculate the composite score for control beliefs, the following formula was used.

$$CO = (c1 \times cp1) + (c2 \times cp2) + (c3 \times cp3) + (c4 \times cp4) + (c5 \times cp5) + (c6 \times cp6) + (c7 \times cp7) + (c8 \times cp8) + (c9 \times cp9) + (c10 \times cp10)$$

where, CO = composite control beliefs
c(n) = scores for each of the 10 control belief strength statements
cp(n) = scores for each of the 10 perceived power statements

Psychometric properties of indirect measures.

Because people can hold both positive and negative beliefs about the same behavior, it is not possible to assess the reliability of indirect measures using the same internal consistency criteria used for direct measures. We, therefore, performed a test-retest analysis to assess the temporal stability of the indirect measures scales used in the survey (Ajzen, 2006; Francis et al., 2004). The TPB survey was administered a second time to a random sample of participants (N=10) with an interval of two weeks. I calculated Pearson's correlation coefficient (*r*) for each TPB construct's composite score for each indirect measure (i.e., behavioral beliefs, normative beliefs, control beliefs) using T1 (time 1) and T2 (time 2) data.

Indirect measures	Correlation coefficient *r*
Behavioral Beliefs	.651*
Normative Beliefs	.722*
Control Beliefs	.672*

*Note: *correlation significant at the .05 level*

Table 6. Test-retest reliability coefficients

The correlations in the test-retest of indirect measures of attitude, subjective norms, and perceived behavioral control in the TPB survey showed temporal stability for each measure through a strong correlation between T1 and T2 (Evans, 1996).

Psychometric properties of direct and indirect measures.

I calculated a series of simple bivariate correlations between direct and indirect measures of the same construct to confirm the validity of the direct and indirect measures (Francis et al., 2004).

Direct and indirect measures	Correlation coefficient *r*
Attitude (indirect-direct)	.354*
Subjective Norms (indirect-direct)	.356*
Perceived Behavioral Control (indirect-direct)	.349*

*Note: *correlation significant at the .05 level*

Table 7. Correlations between direct and indirect measures

These correlations are illustrated in the figure below:

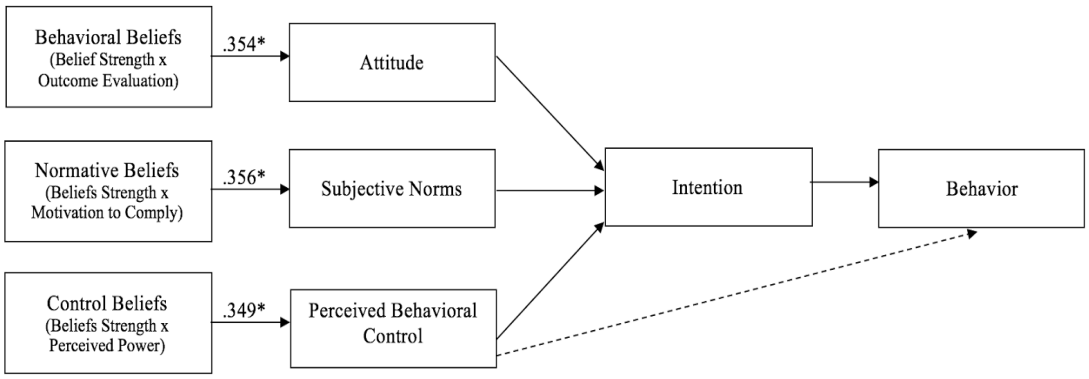

Figure 5. Correlations between direct and indirect measures

Our analysis uncovered that despite low correlations, statistical significance showed true relationships between the direct and indirect constructs of each construct in the TPB model.

Procedure

A survey link to the study hosted on Qualtrics was shared with participants towards the end of the semester. Participants had to complete the survey to receive participation points for

the week. Students had not been exposed to the concept of MIL during the semester, and the survey provided them with a brief definition of the concept.

Data analysis

Descriptive statistics were used to assess preservice teachers' intention to teach MIL in their future classroom as well as for the direct factors and indirect underlying beliefs of the TPB model. Multiple regressions were conducted to examine whether direct factors (i.e., attitude, subjective norms, and perceived behavioral control) and indirect underlying beliefs (i.e., behavioral beliefs, normative beliefs, and control beliefs) predicted preservice teachers' intention to teach MIL in their future classroom (Ajzen, 2006). The regression analysis was conducted first including only direct factors as predictors in Block I and then including indirect underlying beliefs in Block II with preservice teachers' intention as outcome variable.

Results

Direct measure of intention

Participants' intention to teach Media & Information Literacy in their future classroom was a mean score of 6.13 on a 7-point scale (1-completely disagree to 7-completely agree). For instance, 76% of participants (N=35) strongly agreed and agreed with the statement "I intend to teach Media & Information Literacy in my future classroom," while 78% of participants also strongly agreed or agreed that they wanted to teach MIL in their classroom. And 76% strongly agree or agreed that they expected to teach MIL. Preservice teachers' intentions are represented in figure 1 below, and descriptive tables are available in Appendix B.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean score for direct measure of intention	46	4	7	6.13	.797

Table 8. Direct measure of intention

Direct measure of attitude

Participants were asked to qualify how they perceived the teaching of MIL in their future classroom on a bipolar scale. A majority of participants (67%, N=31) stated that teaching MIL in their future classroom was "good" (7-point scale from "bad" to "good") and "useful" (N=31) (7-point scale from "worthless" to "useful"), and 63% of them (N=29) considered it "beneficial" (7-point scale from "harmful" to "beneficial"). Participants' overall attitude score was a mean of 6.54 on a 7-point scale (1-negative attitude to 7-positive attitude).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean score for direct measure of Attitude	46	4	7	6.41	.721

Table 9. Direct measure of attitude

Indirect measure of attitude: Behavioral beliefs.

Participants were asked what they believed about the value of teaching MIL to students, and 50% of them (N=23) strongly agreed that they would help students get ready for college and life readiness if they taught MIL in their future classroom. Similarly, 74% of them (N=34) found that it was "very desirable" to help students for college and life readiness. Details of each behavioral belief is represented in the table below, and descriptive tables are available in

Appendix B. Participants' overall behavioral beliefs composite score was 138.25 (on a range from -210 to +210).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Composite score for indirect measure of Attitude (sum of 10 belief strength*outcome evaluation)	46	-172	210	138.67	62.753

Table 10. Indirect measure of attitude

Direct measure of subjective norms

Participants were asked about social referents and social pressure felt about teaching MIL in their future classroom. Of all participants, 15% (N=7) strongly agreed that "most people who are important to me think that I should teach Media & Information Literacy in my future classroom," while 9% (N=4) strongly agreed that "it is expected of me to teach media & information literacy in my future classroom" and 7% (N=3) strongly agreed that "most people who are important to me teach media & information literacy." Participants' subjective norms score was a mean of 4.8 on a 7-point scale (1- weak subjective norms to strong subjective norms)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean score for direct measure of Subjective Norms	46	3	7	4.75	.845

Table 11. Direct measure of subjective norms

Indirect measure of subjective norms: Normative beliefs.

When assessed on their beliefs about social expectations around MIL, 41% of participants (N=19) believed that teacher education faculty think that they should teach MIL in their future classroom (on a 7-point scale from 1-should not to 7-should). Similarly, 41% (N=19) strongly agreed that teacher education faculty approval of their classroom practices was important to them. Details of each behavioral belief is represented in the table below, and descriptive tables are available in Appendix B. Participants' overall normative beliefs composite score was 94.72 (on a range from -210 to +210).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Composite score for indirect measure of Subjective Norms (sum of 10 belief strength*motivation to comply)	46	-4	192	91.17	40.722

Table 12. Indirect measure of subjective norms

Direct measure of perceived behavioral control

About 32% the participants (N=15) strongly agreed that they felt confident to teach MIL in their future classroom, while 6.5% (N=3) strongly agreed that teaching MIL in their future classroom was entirely up to them. Participants' overall mean of perceived behavioral control score was 4.91 on a 7-point scale (1-completely disagree to 7-completely agree).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean score for direct measure of Perceived Behavioral Control	46	3	6	4.77	.723

Table 13. Direct measure of perceived behavioral control

Indirect measure of perceived behavioral control: Control beliefs.

Participants were asked to indicate how much control they felt about teaching MIL in their future classroom, and 47% of preservice teachers (N=22) believed that they would be less likely to teach MIL if they did not have electronic devices in their classroom. Another 22% of them (N=10) believed that they would be less likely to teach MIL if they taught in a poorer school district. Details of each behavioral belief is represented in the table below, and descriptive tables are available in Appendix B. Participants' overall control beliefs composite score was 24.69 (on a score range from -210 to +210).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Composite score for indirect measure of Perceived Behavioral Control (sum of 9 belief strength*factor power)	46	-13	108	28.11	28.490

Table 14. Indirect measure of perceived behavioral control

Table 7 below illustrates the descriptive statistics for the score of each measure.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean score for direct measure of Intention	46	4	7	6.13	.797
Mean score for direct measure of Attitude	46	4	7	6.41	.721
Mean score for direct measure of Subjective Norms	46	3	7	4.75	.845
Mean score for direct measure of Perceived Behavioral Control	46	3	6	4.77	.723
Composite score for indirect measure of Attitude	46	-172	210	138.67	62.753
Composite score for indirect measure of Subjective Norms	46	-4	192	91.17	40.722
Composite score for indirect measure of Perceived Behavioral Control	46	-13	108	28.11	28.490

Table 15. Descriptive statistics of the TPB model

Multiple regressions

Multiple regressions were conducted to examine whether direct measures of intention (i.e., attitude, subjective norms, and perceived behavioral control) predicted preservice teachers' intention to teach MIL in their future classroom. The results indicated that the direct factors accounted for 41% of the variance in preservice teachers' intention ($F (3, 42) = 9.617$, $p < .000$, $R^2 = 0.41$).

The second regression model included both direct factors (i.e., attitude, subjective norms, and perceived behavioral control) and indirect underlying beliefs (i.e., behavioral, normative, and control beliefs) as predictors, and preservice teachers' intention to teach MIL as outcome. The

results indicated that both direct and indirect measures explained 47% of the variance in preservice teachers' intention (F (6, 59) = 5.651, p <.000, R^2=0.47). Only attitude was a significant predictor of participants' intention to teach MIL in their future classroom, p= .029.

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**p**
		B	Std. Error	Beta		
1	(Constant)	1.09	.94		1.16	.25
	Attitude	.46	.15	.42	3.17	.003
	Subjective Norms	.19	.12	.20	1.61	.12
	Perceived Behavioral Control	.25	.15	.22	1.68	.10
2	(Constant)	2.04	1.03		1.97	.06
	Attitude	.37	.16	.33	2.27	.03
	Subjective Norms	.112	.12	.12	.92	.36
	Perceived Behavioral Control	.165	.16	.15	1.06	.30
	Behavioral Belief	.000	.002	.01	.11	.92
	Normative Beliefs	.002	.003	.12	.82	.42
	Control Beliefs	.006	.004	.22	1.57	.13

Note. R^2 = 0.41 for Step 1; R^2 = 0.47 for Step 2

Table 16. Summary of multiple regressions

Discussion

The purpose of this research was to design and validate a survey to measure factors that contribute to preservice teachers' intention to teach MIL in their future classroom. I developed an instrument based on the Theory of Planned Behavior to assess whether preservice teachers' intended to teach MIL in their future classroom and to understand which factors influenced their intention. Based on the TPB, the survey included both direct factors (i.e., attitudes, subjective norms, perceived behavioral control) and indirect underlying beliefs (i.e., behavioral beliefs, normative beliefs, control beliefs) as measures of intention. Results showed that preservice teachers' intention to teach MIL in their future classroom was high (6.17 on a 7-point scale). In

terms of direct measures, they showed that preservice teachers had highly positive attitudes towards teaching MIL (6.54 on a 7-point scale), but more moderate subjective norms (4.8 on a 7-point scale) and perceived behavioral control (4.91 on a 7-point scale). Further analysis of the indirect measures revealed a high level of positive attitude based on their behavioral beliefs (138.25 on a -210 to +210 scale), a moderate level of positive social pressure based on their normative beliefs (94.72 on a -210 to +210 scale), and a weak level of positive control based on their control beliefs (24.69 on a -210 to +210 scale). In addition, out of the three factors and their underlying beliefs in the TPB (i.e., attitude and behavioral beliefs; subjective norms and normative beliefs; and perceived behavioral control and control beliefs), only the direct measure of attitude was found to be a significant predictor of preservice teachers' intention to teach MIL in their future classroom. This means that how preservice teachers say they feel about MIL and its benefit for students is what drives their intention to teach it in the future. This also means that there is space to support their subjective norms and perceived behavioral control in order to ensure that they actually carry out their intention into practice. These findings have implications for teacher education and research in the field of MIL education.

Implications for teacher education

Our results showed that preservice teachers highly intended to teach MIL in their future classroom—even though 50% of the participants were unsure if they had been previously exposed to MIL in their teacher education program. While this high intention may indicate that preservice teachers do not need to be encouraged to teach MIL in their future classroom, their lower scores in subjective norms and perceived behavioral control paint a more contradictory picture. These results suggest that preservice teachers intend to teach MIL mainly because of their positive view of the concept (i.e., attitude) and not necessarily because it is valued in their

teacher education program (i.e., subjective norms) or because they feel confident in their skills to teach it (i.e., perceived behavioral control). Teacher educators should focus on this positive attitude as an entry-point to discuss MIL-related concepts and support their acquisition of MIL pedagogical skills to successfully implement it in their classroom.

The study also helped identify specific beliefs within the TPB (i.e., behavioral beliefs, normative beliefs, control beliefs) that might impact preservice teachers' attitude, subjective norms, and perceived behavioral control in relation to teaching MIL in their future classroom. For instance, results showed that preservice teachers valued what teacher educators thought about their choice of educational practices related to MIL (i.e., normative beliefs), yet they did not see MIL being encouraged by teacher educators in their program (i.e., subjective norms). This implies that teacher educators should make more explicit mentions of MIL to highlight its importance. This might encourage preservice teachers to see that their program values MIL as a set of skills needed by students in the 21st century. In a similar manner, instructors in teacher education programs could introduce, label, and model MIL skills in their own practices to emphasize them to preservice teachers.

Our results further demonstrated that preservice teachers did not agree that teaching MIL in their future classroom was entirely up to them. They believed that specific conditions (e.g., teaching in a poorer school district or having electronic devices available) could impede their control of teaching MIL. This underlined the need for teacher educators to support preservice teachers' control beliefs in teaching MIL. This could be achieved by addressing misconceptions that preservice teachers might hold in relation to barriers to teaching MIL. For instance, research in pediatrics has shown that students from lower socioeconomic status particularly benefit from media literacy education (Strasburger, Donnerstein, Bushman, 2014) as they often get exposed to

media earlier, more frequently, and with less adult supervision (Kabali et al., 2015; Rideout, 2015). Moreover, research has also strongly supported teaching MIL using "unplugged" activities without electronic devices (Hobbs & Jensen, 2009), for instance with books, newspapers, radio messages, or commercial products. This prior research counters preservice teachers' belief that they would be less likely to teach MIL if they didn't have electronic devices in their future classroom.

While research has shown that prior beliefs held by preservice teachers have significant impact on their teaching, it is possible to also use these obstacles as opportunities for addressing misconceptions in teacher education (Joram & Gabriele, 1998; Kagan, 1992; Parajes, 1993). If teacher educators—whom preservice teachers value—addressed these misconceptions, preservice teachers could see that teaching MIL is the result of their own volitional control than external factors, which would in turn reinforce their intention to teach it in the future. Elicitation studies using the TPB could help identify specific beliefs or misconceptions that preservice teachers might hold in regards to MIL in order to better address them in teacher education.

Implications for research

While there have been efforts to create measures of media literacy skills for students (Arke & Primack, 2009; Hobbs & Frost, 2003; Jeong, Cho & Hwang, 2012; Literat, 2014; Scharrer, 2002), or creating tools for educators to use MIL in the classroom (Beach, Campano, Borgmann & Edmiston, 2015; Potter, 2015; Silverblatt, Ferry & Finan, 2014), there have been no known instruments for measuring preservice teachers' intention to teach MIL in their future classroom, along with the factors influencing said intention. The present study is one of the first attempts to create an instrument to measure preservice teachers' intention to teach MIL and the factors that influence them. And while the results from our findings shed light on preservice

teachers' intention to teach MIL and the factors that play a role in supporting their intention, one of the most salient implications from this study was the process itself. The elicitation study that helped produce the list of beliefs that guided the survey design and implementation (Francis et al., 2004) was a key step in taking a learner-centered approach to understanding what facilitates or impedes teaching behaviors for preservice teachers. Using the TPB as a research framework to better understand these perspectives is also key in leading efforts to design interventions and implementation research *for* preservice teachers led *by* preservice teachers' voices.

Building on the findings from the present study, future steps should involve designing and assessing the effects of TPB exercises on enabling preservice teachers to carry out their existing intention and help them translate them into actual behavior (Steinmetz, Knappstein, Ajzen, Schmidt & Kabst, 2016). Since preservice teachers' intention in the present study was positive, such exercises would not need to influence their intention to teach MIL, but instead create processes to support the implementation of the behavior in question (Steinmetz et al., 2016). In other words, since they already intend to teach MIL in their future classroom, researchers and teacher educators should focus on the skills and volitional control they need to translate their intention into behavior. The TPB has been shown to provide a useful conceptual framework to design such exercises (Ajzen, 2015), and future efforts in MIL education could benefit from a TPB approach to implementing this process with preservice teachers.

Limitations

Although this study reached its aim, it presented some unavoidable limitations. First, because of course enrollment numbers, this research was conducted only with a small sample of population that was enrolled in an introductory educational technology course at one mid-western university. Therefore, to generalize results to larger groups, future work will need to

involve more participants. Second, the survey relied on fixed-choice self-reports, which may have limited participants' self-perceptions of their intention to teach MIL in their future classroom. In the future, TPB studies should combine both quantitative and qualitative data to address this issue. Finally, the students' relationship with the course instructor might have positively affected the study results by introducing a social desirability bias. Even though the survey was not graded and was anonymous, participants might have felt pressured to acquiesce with more positive answers to align with what they believed the instructor valued. In the future, it may be advisable to distribute the survey in different contexts or using an honest broker approach with a moderator.

Conclusion

This study demonstrated how the Theory of Planned Behavior can help identify and measure factors that influence preservice teachers' intention to teach Media & Information Literacy in their future classroom. The detection of key factors in preservice teachers' intention to teach MIL in their future classroom suggest that future directions for research and practice should focus on designing implementation strategies to help transfer preservice teachers' intention into practice.

APPENDICES

APPENDIX A. Survey items

DIRECT MEASURES

Intention

1. I expect to teach Media & Information Literacy in my future classroom
2. I want to teach Media & Information Literacy in my future classroom
3. I intend to teach Media & Information Literacy in my future classroom

Scale: 1-Strongly disagree to 7-Strongly agree

Attitude

"Teaching Media & Information Literacy" is:

1. 1-Bad to 7-Good
2. 1-Harmful to 7-Beneficial
3. 1-Unpleasant to 7-Pleasant
4. 1-Worthless to 7-Useful

Subjective Norms

1. Most people who are important to me think that I should teach Media & Information Literacy
2. It is expected of me that I teach Media & Information Literacy
3. I feel under pressure to teach Media & Information Literacy
4. Most people who are important to me teach Media & Information Literacy

Scale: 1-Strongly disagree to 7-Strongly agree

Perceived Behavioral Control

1. I am confident that I could teach Media & Information Literacy in my future classroom if I wanted to
2. For me, teaching Media & Information Literacy in my future classroom would be easy
3. The decision to teach Media & Information Literacy in my future classroom is beyond my control
4. Whether I teach Media & Information Literacy in my future classroom is entirely up to me

Scale: 1-Strongly disagree to 7-Strongly agree

INDIRECT MEASURES

Behavioral beliefs

Belief strength

1. If I teach Media & Information Literacy, I will feel that I am helping students to get ready for college and for their personal life
2. I am concerned about students not having Media & Information Literacy skills when they interact with others online
3. Media & Information Literacy helps students know how to evaluate information
4. If I teach Media & Information Literacy, I will help students learn about Internet safety
5. Students need to engage in opinionated arguments online
6. Media & Information Literacy skills will help students conduct research and write papers
7. If I teach Media & Information Literacy, it will help students make informed decisions online
8. It is important for students to know how to navigate media
9. Students need to know how to assess authenticity of information online
10. If I teach Media & Information Literacy, it will teach students about Internet safety

Scale: 1-Strongly disagree to 7-Strongly agree

Outcome evaluation

1. Helping students get ready for college and for their personal life is
2. Being concerned that students don't have Media & Information Literacy skills to interact with others online is
3. Knowing how to evaluate information is
4. Helping students to learn about Internet safety is
5. Engaging in opinionated arguments online is
6. Helping students conduct research and write papers is
7. Helping students make informed decisions is
8. Knowing how to navigate media is
9. Assessing authenticity of information online is
10. Knowing about Internet safety is

Scale: -3-Very undesirable to +3-Very desirable

Normative beliefs

Belief strength

1. TE faculty think that
2. My current instructors think that
3. My peers think that
4. Young parents think that
5. Inservice teachers think that

Scale: -3-Shouldn't teach MIL to +3-Should teach MIL

6. Old school teachers would
7. Parents would
8. My future school principal would
9. Teachers who don't know what Media & Information Literacy is would
10. Tech-savvy teachers would

Scale: -3-Disapprove of me teaching MIL to +3-Approve of me teaching MIL

Motivation to comply

1. TE faculty approval of my practice is important to me
2. What parents think I should do matters to me
3. Doing what current inservice teachers do is important to me
4. Fellow TE students'; opinion of what I do matters to me
5. My current instructors' judgment of my work is important to me
6. What my future school principal thinks I should do matters to me
7. The opinion of teachers who are tech-savvy is important to me
8. What old-school teachers think about how I teach matters to me
9. What young parents think of my teaching is important to me
10. The opinion of teachers who don't know what Media & Information Literacy is matters to me

Scale: 1-Strongly disagree to 7-Strongly agree

Control beliefs

Belief strength

1. Students will not practice Media & Information Literacy outside of school
2. I can teach Media & Information Literacy without electronic devices in the classroom
3. Media & Information Literacy is specifically listed in my future curriculum
4. School administrators will be against Media & Information Literacy

5. Poorer school districts will not teach Media & Information Literacy
6. Media & Information Literacy is not a priority for students
7. Parents implement Media & Information Literacy at home
8. Students know more about popular media than teachers
9. I can't teach Media & Information Literacy if my class isn't at grade level
10. Having someone modeling Media &; Information Literacy pedagogy will help me teach Media &Information Literacy

Scale: 1-Very Unlikely to 7-Very likely

Perceived power

1. When students won't practice Media & Information Literacy outside of school, I am
2. When Media & Information Literacy is specifically listed in my curriculum, I am
3. When I teach in a poorer school district, I am
4. When parents implement Media & Information Literacy at home, I am
5. When my class is at grade level, I am

Scale: 1-Less likely to teach MIL to 7-More likely to teach MIL

6. Having electronic devices in the classroom makes it
7. Having school administrators be against Media & Information Literacy makes it
8. Media & Information Literacy not being listed in the curriculum makes it
9. Students knowing more about popular culture than teachers makes it
10. Someone modeling Media & Information Literacy pedagogy for me makes it

Scale: 1-More difficult to teach MIL to 7-Easier to teach MIL

APPENDIX B. Results

Direct measure of intention

	1 Strongly disagree N=	2	3	4	5	6	7 Strongly agree N=
I expect to teach Media & Information Literacy in my future classroom	0	0	0	2	9	21	14
I want to teach Media & Information Literacy in my future classroom	0	0	0	2	8	15	21
I intend to teach Media & Information Literacy in my future classroom	0	0	0	1	10	15	20

Table 17. Direct measure of intention

Direct measure of attitude

	1 Negative N=	2	3	4	5	6	7 Positive N=
Bad: Good	0	0	0	1	2	12	31
Harmful: Beneficial	0	0	1	2	4	10	29
Unpleasant: Pleasant	0	0	0	5	7	14	20
Worthless: Useful	0	0	0	1	2	12	31

Table 18. Direct measure of attitude

Indirect measure of attitude: Behavioral beliefs

	1 Strongly disagree N=	2	3	4	5	6	7 Strongly agree N=
If I teach Media & Information Literacy, I will feel that I am helping students to get ready for college and for their personal life	0	0	0	1	7	15	23
I am concerned about students not having Media & Information Literacy skills when they interact with others online	0	0	1	9	7	15	14
Media & Information Literacy helps students know how to evaluate information	0	0	0	3	8	16	19
If I teach Media & Information Literacy, I will help students learn about Internet safety	0	0	0	4	1	14	27
Students need to engage in opinionated arguments online	2	6	4	10	13	4	7
Media & Information Literacy skills will help students conduct research and write papers	0	0	1	2	6	11	26
If I teach Media & Information Literacy, it will help students make informed decisions online	0	0	1	3	3	15	24
It is important for students to know how to navigate media	0	0	1	1	3	10	31
Students need to know how to assess authenticity of information online	0	0	1	2	0	9	34
If I teach Media & Information literacy, it will teach students about Internet safety	0	0	0	3	2	14	27

Table 19. Indirect measure of attitude: Behavioral beliefs

Table 19. (cont'd)

	-3 Very undesirable N=	-2	-1	0	+1	+2	+3 Very desirable N=
Helping students get ready for college and for their personal life is	1	0	0	1	1	9	34
Being concerned that students don't have Media & Information Literacy skills to interact with others online is	1	3	0	9	7	14	12
Knowing how to evaluate information is	1	0	0	1	6	11	27
Helping students to learn about Internet safety is	1	0	0	1	1	10	33
Engaging in opinionated arguments online is	3	4	7	10	8	8	6
Helping students conduct research and write papers is	1	0	1	1	3	16	24
Helping students make informed decisions is	1	0	0	1	0	9	35
Knowing how to navigate media is	1	0	0	1	1	16	27
Assessing authenticity of information online is	1	0	0	2	1	14	28
Knowing about Internet safety is	1	0	0	1	1	12	31

Direct measure of subjective norms

	1 Strongly disagree N=	2	3	4	5	6	7 Strongly agree N=
Most people who are important to me think that I should teach Media & Information Literacy	0	1	0	20	10	8	7
It is expected of me that I teach Media & Information Literacy	0	2	1	14	11	14	4
I feel under pressure to teach Media & Information Literacy	0	5	3	16	13	7	2
Most people who are important to me teach Media & Information Literacy	0	5	1	15	15	7	3

Table 20. Direct measure of subjective norms

Indirect measure of subjective norms: Normative beliefs

	-3 Shouldn't teach MIL N=	-2	-1	0	+1	+2	+3 Should teach MIL N=
TE faculty think that I	1	2	2	1	6	15	19
CEP 416 instructor thinks that I	3	1	0	2	2	5	33
My peers (TE students) think that I	0	1	4	2	13	14	12
Young parents think that I	0	3	3	5	10	11	14
Inservice teachers think that I	0	1	2	7	16	11	9

Table 21. Indirect measure of subjective norms: Normative beliefs

Table 21. (cont'd)

	-3 Disapprove of me teaching MIL N=	-2	-1	0	+1	+2	+3 Approve of me teaching MIL N=
Old-school teachers would	4	10	13	4	6	6	3
Parents would	0	0	4	3	18	14	7
My future school principal would	0	0	0	1	14	16	15
Teachers who don't know what Media & Information Literacy is would	2	6	16	7	6	5	4
Tech-savvy teachers would	0	0	0	1	2	9	34
	1 Strongly disagree N=	2	3	4	5	6	7 Strongly agree N=
TE faculty approval of my practice is important to me	0	0	2	4	6	15	19
What parents think I should do matters to me	0	1	1	4	16	12	12
Doing what current inservice teachers do is important to me	0	0	2	6	13	19	6
Fellow TE students' opinion of what I do matters to me	0	2	4	8	14	12	6
Inservice My CEP 416 instructor's judgment of my work is important to me	0	0	0	7	4	19	16
What my future school principal thinks I should do matters to me	0	0	0	4	6	17	19
The opinion of teachers who are tech-savvy is important to me	0	0	2	7	8	17	12
What old-school teachers think about how I teach matters to me	0	2	3	12	15	10	4
What young parents think of my teaching is important to me	0	1	2	5	14	14	10

Table 21. (cont'd)

The opinion of teachers who don't know what Media & Information Literacy is matters to me	1	3	3	19	7	8	5

Direct measure of Perceived Behavioral Control

	1 Strongly disagree N=	2	3	4	5	6	7 Strongly agree N=
I am confident that I could teach Media & Information Literacy in my future classroom if I wanted to	15	18	8	3	2	0	0
For me, teaching Media & Information Literacy in my future classroom would be easy	9	10	13	8	6	0	0
The decision to teach Media & Information Literacy in my future classroom is beyond my control	4	4	14	12	7	5	0
Whether I teach Media & Information Literacy in my future classroom is entirely up to me	3	5	13	15	6	3	1

Table 22. Direct measure of Perceived Behavioral Control

Indirect measure of perceived behavioral control: Control beliefs

	1 Very unlikely N=	2	3	4	5	6	7 Very likely N=
Students will not practice Media & Information Literacy outside of school	14	18	2	7	4	1	0
I can teach Media & Information Literacy without electronic devices in the classroom	4	18	10	5	4	3	2
Media & Information Literacy is specifically listed in my future curriculum	2	1	5	17	8	9	4
School administrators will be against Media & Information Literacy	4	13	11	15	3	0	0
Poorer school districts will not teach Media & Information Literacy	1	3	6	14	14	8	0
Media & Information Literacy is not a priority for students	6	6	13	13	6	1	1
Parents implement Media & Information Literacy at home	1	1	11	14	16	3	0
Students know more about popular media than teachers	0	0	1	11	21	10	3
I can't teach Media & Information Literacy if my class isn't at grade level	5	7	12	17	4	1	0
Having someone modeling Media & Information Literacy pedagogy will help me teach Media & Information Literacy	1	0	1	10	8	21	5

Table 23. Indirect measure of perceived behavioral control: Control beliefs

Table 23. (cont'd)

	-3 Less likely to teach MIL N=	-2	-1	0	+1	+2	+3 More likely to teach MIL N=
When students won't practice Media & Information Literacy outside of school, I am	0	0	6	2	14	15	9
When Media & Information Literacy is specifically listed in my curriculum, I am	0	0	0	0	3	11	32
When I teach in a poorer school district, I am	1	9	10	8	7	5	6
When parents implement Media & Information Literacy at home, I am	0	0	3	1	14	18	10
When my class is not at grade level, I am	0	1	10	8	13	6	8
	-3 More difficult to teach MIL N=	-2	-1	0	+1	+2	+3 Easier to teach MIL N=
Having no electronic devices in the classroom makes it	17	19	8	0	0	0	2
Having school administrators be against Media & Information Literacy makes it	18	21	6	0	0	0	1
Media & Information Literacy not being a priority for students makes it	7	15	19	2	2	0	1
Students knowing more about popular culture than teachers makes it	1	4	6	2	20	10	3
Someone modeling Media & Information Literacy pedagogy for me makes it	0	0	1	3	10	18	14

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PAPER THREE. Can We Support Preservice Teachers' Intention to Teach Media & Information Literacy? Reflective Exercises with the Theory of Planned Behavior

Abstract

Previous research on preservice teachers' views on Media & Information Literacy (MIL) showed that despite their positive attitudes and high intention to teach MIL to students, they do not feel like they possess the pedagogical knowledge and tools to implement it in their future classroom. We designed an online module with a series of reflective activities based on the Theory of Planned Behavior with two purposes: to better understand how their views about teaching MIL manifested themselves in practice, and to observe how these reflective practices impacted their intention to teach MIL in their future classroom. We conducted a qualitative analysis of their responses to the reflective exercises. Our findings underlined the benefits of such exercises in supporting preservice teachers' intention. Negative case analysis also highlighted preservice teachers' views that did not align with the current literature on MIL pedagogy. We provide recommendations for educators and administrators hoping to integrate MIL education in teacher preparation programs.

Introduction

The 2016 U.S. presidential elections have created a ripple effect in the field of education: they simultaneously shed light on the overwhelming presence of online misinformation (Fornaciari & Goldman, 2017) and the role that education should play in teaching students the necessary skills to be critical and informed users of media and information (Couldry, Livingstone & Markham, 2016). While public awareness about the mediatization of information is growing increasingly (De Abreu, Mihailidis, Lee, Melki & McDougall, 2017) and Media & Information Literacy (MIL) skills are progressively being incorporated into educational standards (e.g., Next

Generation Science Standards; Common Core Standards; College, Career and Civic Life for Social Studies Framework), training for preservice teachers in MIL is not always explicit in teacher education programs (Hobbs, 2017; Tiede, Grafe & Hobbs, 2015). How can we help the next generation of teachers teach MIL skills in their future classroom? One way to address this issue is by better understanding the factors that impact preservice teachers' intention to teach MIL. A recent study at a large Midwestern institution found that preservice teachers hold positive attitudes towards teaching MIL and had high intentions to teach it in their future classroom; however, these preservice teachers also felt that they lacked the tools and resources to actually implement MIL (Gretter & Yadav, NA). I designed an online module based on the Theory of Planned Behavior to help preservice teachers translate their intention into practice, and examined its effect on supporting their intention to teach Media & Information Literacy in their future classroom. The following sections provide background information on the concept of Media & Information Literacy, its relevance for 21st century education, and its presence—or lack thereof—in teacher education.

The need for Media & Information Literacy

A recent Pew Research Center survey revealed that approximately 92% of U.S. teenagers go online on a daily basis (Lenhart, 2015). And while these students use new media in a variety of positive and creative ways (Greenhow & Lewin, 2016), they sometimes have difficulties distinguishing between real and fake information online (Stanford History Education Group, 2016). New media offer many valuable intellectual opportunities for students, such as peer-to-peer learning (Greenhow, 2011), development of digital skills (Jenkins, 2009), creativity (Peppler & Solomou, 2011), communication with others (O'Keeffe & Clarke-Pearson, 2011), digital storytelling (Spurgeon & Burgess, 2015), or online activism (Rotman et al., 2011). Yet,

new media also expose students to unwanted risks including cyberbullying (Kowalski, Limber, Limber & Agatston, 2012), targeted advertising (van Reijmersdal, Rozendaal, Smink, van Noort & Buijzen, 2016), online grooming (Torstensson & Susi, 2015), sexting (Ringrose, Harvey, Gill & Livingstone, 2013), or even radicalization (Archetti, 2015). As such, new media is a double-edged sword: for every benefit it represents for students, there is the possibility of a drawback. This divergence is explained by the diversity of media users and information producers—who often have conflicting interests, agendas, and viewpoints on Internet platforms (Blank, 2013). This reality prompted Ohler (2013) to argue that "in an age of conflictual information, being able to critically assess information, rather than trust it without question, has become a survival skill" (p. 8). The skills needed to access and assess online information, called Media & Information Literacy (MIL), can help address the challenges of new media and information that students encounter online in the 21st century.

Media & Information Literacy was created by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as a framework to highlight the set of competencies that individuals need to navigate and assess media and information in the 21st century (Wilson et al., 2013). While media literacy and information literacy each have a long and separate history, UNESCO's framework joined them as: "information literacy emphasizes the importance of access to information and the evaluation and ethical use of such information" while "media literacy emphasizes the ability to understand media functions, evaluate how those functions are performed and to rationally engage with media for self-expression" (Wilson et al., 2013, p. 18). As students come across massive amounts of unfiltered information through new media, it has become imperative for them to learn to purposefully understand how media and information can shape their worldview through biases and other distorted social perceptions (Bandura, 1997;

Bruner, 1991; Harris & Sanborn, 2013; Potter, 2015). Students who are not media and information literate tend to accept media messages as facts, while students with Media & Information Literacy skills can derive their own meaning from the constant flow of mediatized information, and engage with it instead of being passive consumers of it (Buckingham, 2015).

However, Media & Information Literacy skills are not always deliberately discussed in students' private lives (Rideout, 2015). In addition, parents' awareness of their children's use of new media and how they communicate with them about it varies greatly according to income and parental education. More specifically, higher-income and more educated parents are more likely to have conversations with their children about media usage, while lower-income and less educated parents are more likely to be familiar with the types of media their children use (Rideout, 2015). Thus, although tweens and teens regularly encounter online media and information; parents are not always able to guide or monitor their media exposure and usage. Given the facilitation of Internet access through the growing availability of mobile devices (Lenhart, 2015), schools provide a centralized opportunity to incorporate and address students' media use and its corresponding skills.

As a matter of fact, educational organizations have recently recognized the unique affordances of the Internet as well as the relevant MIL-related skills that students need (National Council for the Social Studies, 2013; National Governors Association Center for Best Practices, 2010; International Society for Technology in Education, 2015; Next Generation Science Standards, 2013; Partnership for 21st century, 2014). These organizations have used frameworks and standards to highlight the need for students to be media and information literate in the 21st century. For instance, the Next Generation Science Standards (NGSS), Common Core Standards (CCSS) or College, Career and Civic Life for Social Studies Framework (C3), have all signified

the importance of MIL for K-12 students. The Next Generation Science Standards underline the need for students to be able to critically analyze scientific claims online and to look for resources to support their arguments (NGSS, 2013). The Common Core Standards, in turn, highlight the need to conduct research, to produce media, and to consume information as an integral part of the curriculum (NGAC, 2010). And, finally the C3 standards discuss citizenship in light of digital technology and media uses for communication (NCSS, 2013). MIL skills can, therefore, simultaneously be transdisciplinary and discipline-specific: they can be applied across subjects (e.g., assessing media messages) or in a specific subject (e.g., assessing media messages about scientific facts). As a result, MIL skills are both technical and social, and can benefit students academically (e.g., research and analytical skills) and personally (e.g., digital citizenship and safety) (Grizzle et al., 2013).

Media & Information Literacy in teacher education

Needless to say, these academic expectations for students to be media and information literate have subsequent implications for teachers in K-12 education, who need pedagogical approaches to embed MIL skills and practices in their classroom (Wiseman, 2012; Wilson et al., 2013). While inservice teacher professional development offers valuable opportunities to bring current teachers up-to-par with MIL practices (Hobbs, 2017), we need to consider how preservice teachers are prepared to teach MIL through their teacher education preparation. Even though institutions like UNESCO agree that "initial focus on teachers is a key strategy to achieving a multiplier effect: from information-literate teachers to their students and eventually to society at large" (Wilson et al. 2013, p. 17), only few teacher education programs prepare preservice teachers to teach MIL in their future classroom (Tiede et al., 2015). In addition, preservice teachers are part of a generation that grew up with computers and mobile devices, and

speaks the language of new media and information (Lei, 2009). But while many of them are familiar with new media, their pedagogical skills related to MIL do not necessarily transfer to teaching in the classroom (Thompson, Schmidt-Crawford & Lindstrom, 2015). Preservice teachers' exposure to new media in their personal lives does not always imply that they are knowledgeable about its pedagogical applications (Hargittai, 2010; Lei, 2009). This is further compounded by the fact that teacher education does not uniformly prepare preservice teachers to develop the necessary skills to embed technology and new media in their classroom (Kinash, Wood & Knight, 2013; Kovalik, Kuo & Karpinski, 2013; Russell, Bebell, O'Dwyer & O'Connor, 2003; Schieble, 2010; Tondeur et al., 2012). Tiede et al. (2015) pointed to the need for preservice teachers to gain what they labeled "pedagogical media competencies"—based on Mishra & Koehler (2006) Technological, Pedagogical, and Content Knowledge (TPACK) framework—to teach preservice teachers not only to use new media for teaching but also help them understand the pedagogy behind it.

As part of their work on pedagogical media competencies, Tiede et al. (2015) examined teacher education course offerings at 316 universities in the United States and found that media literacy education was not consistently integrated in teacher education. While 58% of the surveyed teacher education programs offered educational technology related courses, these courses were offered at the Masters level and did not focus on teaching *about* new media. Similarly, in a review of information literacy integration in teacher education programs, Kovalik, Jensen, Schloman & Tipton (2011) found that while information literacy was perceived as an important skill for preservice teachers, many institutions either did not integrate it in their program, or did not have tools to measure its acquisition. Furthermore, there are no existing guidelines on how to incorporate information literacy in teacher education programs, and few

programs provide courses on the subject or embed it through other courses (Tiede et al., 2015; Tyner, 2014). One way to respond to the need for MIL training in teacher education is by looking at it from a preservice teacher-centered perspective in specific contexts. I did so by using the Theory of Planned Behavior as a theoretical framework to look at the factors influencing preservice teachers' intention to teach MIL.

Formative research with the Theory of Planned Behavior

Formative research was conducted to assess preservice teachers' intention to teach MIL in their future classroom (Gretter & Yadav, NA). For that purpose, I used the Theory of Planned Behavior (TPB) as a theoretical framework to better understand which factors predicted preservice teachers' intention. The Theory of Planned Behavior is an expectancy-value model to explain that human behavior is guided by the interplay of three direct factors of intention: attitudes (i.e., how a person feels about performing the behavior), subjective norms (i.e., the social pressure a person feels around performing the behavior), and perceived behavioral control (i.e., the amount of volitional control a person feels about performing the behavior) (Ajzen, 1991). In addition, each of these three direct factors are influenced by indirect factors, called underlying beliefs: i) attitudes are influenced by beliefs about the outcomes of a behavior, or behavioral beliefs, ii) subjective norms are influenced by beliefs about the norms and expectations of others in regards to this behavior, or normative beliefs, and iii) perceived behavioral control is influenced by beliefs about the existence of factors that either facilitate or impede the implementation of the behavior, or control beliefs (Ajzen, 1991). Respectively, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior; normative beliefs lead to perceived social pressure or subjective norms; and control beliefs result in perceived behavioral control (Ajzen, 1991). Typically, the more favorable the attitude and

subjective norm and the greater the perceived behavioral control, the stronger the intention to perform the behavior is. This means that given sufficient degree of control over the behavior, people are expected to carry out their intention when the opportunity arises (Ajzen, 1991).

Taken together, both direct factors (i.e., attitudes, subjective norms, and perceived behavioral control) and indirect underlying beliefs (i.e., behavioral beliefs, normative beliefs, control beliefs) contribute to the formation of a behavioral intention (i.e., an intention to perform the behavior). The relationship between elements of the TPB is portrayed in Figure 1 below:

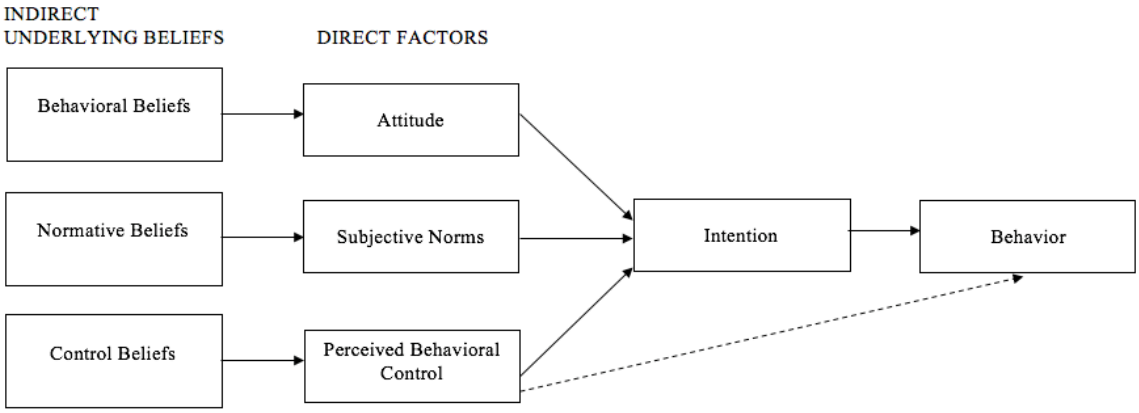


Figure 6. TPB model (adapted from Ajzen, 2006)

The Theory of Planned Behavior has recently been used in the field of educational technology to successfully predict faculty decisions to adopt Web 2.0 technologies (Ajjan & Hartshorne, 2009), teachers' use of educational technology (Lee, Cerreto & Lee, 2010), preservice teachers' intention to use and use of technology (Shiue, 2007; Teo & Lee, 2010; Teo, 2012; Valtonen et al., 2015), preservice teachers' intention to use Web 2.0 technologies (Sadaf, Newby & Ertmer, 2012), student teachers' and experienced teachers' computer usage (Smarkola, 2008).

Participants in our formative research were 46 preservice teachers enrolled in an online introductory educational technology course and responded to a TPB survey (Gretter & Yadav,

NA). Results suggested that preservice teachers held positive intentions to teach MIL in their future classroom. Measures of direct and indirect TPB factors also showed that they possessed positive attitude, but a moderate level of positive social pressure and a weak level of positive control. In other words, preservice teachers intended to teach MIL despite feeling that MIL was not valued in their education program and feeling that they did not have much control over teaching MIL.

As a result, I designed a set of reflective exercises based on the TPB to better understand how their views about teaching MIL manifested themselves in actuality, and to observe how these reflective practices impacted their intention to teach MIL in their future classroom (Steinmetz, Knappstein, Ajzen, Schmidt & Kabst, 2016). Since their intention was high, these exercises did not need to influence their intention but instead facilitate reflective processes to help them think about implementing the behavior in question (Steinmetz et al., 2016). Indeed, previous TPB research had shown that implementation work can facilitate the transfer of intentions into action (Gollwitzer & Schaal, 1998). Gollwitzer (1993) reported experimental evidence suggesting that such implementation work can build "a heightened accessibility of the mental representation of the specified situational cues and induce direct (automatic) control of the intended behavior through these cues" (p.143).

The present study

This study aimed at i) understanding how preservice teachers' views about teaching MIL in their future classroom manifested themselves in practice, and ii) observe how these reflective practices impacted their intention to teach MIL in their future classroom. Specifically, the study addressed the following research question: How do reflective exercises based on the Theory of Planned Behavior support preservice teachers' intention to teach MIL in their future classroom?

Method

Participants

Forty-three preservice teachers enrolled in an online elective course on introductory educational technology participated in the study. Participants included 40 females and three males. There were nine sophomores, 13 juniors, and 21 seniors. Thirty-three preservice teachers were elementary education majors, three were secondary education majors, and seven were studying other concentrations (e.g., special education). Average participant age was 21 years old. In addition, 25.5% of them reported that they believed having been previously exposed to MIL education in their program, while 46.5% were unsure, and 28% responded negatively.

Material

A two-week module was embedded in an elective introduction to educational technology course, which was delivered through an online course management system. Given our formative research that suggested that preservice teachers' intention to teach MIL were high, our reflective exercises focused on providing them with tools to think about implementing MIL practices in their future classrooms and asking them to think about how the material impacted their intention to teach MIL in their future classroom. Based on the Theory of Planned Behavior, I established that the reflective exercises should: i) reinforce their positive attitudes by encouraging them to rehearse their MIL skills to see the role they play in teaching MIL; ii) bolster their subjective norms by sharing how educational standards modeled MIL practices; and iii) strengthen their perceived behavioral control by planning and setting goals about teaching MIL in their future classroom. For that purpose, the study contained a combination of practical exercises (i.e., reflective action) and prompts for thinking about the material (i.e., reflective thinking) (Dewey, 1993; Hatton & Smith, 1995; Lee, 2005; Ward & McCotter, 2004). In other words, for each of

the three components of the TPB, I asked participants to: i) read or view information regarding MIL; ii) respond to prompts or tasks to practice their MIL skills; and ii) reflect about how the information and MIL tasks supported their intention to teach MIL in their future classroom. Below I addressed each of the three TPB factors in the module.

Attitude.

The exercises aimed to reinforce preservice teachers' positive attitudes towards the benefits of MIL as well as the central role that teachers play in its instruction. It featured informational videos, articles, and links to both academic and popular references about the relevance of MIL for students and teachers in the 21st century. I presented information that defined Media & Information Literacy to participants, including UNESCO's definition of MIL (Wilson et al., 2013), and videos from organizations focused on media & information literacy (i.e., American Library Association; Media Literacy Project's Media Minute), as illustrated below.

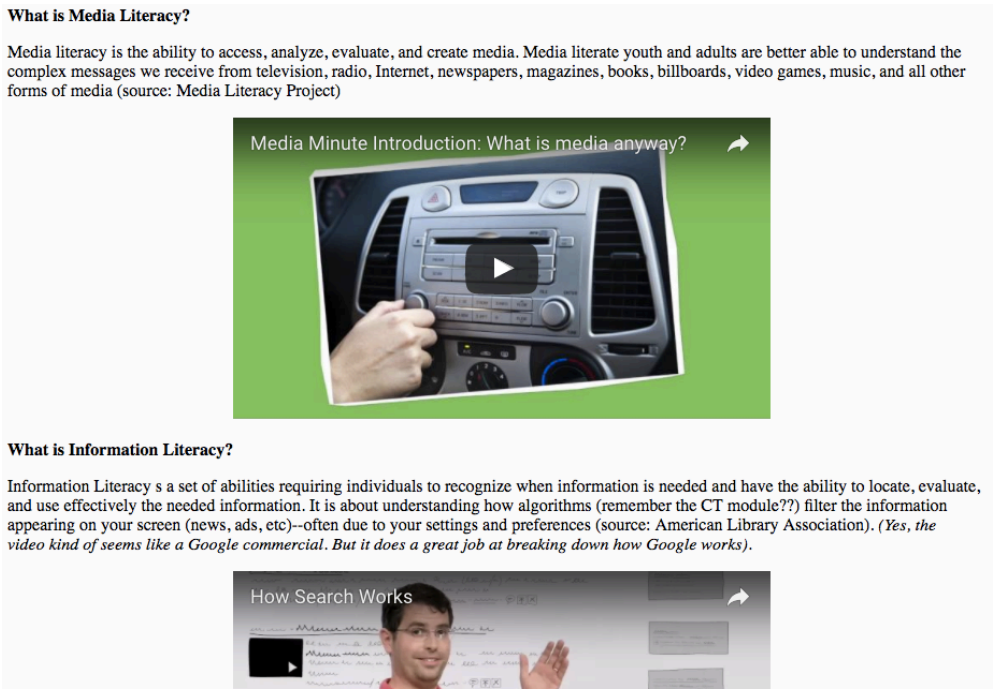


Figure 7. Sample information

A task for reflective action was then used to prompt participants to practice their MIL skills and think about their application in the classroom.

Prompt for reflective action.

Participants were prompted to practice their own MIL skills through a structured exercise. In the exercise, participants were asked to choose from one of six media messages represented on Image 2 and to analyze it by responding to the Center for Media Literacy's "Five key questions of media literacy," shown in Image 3. A set of six media stories representing messages that preservice teachers would be regularly exposed to on social media were chosen: 1) a Twitter message indicating how to set up "Trends tailored just for you," 2) an image stating "Chocolate kills cancer cells #fact;" 3) two opposite news headlines about the same information, one stating "Economy's job engine revved up in July" and the other : "Wrong way growth: Jobless jumps in July as new hiring remains slow;" 4) an Old Spice commercial for deodorant with the label "Smell like a man, man"; 5) a social media post by Kim Kardashian promoting a morning sickness pill during her pregnancy; 6) a poll representing a graph of viewers' vote on "How concerned are you about the Zika virus" where the 34% "very" bar appears significantly smaller than the 13% "not at all" bar.

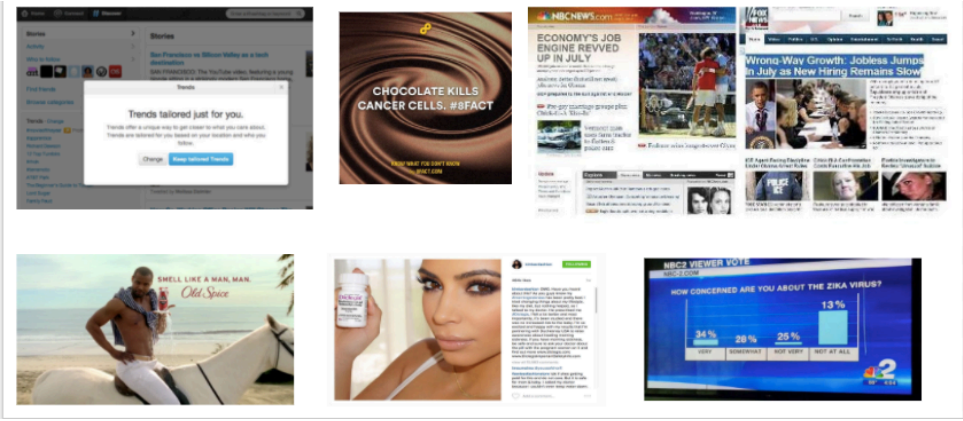


Figure 8. Media messages

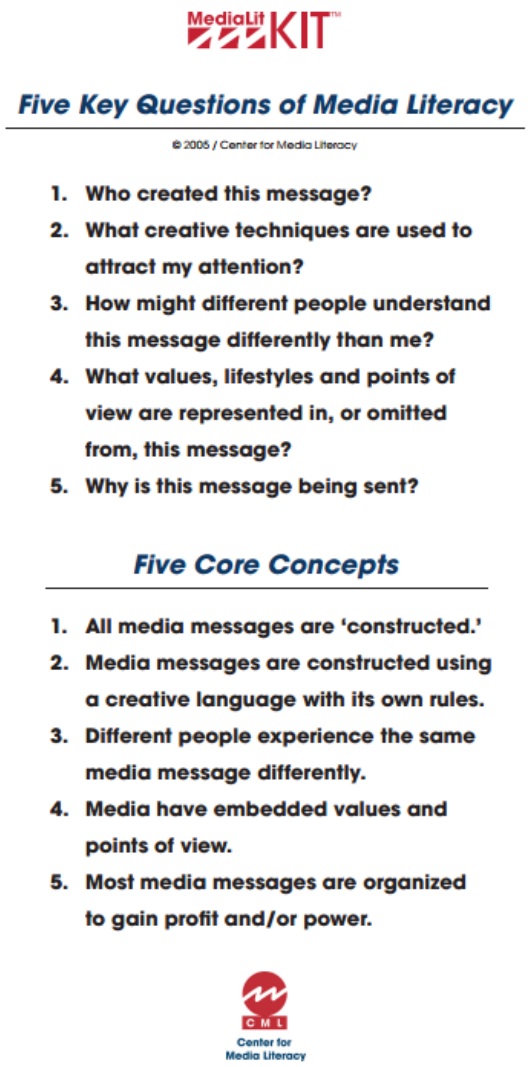


Figure 9. Five key questions of media literacy (Center for media literacy, 2005)

Subjective norms.

To bolster preservice teachers' subjective norms about MIL, the module included information on how major educational organizations (e.g., ISTE, NGSS, CCSS, state standards) supported MIL in the classroom, exemplified by existing educational standards. The module presented examples from a variety of international, national, and local standards referring to MIL as an essential 21st century skill for students and educators. Table 1 below shows examples of international, national, and local standards that I presented to participants.

International (ISTE)	National (CCSS, NGSS, C3)	Local (State)
"Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical." "Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others."	ELA: "Evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem." (CCSS) Math: "Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems." (CCSS) Science: "Evaluate the validity and reliability of multiple claims that appear in scientific and technical texts or media reports" (NGSS) Social studies: "Capability to read statistics critically, for assessing agendas behind statistical representations" (C3)	"Identify, evaluate, and select appropriate online sources to answer content related questions" "Distinguish between fact, opinion, point of view, and inference" "Evaluate information found in selected online sources on the basis of accuracy and validity" "Understand that using information from a single internet source might result in the reporting of erroneous facts and that multiple sources must always be researched" "Evaluate resources for stereotyping, prejudice, and misrepresentation."

Table 24. Sample information

Prompt for reflective action.

Participants were prompted to identify and share a media message that appeared on their social media newsfeed that week that they could analyze with students in their classroom based on the presented MIL standards. In addition, they were asked to frame their selected example by answering whether or not they were surprised to see educational standards related to MIL.

Perceived behavioral control.

The module intended to help participants increase their sense of control about teaching MIL. It served as a repository of resources for MIL-related topics and provided preservice teachers with the necessary pedagogical tools and resources to teach MIL in the future, including websites, online and offline resources, and lesson plans, as illustrated in the image below.

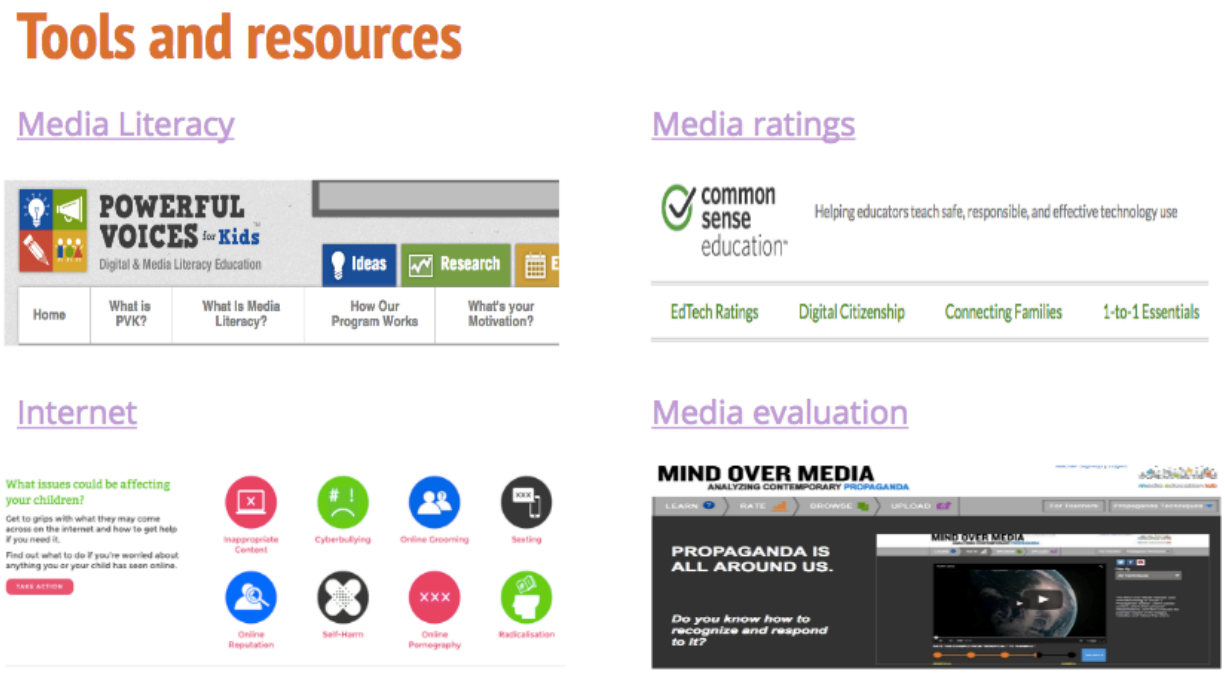


Figure 10. Sample resources

Prompt for reflective action.

Participants were prompted to write a MIL implementation statement including a personal definition of MIL, a description of their approach to MIL in their future classroom, a description of a MIL class activity, a description of how they would apply MIL without technology, and recommendations for parents.

Measures

Reflective thinking.

After being exposed to the module and the reflective action tasks, participants were asked to think about how the module supported their intention to teach MIL in their future classroom (i.e., reflective thinking).

Attitude.

Participants were asked to respond to the reflective thinking prompt "How does learning about MIL and MIL practices impact your intention to teach it in the future?"

Subjective Norms.

Participants were asked to respond to the reflective thinking prompt "How does learning about educational organizations including MIL standards impact your intention to teach MIL in your future classroom?"

Perceived Behavioral Control.

Participants were asked to respond to the reflective thinking prompt "How does having access to MIL pedagogical resources impact your intention to teach MIL in your future classroom?"

Follow-up survey.

Approximately six weeks after completing the online module with reflective exercises, students were asked in a brief survey whether they intended to teach MIL in their future classroom. MIL was listed among the other course subjects such as Universal Design for Learning, Computational Thinking, or Blended Learning, for instance, in order to compare their intention to teach MIL among other technology-related subjects they might teach in the future. The survey contained three demographic questions, one list of eight topics to rank in order of relevance for teaching, followed by two open-ended questions to justify their top and bottom choice, and two 7-point Likert-scale questions asking participants about their intention to teach these topics and concepts in their future classroom (see Appendix A.)

Procedure

Participants were enrolled in a class examining pedagogical aspects of teaching and learning with technology. The class was divided into 16 weekly modules that covered specific topics related to educational technology, and each module lasted between one and two weeks. During the first week covering MIL (during week 10 of the course), they were asked to explore sections related to "attitudes" and "subjective norms" about MIL, to conduct reflective action tasks, and to reflect on MIL concepts by answering open-ended reflective thinking prompts. Each of these tasks was considered as assignments in the course, and points were given for completion. In the second week, students were asked to review the section of the module dedicated to "perceived behavioral control." In this section, they had access to resources and materials designed to support their self-efficacy and volitional control in teaching MIL. They were asked to write an implementation statement under the shape of a teaching statement geared specifically toward teaching MIL in their future classroom. At the end of the semester, students were asked in a brief follow-up survey on Qualtrics about their intention to teach the main concepts covered during the semester—including MIL—in their future classroom. Table 2 below describes the study procedure.

		Module material	**Reflective action**	**Reflective thinking**
Week One	**Attitude**	Information about MIL, its definition and applications	Critically analyze a media message using the "five key questions of media literacy"	"How does learning about MIL and MIL practices impact your intention to teach it in the future?"

Table 25. Study content and procedure

Table 25 (cont'd)

Information about MIL in international, national, and state standards	Share an authentic example of media message they could use with their students to analyze	"How does learning about educational organizations including MIL in their standards impact your intention to teach it in the future?"
Information about MIL resources, and lesson plans	Write an implementation statement containing a personal definition of MIL, a description of their approach, a class activity, and suggestions for parents	"How does having access to MIL resources impact your intention to teach it in the future?"
Follow-up survey		

Data Analysis

Reflective thinking prompts.

The open-ended responses to reflective thinking prompts were imported into the qualitative software Nvivo for deductive qualitative analysis. The TPB provided a source of codes to analyze the data under the identified three categories of attitude, subjective norms and perceived behavioral control. The data was jointly analyzed by two coders to organize subcategories within the three main categories. Negative case analysis was also performed to look for data that did not fit the theory, added new dimensions, or contradicted our emerging understandings (Gilgun, 2011). When a disagreement occurred about the appropriate coding of subcategories, the coders discussed until a consensus was reached. The initial list of codes was then collapsed into subcategories that represented participants' thoughts about the impact of the reflective exercises on supporting their intention to teach MIL in their future classroom. A structured matrix of analysis was developed to record the emergent subcategories within the

three TPB categories. A total of seven subcategories were recorded for attitudes, four for subjective norms, and four for perceived behavioral control.

Follow-up Survey.

Data obtained from the follow-up survey was analyzed using the analytic reporting function in Qualtrics.

Results

Attitude

This part of the module provided participants with information about MIL as a concept, examples of MIL, its benefits for students, and the role of educators in teaching MIL skills. The aim of this part of the module was to reinforce preservice teachers' positive views about the benefits of MIL and underline the critical role that teachers play in teaching MIL skills to their students (i.e., attitude). For their reflective action, participants were asked to pick one of six media messages and to practice analyzing it themselves—as their students would—by answering the Center for Media Literacy "Five key questions of media literacy." Forty preservice teachers completed the task. More than half of participants (N=23) picked the Old Spice advertisement. Some picked the "Chocolate cures cancer" image (N=6) or the celebrity product endorsement post (N=6). Others picked the misleading poll visualization (N=3), the opposite news titles (N=1) and the tailored news announcement (N=1).

Forty preservice teachers completed the reflective thinking question regarding their attitudes towards teaching MIL in their future classroom after completing the assignment. They were asked to reflect on "How does learning about MIL and MIL practices impact your intention to teach it in the future?" The majority of participants (N=40) stated that teachers played an important role in teaching MIL skills in their future classroom. For instance, one preservice

teacher stated that "as a teacher I would have a very direct role in teaching MIL skills—nobody else is going to teach them [students] these skills." Some argued that teaching MIL was more than an academic topic but also a lifelong skill (N=12). One preservice teacher illustrated it by writing that "providing opportunities in school for students to practice sifting through media will help students grow into critically thinking adults that will be able to develop their own opinions about the information they encounter on a daily basis." In their description of how their role as teachers changed after learning about MIL in the module, preservice teachers focused on MIL-related skills that they envisioned teaching their students. These specific skills included familiarizing students about MIL (N=11) (e.g. "I want to give students the resources and knowledge to develop their MIL skills"); accessing and assessing information (N=10) (e.g., "Teachers need to guide their students and educate them on how to access, understand and analyze media"); teaching critical thinking and interpretative skills (N=18) (e.g., "I think that teachers need to help students think critically and to teach them how take apart the information to find the truth behind it"); gathering evidence and data (N=6) (e.g., "I will be sure my students are given times to gather evidence and data from technology to gain information or support their positions on certain things"); and exposing students to different perspectives (N=9) (e.g., "as a teacher, I need to make sure to include a variety of points of view and present different, perhaps conflicting, ideas surrounding topics").

Negative case analysis revealed one instance (N=1) where a preservice teacher believed that teachers played an important role in teaching MIL, yet, she said, "I do not think I want to teach this is my first-grade classroom however, because I don't think my students would understand it." Each subcategory that emerged from the analysis of the reflective thinking prompt is illustrated in the matrix of analysis below.

	Attitude (knowledge of MIL benefits and teachers' role in teaching MIL)	**Examples**
How does a TPB module on MIL support preservice teachers' intention to teach MIL in their future classroom?	Teachers play an important role in teaching MIL (N=40)	"It will be my role as a teacher to include technology in my classroom and give students the opportunity to interact with it and evaluate it. I will be sure my students are given time to gather evidence and data from technology to gain information or support their positions on certain things." "I think I play a huge role because I am the one choosing the media, worksheets etc… that they are consuming all day every day. It's important for them to realize that I bring my own bias with the materials we use, what words I use, how the classroom is set up, decorated etc."
	MIL is a lifelong skill (N=12)	"As a teacher, we are teaching students life skills as well as educational skills so teaching MIL skills will be helping students in their life because it is important to look beyond information when making life decisions" "My goal is to help students be successful in the real world. If my students believe everything they see in the media they will not be successful in life."

Table 26. Matrix of analysis for attitudes

Table 26 (cont'd)

MIL helps familiarize students with technology and media in their daily lives (N=11)	"Media is something that will not be going away anytime soon, and the future of our world should be educated on media-information and how to access, analyze, and process it." "All students should be media-information literate because in today's world they are constantly being bombarded with different types of media at almost every moment of the day. From our cell phones to the TV, media is constantly around. I think it is important for students to be able to dissect the media they are receiving."
MIL teaches students to access and assess information (N=10)	"It is necessary for students to be able to decipher where their information is coming from and who it is made by. From video clips to movies it will be necessary to stop occasionally and ask students to dissect the media they are seeing." "I think that as a teacher I should be teaching children how to access media information, how to interpret it, how to transfer the knowledge elsewhere, and also how to build upon the information they've received."
MIL teaches students critical thinking and interpretive skills (N=18)	"I think that it is important as a teacher to teach students how to distinguish between certain types of media and be able to tell whether something is a fact or just an individual opinion and not to trust things too blindly. I also think that it is important for me to teach students that many things in media are misrepresented and inaccurate" "My role is to help students have the tools to analyze media and pick apart useful information. Even if it is as simple as helping them realize that not all messages are legit and should be taken with a grain of salt."
MIL teaches students to gather evidence and data (N=6)	"As a social science major, a lot of the information is observed and replicated repeatedly to deem its reliability and validity. What I want to do is teach students the hard facts, gain knowledge, and collect evidence. Reading multiple reviews, looking at a variety of sources, and asking experts is the best way to interpret something" "I will be sure my students are given times to gather evidence and data from technology to gain information or support their positions on certain things. I will also be the one asking them to show me if their content is valid, how they know, and pushing them to question the authenticity of everything they read on the internet."

Table 26 (cont'd)

MIL expose students to different perspectives (N=9)	"Teaching students how to see the world through other people's points of views with MIL is also very crucial for students to be successful and understanding in their futures." "I think students should be media-information literate to understand how it can make us think things and how everything can be interpreted differently. It is important for students to know how to look at media in different ways."

Subjective Norms

During this part of the module, participants learned about MIL-related standards from a variety of international (e.g., UNESCO, ISTE), national (e.g., NGSS, CCSS), and state standards as well as how these standards applied in practice to the classroom. The goal of this part of the module was to highlight that MIL was encouraged in standards and was therefore a desired practice in their professional world (i.e., subjective norms). As part of their reflective action, participants were asked to share an authentic example of media that would require to use MIL skills and that they could use in their classroom for students to analyze according to standards in their field of interest. Forty-two students completed the task. About 70% of them (N=29) shared advertisement examples, while the remainder (N=13) shared social media posts like memes, images or inspirational quotes (N=8), sponsored content (N=3), and news articles (N=2). In their reflective action prompt, they were also asked if they were surprised to see MIL included in educational standards. Almost half of preservice teachers (N=19) was not surprised that educational organizations included MIL-related competencies in their standards. This was highlighted by one preservice teacher, who said "I wasn't surprised at all. It has always been incorporated into my classes and when doing research so I have always thought it was a huge part of education and should be in the standards. This will definitely be in my future lessons." The other half of preservice teachers (N=21), however, was surprised or did not know about MIL

being part of standards. One preservice teacher explained that "I was surprised that MIL-related competencies are included in standards because up until this point as a senior in the College of Ed, I have never been introduced to this concept. We have always been told that integrating technology can be very helpful, but never that you need to teach students about technology." Other surprised participants, though, shared that "It was somewhat surprising to me simply because I had not heard it before. But when I think about it, it makes sense to me that MIL would be included in the standards."

Preservice teachers were then asked to reflect on "How does learning about educational organizations including MIL in their standards impact your intention to teach MIL in your future classroom?" for their reflective thinking prompt. Thirty-nine preservice teachers responded to that question. Although some responses (N=5) did not specifically indicate a change in intention, the majority of participants (N=31) reported an increased intention to teach MIL after having been exposed to MIL-related educational standards. Content analysis of the reflective thinking prompts suggested that their change in intention varied from awareness about what MIL was (N=6) (e.g., "I think I will definitely be teaching MIL in my classroom now that I am aware of what it is."), to realizing the general importance of MIL (N=6) (e.g., "learning that multiple organizations have standards for MIL makes me believe that it is an important thing that should be taught"), and seeing its relevance in students' lives (N=10) (e.g., "it has really shown me the importance of preparing my students with these skills that are most definitely needed in their future"). In one specific case, exposure to MIL-related educational standards accounted for an increase in teaching intention because it exposed the preservice teacher to how MIL could be integrated across different subjects in their curriculum: "I also was not aware of the fact that it could be used in all subjects, because when I think about MIL, I think about citing sources for

language arts or social studies assignments, but knowing that it can also be used in math and science will allow me to use and teach MIL to my students in a variety of different ways." In other cases, however, preservice teachers reported that their intention changed because standards will be a common practice to follow in their teaching (N=6) (e.g., "any standards change my intention of teaching slightly because we have to teach it").

Negative case analysis revealed some cases (N=3) in which preservice teachers' intention did not change with exposure to the standards, because they already intended to teach MIL beforehand, as this participant explained: "It doesn't change that much, because I knew going into teacher education that technology and the information students can get from it will become more and more prominent, and knew that I would have to include that in lessons. The only thing it would change is that now I need to be aware of specific objectives that need to be met." Each subcategory that emerged from the analysis of the reflective thinking prompt is illustrated in the matrix of analysis below.

	Subjective Norms (awareness of MIL educational standards)	**Examples**
How does a TPB module on MIL support preservice teachers' intention to teach MIL in their future classroom?	Standards raise awareness about what MIL is (N=6)	
	Standards reflect general importance of MIL in 21st century education (N=6)	
	Standards highlight relevance of technology and media in students' lives (N=10)	
	Standards underline professional guidelines to follow (N=6)	

Table 27. Matrix of analysis for subjective norms

Table 27 (cont'd)

"I certainly see the value of teaching MIL now more than I did before encountering this week's lesson, however I never discredited the importance of media literacy prior to this lesson, I just didn't have a comprehensive understanding of what MIL was." "When I thought of media literacy at first, I thought of purely advertisements but after reading different standards I realize that it is more than just looking at ads and that it is also how to discern valid arguments vs. opinions and how to evaluate certain tables and figures, data and much, much, more. I really liked learning about MIL in a different kind of way and think that it is very important for my future as a teacher and I will continue to learn about it to prepare myself."
"Seeing it in the standards also helped me realize how important it is to include MIL in the classroom." "After learning about the emphasis education organizations put on it, I am certainly more inclined and more conscious of how to teach MIL to my future students."
"It seems like a natural evolution in education to include standards, because technology is now an unavoidable part of society and is almost a requirement to function successfully in the world." "Media and information literacy standards help students with life skills, learning skills, technology skills and much more which are all extremely important things for them to learn because they will be using them in their future careers and lives."
"I already wanted to teach MIL. The only thing it would change is that now I need to be aware of specific objectives that need to be met." "Learning about MIL standards has begun to prepare me for the amount of standards there is out there that my students will need to meet."

Perceived Behavioral Control

This part of the module focused on helping preservice teachers build their MIL teaching toolbox by referring to sample lesson plans and resources. The purpose of this part of the module was to reinforce their sense of control about practical applications of MIL through visualizing it in their future classroom (i.e., perceived behavioral control). For their reflective action, preservice teachers were asked to write a MIL implementation statement that included a personal definition of MIL, a description of their approach to MIL in their future classroom, a description

of a MIL class activity, a description of how they would apply MIL without technology, and recommendations for parents. A total of 41 preservice teachers completed this task. In their implementation statement, participants proposed specific activities including analyzing ads or images (N=15) in various subjects, comparing or evaluating sources (N=11), conducting research or writing research papers (N=7), or more as a more general skill through encouraging it as a mindset across subjects (N=8).

A total of 42 preservice teachers answered the reflection thinking prompt "How does having access to MIL resources impact your intention to teach MIL in your future classroom?" In their responses, five participants did not clearly indicate a change in intention. For the other 37 participants, having access to these resources positively impacted their intention to teach MIL in their future classroom. One of them explained that "I think that having adequate access to MIL resources is the first, most important factor in being able to teach MIL in the classroom." Another participant admitted that "personally, before accessing these resources, I had never really considered the impact that a teacher could have on helping their students with MIL. Now that I have seen the different resources, I can see the way this could change a student's life both academically and personally;" and yet another shared that "I would've never thought about teaching MIL to my students before having access to all of these wonderful resources. It completely changed the game."

For some preservice teachers (N=6), the most prevalent benefit to having access to MIL resources was that it made it "easier" or "less difficult" to teach it in their future classroom. Other adjectives that were used included "beneficial" (N=1), "encouraging" (N=1) "helpful" (N=1) and "reassuring" (N=1). Other preservice teachers said it made them "more likely" (N=2), "more confident" (N=1) or "more motivated" (N=1) to teach MIL in the future. Their reasoning

behind the positive impact of having access to resources on their intention to teach MIL was associated with materials being readily available (N=5) (e.g., "by having access to MIL resources, it makes me more likely to teach it in the classroom. Having it handy rather than having to dig around finding it saves me time;" with the fact that they helped them understand MIL better (N=9) (e.g., "I think that having these resources makes me more aware of what MIL is. I was unaware before this unit and believe that it is essential in today's world"); and with giving them ideas for integrating it in their teaching (N=14) (e.g., "coming up with ideas for lesson plans to teach MIL might be difficult and intimidating and make teaching MIL tempting to stay away from teaching, but having multiple resources at my hands with examples and ideas for activities and lesson plans regarding MIL would definitely make it more approachable and teachable for me in my classroom").

Negative case analysis reported instances (N=5) were preservice teachers' intention was not positively impacted by having access to MIL resources. One preservice teacher, for instance, explained that "I don't think it has impacted my intention. I was already intending on including it in my lessons, and having more resources just makes it easier" while another justified her choice by saying that:

> As much as I would love to say that having easy access to MIL resources is very beneficial for me, it is not, at least in the future. The resources are beneficial right now as I am taking the course and interacting with the resources so that I can learn about more about the subject and read ideas about how to teach the skill. But in the future, as in my future classroom, these are resources that will be forgot about because they were given to me so long ago I will forget that I have them.

Each subcategory that emerged from the analysis of the reflective thinking prompt is illustrated in the matrix of analysis below.

	Perceived Behavioral Control (access to MIL teaching resources)	**Examples**
How does a TPB module on MIL support preservice teachers' intention to teach MIL in their future classroom?	Resources make it easier to teach MIL (N=6)	"Having access to MIL resources will make teaching MIL in my future classroom so much easier." "Having MIL resources simply makes it easier for me to teach about MIL in my future classroom."
	Resources help better understanding of MIL (N=9)	"Before this class I was not really informed on what MIL was so I had no resources to teach me about it, now I have the resources to teach my students too." "I now feel like I have a good base foundation of what is important and *why* it is important to include MIL in classrooms. It has also increased my intentions just by getting me to think about the impact it really has every day and how to combat the negative effects that can come from it."
	Resources offer available MIL materials (N=5)	"With the way that technology and resources are constantly changing, having available resources will ensure that I will be capable of arming my students with the best information and tools to be MI-literate." "I think that more teachers would willing to incorporate MIL into their lesson plans if they had access to resources."
	Resources provide teaching ideas and collaboration opportunities (N=14)	"Having fellow teachers who are also trying to emphasize MIL in their classroom gives teachers room to collaborate and create new ideas to educate students. It is also good to have these resources to know what is appropriate for each age level when it comes to MIL."

Table 28. Matrix of analysis for perceived behavioral control

Follow-up Survey

Approximately six weeks after accessing the module, preservice teachers were asked in a brief survey if they still intended to teach MIL in their future classroom. Of the 43 preservice teachers who took the survey, 84% of them (N=36) either agreed or strongly agreed with the statement "I intend to teach MIL in my future classroom." Participants were also asked to rank topics covered during the semester in order of relevance for their future teaching, in order to evaluate the weight of the MIL module in comparison with the other topics the course covered. A total of 35% of preservice teachers (N=15) ranked MIL as first or second in their ranked list. MIL was the second most rated topic overall, followed by "blended learning," which was ranked as first or second by 44% of preservice teachers. When asked to justify when their first choice was MIL, one preservice teacher noted that: "I think Media & Information Literacy is most important because students today are growing up with so much information available, and while that information is very important, being able to sort through and understand the information given to them is even more important." Another said that "MIL was something that I had not had any experience with before this class. I think it is a very relevant topic, especially with the amount of technology increasing rapidly. It is important to teach students the ability to think critically about the information they see online." Finally, another preservice teacher concluded that "Media literacy is so important for students to have in all aspects of life, so teachers need to fully understand it."

Discussion

The purpose of this study was to present preservice teachers with a module that would support their existing intention to teach Media & Information Literacy in their future classroom. Based on the Theory of Planned Behavior, the module aimed to strengthen their sense of control

over the teaching of MIL while to bolstering their attitudes and subjective norms through reflective exercises. The module aimed to simultaneously have participants practice MIL themselves, while planning on how they would embed it in their own classroom in the future. In addition, they were asked to reflect on the effect of the module material on their intention to teach MIL as they progressed through the two-week module.

Participants in this study had favorable views toward the module. The majority of them reported positive comments about the impact of the reflective exercises in supporting their intention to teach MIL in their future classroom. They found the information about MIL relevant to their views about their role as teachers of MIL. Awareness of existing educational standards related to MIL supported their existing desire to integrate it in their classroom; and they valued having access to tools and resources with lesson plans to help translate their intention into practice. These results have important implications both for teacher education and for research in the field of Media & Information Literacy.

Implications for teacher education

This study uncovered ways that the module material supported preservice teachers' intention to teach MIL in their future classroom. It also helped identify ways to introduce MIL and MIL pedagogy in teacher education. While MIL-related standards reinforced preservice teachers' desire to adhere to professional guidelines in their field, preservice teachers particularly benefited from practicing MIL skills themselves. For instance, our results showed that advertisements were popular media messages picked by preservice teachers to analyze. Advertisements could therefore be a good entry point to start conversations about MIL and practice MIL skills. Popular culture items such as advertisements are indeed often used as material to discuss MIL-related skills and practices (Buckingham, 2013; Silverblatt, Ferry &

Finan, 2015). Popular culture items provide authentic material that help connect MIL skills to out-of-school contexts by placing students' needs and interests first (Buckingham, 2013)—a notion that was highlighted by preservice teachers in the study, who saw MIL as both an academic and a personal life skill.

Results from this study also demonstrated that MIL resources are key in helping preservice teachers feel in control of embedding MIL in their teaching practices. Preservice teachers in the study appreciated having access to lesson plans and ideas that could fit their personal teaching agenda while inviting for collaboration with other teachers. However, Hinchey (2003) explained that "media literacy, like the penetration of media messages, is limitless. And herein lies the teacher's boon and bane: potential materials and lessons are infinite, but the very depth and breadth of possibilities makes it exceedingly difficult for individual educators to focus on a specific curriculum for a specific school or classroom." (p. 269). In other words, while having access to resources is essential to support preservice teachers' intention to teach MIL, it is important for teacher educators to select specific resources and guide preservice teachers in identifying which resources would be more useful for them, based on their pedagogical needs. In turn, having teacher educators involved in this selection would fortify preservice teachers' subjective norms by seeing that the people they value are immersed in the process as well.

Moreover, the wealth of online resources reflected the adaptability and flexibility of MIL activities to be embedded in existing lesson plans. I acknowledge that flexibility does not trump time, which is often an issue when teaching concepts like MIL that are not explicitly or directly linked to core subjects like Math and English. In fact, many teachers and teacher educators worry that integrating MIL practices in K-12 education could diverge from the curriculum (Egbert & Neville, 2015). However, preservice teachers in this study discovered that they could adapt MIL

practices to their own teaching, and that they could get ideas to do so from the resources they had access to online. This had been echoed by research showing that MIL can be adapted to different subject areas like ELA (Laughter, 2015), STEM (Storksdieck, 2016), social studies (Ross, 2014), or health studies (Scull, Malik & Kupersmidt, 2014).

In addition, research has shown that brief educational exercises or interventions can have lasting effects on learners (Cohen & Sherman, 2014; Yeager & Walton, 2011). Thus, an important implication for teacher education is that MIL modules that are flexible, adaptable, and brief in time can have an impact on preservice teachers' views of MIL. Teacher educators and administrators should consider embedding short-term MIL modules in their programs to introduce preservice teachers to MIL and MIL pedagogy.

Implications for research

Research conducted with TPB exercises is contextual in nature (Francis et al., 2004). It is important to recall that this set of reflective exercises was designed based on formative research showing preservice teachers' high intention to teach MIL in their future classroom. Educators or administrators interested in implementing similar modules should conduct pilot work to assess participants' intention to teach MIL in their future classroom, as different types of exercises are needed based on results obtained (Ajzen, 2015). For instance, our formative research showed high levels of intention in the preservice teachers I surveyed. This implied designing a set of exercises to help them act on their positive intention and focusing on the *how* of teaching MIL. Another type of exercise focusing on the *why* of teaching MIL and aiming at influencing intention would have been needed had preservice teachers had no intention to teach MIL in their future classroom. Formative research is, therefore, essential before designing and conducting TPB exercises for preservice teachers.

Additionally, conducting formative research will be crucial as research in the field of Media & Information Literacy education for preservice teachers continues to grow. While research has been showing the relevance of MIL for students (Grizzle et al., 2013; Potter, 2015) and the benefit of MIL interventions for them (Walther, Hanewinkel & Morgenstern, 2014; Walton & Hepworth, 2013), there is still a need for empirical work in training educators to acquire the necessary pedagogical competencies to integrate it in their classroom (Thompson, Schmidt-Crawford & Lindstrom, 2015; Tiede et al., 2015). Additional studies in this area would also help counter some of the deficit mindset present in the prose surrounding preservice teachers' lack of experience in helping students gain digital literacies (Lei, 2009; Lindstrom, Schmidt-Crawford & Thompson, 2016). Instead, research based on frameworks like the Theory of Planned Behavior help identify why preservice teachers struggle in acquiring these competencies by placing their voices at the center of the research.

Next steps for research emerged from the results of this study. First, longitudinal work is needed to fully evaluate the effects of this TPB module on preservice teachers' intention to teach MIL. Even though I asked participants if they still intended to teach MIL six weeks after the module, it is important to examine the effect of the module on actual behavior. Participants should therefore be contacted again several months after accessing the module and be asked to report whether they have performed the behavior or not, or if they still intend to do so (Hornik, 2007). Specific future steps for this study include following-up with preservice teachers who become inservice teachers after going through the module. Next, future iterations of the module should preemptively address potential misconceptions that preservice teachers might hold about MIL. In this study, negative case analysis provided a useful mechanism to identify some of these possible misconceptions. For instance, one preservice teacher did not see MIL as an appropriate

topic to teach in her future first grade classroom. However, research strongly supports the integration of MIL in early childhood education (Alper, 2013; Rogow, 2015; Wohlwend, 2013). As a result, future iterations of the module material should continue to identify and address potential misconceptions that preservice teachers might hold about teaching of MIL in K-12 settings. Finally, other populations of interest should be examined to assess the effect of the module and reflective exercises in different settings. Participants in this study were enrolled in an elective educational technology course, and already intended to teach MIL in their future classroom. Future studies should conduct formative research and reflective exercises with preservice teachers who initially do not intend to teach MIL in their future classroom. Other possible ways to further research and practice in this area would also be through quasi-experimental designs looking at the effectiveness of the module in strengthening motivation for groups with low intentions of teaching MIL. It would also be informative to implement similar modules with inservice teachers.

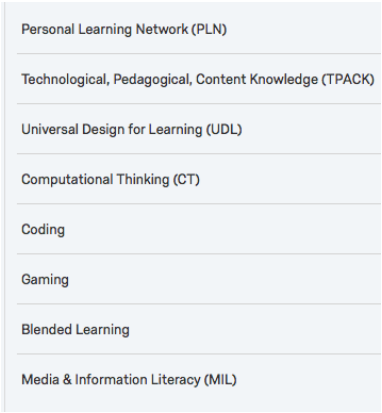
Conclusion

Preservice teachers in our formative research exhibited high levels of intention to teach Media & Information Literacy in their future classroom. As a result, I designed a brief module with reflective exercises based on the Theory of Planned Behavior to support preservice teachers' intention to teach MIL in their future classroom through implementation exercises. Preservice teachers in our study found the module beneficial in helping them translate their intention into practice and support their intention to teach MIL in their future classroom. This theory-based module placed preservice teachers' voices as a central place in the research, and should guide future efforts in developing MIL instruction in teacher education.

APPENDIX

Follow-up survey

1. Below is a chronological list of the topics we covered this semester. Which topics did you find most relevant for teaching in your future classroom? Please rank the topics by dragging them in your order of preference (1: topic I found the most relevant for my teaching--8: topic I found the least relevant for my teaching).



2. Explain your top choice. Which was the topic of most relevance for your teaching, and why?
3. Explain your bottom choice. Which was the topic of most relevance for your teaching, and why?
4. Thinking ahead to your future classroom, tell us if you intend to use the following pedagogical concepts for teaching:

	Strongly agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
I intend to use TPACK	○	○	○	○	○	○	○
I intend to use UDL	○	○	○	○	○	○	○
I intend to use blended learning	○	○	○	○	○	○	○
I intend to use gaming	○	○	○	○	○	○	○
I intend to use my PLN	○	○	○	○	○	○	○

5. Thinking ahead to your future classroom, tell us if you intend to teach the following skills and concepts to your students:

	Strongly agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
I intend to teach Computational Thinking (CT)	○	○	○	○	○	○	○
I intend to teach Media & Information Literacy (MIL)	○	○	○	○	○	○	○
I intend to teach Coding	○	○	○	○	○	○	○

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CONCLUSION. Dissertation Takeaways

The present dissertation looked at preservice teachers' intention to teach Media & Information Literacy (MIL) in their future classroom. The first part of this conclusion explores its main takeaways from a first-person perspective, before presenting an overview of its general findings and implications. The overall impetus for this work emerged as the combination of a few elements: i) my personal interest in MIL as a concept that I saw evolve from my work in literary studies, ii) my involvement teaching an introductory educational technology course to preservice teachers, and iii) my interest in designing research-based educational experiences—in this case a brief module with reflective exercises. What I did not expect as I started this work five years ago was the increasing importance that MIL would take. The 2016 U.S. elections shed light not only on the nature of online information and media, but also on the ways we, as human beings, interact with the overwhelming amount of unfiltered stories we have access to on a daily basis. In the span of a few months, the need for MIL became center stage. It increasingly became a set of skills that we needed to teach students in K-12 settings. And while researchers have been advocating for MIL-related skills in K-12 for decades, it suddenly became a necessity.

My personal interest in MIL emerged from my background in literary studies. I have always been interested in the link between literacy and technology, and had studied at the doctoral level the impact of the printing press on the evolution of narrative genres (i.e., the novel) and literacy skills in early modern Europe. I had also worked for many years with educators on innovating the ways we teach literature courses in higher education. What seemed essential to me was the inquiry-based critical thinking that I could see students engage in during class, while discussing texts that were centuries old—yet entirely relevant to the present. As I continued my work in this field, I saw the connections between the shift towards digital literacies

and the growing presence of the Internet as a major source of information for students. But while I saw the emphasis on technological skill training in education, I could see critical skills and inquiry somehow brushed aside. This goes without saying that technological skills are essential, but I was left with the feeling that analysis and interpretation were not deemed as crucial. I turned to MIL as a way to bridge both technological skills with critical analysis.

I had been familiar with the concept of media literacy through my own schooling—although the concept was strongly associated with film studies and marketing. When I came across UNESCO's new definition of MIL as a composite concept linking media literacy (i.e., critical, interpretative skills) to information literacy (i.e., technological, research skills), I knew that it provided what I was looking for to study the interaction of technology and literacy in today's world. Over the years, I have been in direct contact with UNESCO members to discuss the concept, and have immersed myself in the MIL community of researchers and practitioners. I have taught in a pilot MOOC course on MIL for UNESCO, I presented at conferences such as the National Media Literacy Education annual meeting, and interacted with others with similar missions in education, like during my participation on a panel on media literacy at Twitter Headquarters. This engagement in the MIL community has greatly influenced my research and has ensured that my work stayed relevant. One of the ways that it helped me stay relevant was by understanding that while the relevance of MIL in K-12 was increasing, not much was being done to train educators, let alone preservice teachers. The majority of schools of education focus on teaching *with* new media and technology instead of teaching *about* new media and technology—with only 2% of 316 universities surveyed in a recent study offered courses in media education or media pedagogy, only at the Masters level (Tiede, Grafe & Hobbs, 2015). Since I was

teaching an introduction to educational technology course for preservice teachers, it was a perfect fit for me.

Unfortunately, the incongruences between teaching MIL and the need to train educators are not new. Almost ten years ago, Kellner & Share (2007) asserted that "educators need to move the discourse beyond the stage of debating whether or not critical media literacy should be taught, and instead focus energy and resources on exploring the best ways for implementing it" (p. 59). This debate is even older (Hinchey, 2003) and not much research has looked at whether or not future teachers even intended to teach MIL in their future classroom. One of the ways I had been interested in looking at this was through understanding preservice teachers' intention to teach this specific set of skills. I had been introduced to the Theory of Planned Behavior (TPB) in a doctoral course, and found it to be a comprehensive theoretical framework to address this question.

The Theory of Planned Behavior is an empirically-validated framework that explains the determinants of behavioral intentions (Ajzen, 2006). These determinants are i) attitudes (i.e., how you personally feel about the behavior in question), ii) subjective norms (i.e., how much of a social pressure there is to perform that behavior), and iii) perceived behavioral control (i.e., how much of performing the behavior is in your hands). What I appreciated about this theoretical framework was not only that it helped better understand the concrete factors that help or hinder individuals to perform certain behaviors, but also that it provided a complementary framework to design exercises based on the TPB. Because I wanted to not just look at preservice teachers' intention to teach MIL in their future classroom but also produce concrete solutions to address the findings that would emerge, the TPB seems like a great fit for my purposes.

I conceived of this dissertation as a multi-phase study composed of three independent yet interconnected studies. Each of these studies answered a specific question: 1) What do preservice teachers think about teaching MIL? 2) What predicts preservice teachers' intention to teach MIL?, and 3) How can we support preservice teachers' intention to teach MIL? Each of these studies provided the basis for the next one, where the overall dissertation would offer a "big picture" of MIL in teacher education and offer the opportunity to discuss future directions in the field. The first paper reported on an elicitation study conducted with focus groups of preservice teachers to understand, from their perspective, the factors that would either impede or facilitate the teaching of MIL in their future classroom. The second paper described the creation, validation, and results of a survey based on these factors. And the third paper gave an account of a module with reflective exercises designed around the results gathered in the survey. Below, I give a brief overview of the findings that emerged from each study, followed by general takeaways and questions for the field.

Overview of findings

Paper one

The first paper in this dissertation was exploratory in nature. It aimed to elicit TPB factors about MIL through focus groups to better understand what underlying determinants could influence their intention to teach MIL in the future. Preservice teachers in the focus groups provided a list of popular salient outcomes (advantages/disadvantages), social referents (approval/disapproval) and factors (facilitators/barriers) related to preservice teachers teaching MIL in their future classroom. The elicited list provided the basis for designing a TPB survey.

Paper two

This second study in the dissertation involved creating and piloting a TPB survey created from the items elicited in the previous study. It was then distributed to a sample of preservice teachers and analyzed. The goal was threefold: to determine the psychometric values of the survey itself, to assess preservice teachers' intention to teach MIL in their future classroom, and to understand which factors predicted said intention. Our analysis showed the reliability and validity of the instrument—although one limitation was its small sample size. The results showed that preservice teachers had a high intention to teach MIL in their future classroom. Similar to the first study in this dissertation, their attitudes towards MIL were also highly positive. However, the results also showed that although positive, their subjective norms and perceived behavioral control were lower on the scale. Additionally, our analysis showed that only attitudes were a significant predictor of their intention to teach MIL. These results thus provided me with a basis to design an MIL module that would help support their positive intention.

Paper three

The final study in this dissertation was an study designed from the results obtained in the second study. According to the TPB, two types of interventions are possible: one that influences intentions if these are low, and one that supports implementation practices if these are high. Since I knew that preservice teachers had high intentions to teach MIL in their future classroom, I designed an online module to bolster these intentions and help preservice teachers translate intentions into practice. The study consisted of a two-week module that presented information about MIL and asked participants to perform a series of activities related to its implementation in their future classroom, along with reflections about the effects of the module material on their intention to teach it. Our qualitative analysis of participants' reflections helped me better

understand what they valued in the module and reflective exercises, and negative case analysis helped me identify areas of need or improvement. Overall, the majority of participants expressed a positive effect of the module on their intention to teach MIL in their future classroom.

Taken together, these three studies provided an understanding of the needs for MIL education in teacher education. Below, I discuss additional questions and issues that grew out of our analysis of the data.

Questions for the field

For each question this dissertation answered, at least ten more emerged. Here are some of the broader issues this dissertation uncovered as the field of MIL education evolves.

Research

What direction for MIL research? Empirical research in the field of MIL is scarce. There have been some attempts to measure media literacy skills acquisition in students (Hobbs & Frost, 2003), and there is the promise of measures for teachers as well (Tiede et al., 2015). Other attempts at measuring these skills have taken the shape of more practical measures such as teacher digital horoscopes (Hobbs & Tuzel, 2017), or lists of MIL competences (Wilson et al., 2013). Hinchey (2003) provided insight on one of the reasons why measuring MIL is difficult. She explained: "Media literacy, like the penetration of media messages, is limitless. And herein lies the teacher's boon and bane: Potential materials and lessons are infinite-but the very depth and breadth of possibilities makes it exceedingly difficult for individual educators to focus on a specific curriculum for a specific school or classroom." (p. 269). The breadth of MIL techniques and activities, along with the broad spectrum of skills it covers make it challenging to measure and claim for generalizability. One of the ways I see future research in MIL evolve is through context-specific case studies and overall more qualitative approaches to MIL education.

Practice

How can preservice teachers learn about MIL? There are many positive examples of individual teachers teaching MIL in K-12 (Smith, 2015). There are also many books and guides on teaching MIL in the classroom (Silverblatt et al., 2014; Wilson et al., 2013), along with the current proliferation of online resources. Teacher education programs could benefit from integrating some of these resources in their classes. Having access to readily-accessible resources and lesson plans is a relief for preservice teachers who can feel the pressure to cover many topics and skills in their classroom. This also frees time and energy for teacher educators, who do not have to create these resources themselves.

Policy

Will MIL be part of K-12 education? The 2016 U.S. elections and global awareness for MIL skills have guided efforts to include MIL in the school curriculum. The main effort has been led by MediaLiteracyNow, a non-profit organization that has proposed a model bill to integrate media literacy practices in K-12 education in different states. Other efforts, such as ones in Massachusetts, have been merging media literacy with computational thinking, under a broader "digital literacy" concept. This also raises the question of terminology, as the variety of terms used for MIL-related skills makes it difficult to track its implementation in classes. For instance, a parallel process surrounding the idea of "digital citizenship" has also been taking place (Choi, Glassman & Cristol, 2017), where digital citizenship encompasses media literacy in addition to other concepts like cyber bullying or Internet etiquette. In terms of policy and the integration of MIL skills in education, this variability of terms might hinder collaborative efforts to embed it in teaching practices. An alternative option, however, has been found in other venues to teach MIL

skills, such as during pediatric appointments with parents and children (Strasburger, Donnerstein & Bushman, 2014).

Altogether, not only did this dissertation pave the way for future direction on MIL research, practice, and policy, but it also had a definite impact on my personal growth as a researcher. I would like to conclude this dissertation by sharing a few thoughts on the personal impact of this dissertation on my scholarly identity.

Concluding thoughts

Working on this dissertation and being immersed in the field of MIL over the past few years has positively bolstered my identity as a scholar and researcher in many ways. It has helped me strengthen the connections between my past work in literary studies and my current work in MIL. It has helped me gain a variety of skills through the application of different research methods, and gave me practical experience in conducting interviews or focus groups, building and testing a new instrument, and designing TPB reflective exercises. But more importantly, working on this dissertation has showed me how to address a research question from beginning to end. I enjoyed interacting with participants, from gathering data directly from them to guide research questions, to reading their feedback on the effect of the module on their intention to teach MIL. I am looking forward to the future directions the field of MIL will take.

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