

INFORMATION SYSTEMS EDUCATION JOURNAL

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Student Perception of Social Media as a Course Tool

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Abstract

If a technology provides features that are useful then it will have a positive impact on performance. Social media has morphed into one of the preferred methods of communication for many people; much has been written to proclaim its benefits including its usefulness as a tool to help students achieve success within the classroom. But is it perceived by students to be a tool to aid in their education or is it a distraction to the learning process?

Task-technology fit theory defines a model that has been used to explain information systems utilization in many different contexts. Prior research describes the relationship between the task requirements of the user and the functionality provided by the technology with the resulting impact on performance. Resultant studies concluded that perceived usefulness and perceived ease of use have a significant impact on utilization. Additionally, task-technology fit identified several factors that impact the use of technology.

We use the task-technology fit theoretical model to test the impact of social media as a learning tool for business students. Students from three universities were surveyed and the results present significant empirical evidence of utilization and the factors that impact social media use in the classroom. This research extends the existing body of task-technology fit research to include social media technologies. It also provides a theoretical construct to test the use of social media technologies.

Keywords: Social Media, Task-technology fit

1. INTRODUCTION

Social media usage has exploded in the past ten years. Its widespread adoption is reinforced with the news and entertainment media that remind their viewers to *follow us on Facebook or Twitter*. Social media tools have become an integral part of student life. This research explores the question: Is social media used as a tool to aid in student learning or is it merely a

distraction? Is social media a tool that is perceived to add value and help students in the completion of tasks or is it merely a means of communication?

The question of whether information technology is utilized because it is perceived to add genuine value has been widely studied in the past twenty years. There are several theories that have resulted in hundreds of research studies. These

include the Theory of Reasoned Action (Fishbein & Ajzen, 1975), Theory of Planned Behavior (Ajzen, 1985 & 1991), Task-Technology Fit (Goodhue & Thompson, 1995), Technology Acceptance Model (Davis, 1989), and the Unified Theory of Acceptance and Use of Technology (Venkatesh, Morris, Davis, & Davis, 2003). One of the most widely studied theories of information technology use is task-technology fit. This study utilizes the theory of task-technology fit to investigate if business students are utilizing social media tools as a means to aid in the student learning experience. The paper is organized as follows: First, the theory of task-technology fit is presented along with a summary of subsequent studies related to utilization. Second, a brief summary of prior research of social media in education is discussed. We then present our research methodology and research model. We conclude with a discussion of our findings.

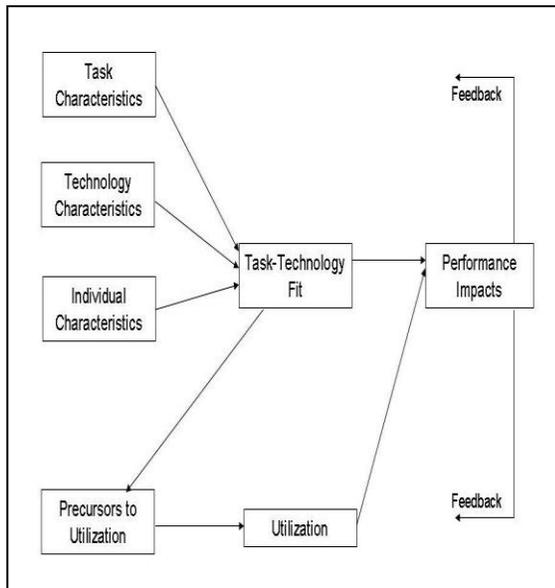


Figure 1. Goodhue and Thompson's (1995) Technology to Performance Chain Model

2. TASK-TECHNOLOGY FIT RESEARCH

Goodhue and Thompson (1995) proposed that for information technology to have a positive impact on individual performance the technology must be utilized and it must be a good fit with the task that it supports. Goodhue and Thompson (1995) built upon DeLone and McLean's (1992) work on information systems success by developing the *Technology-to-Performance Chain Model* (TPC) to investigate how technologies can impact individual performance. Within the TPC model, Goodhue

and Thompson defined task-technology fit (TTF) as a measure of the degree to which tasks are supported by technology. The TPC model is shown in Figure 1.

In Goodhue and Thompson's (1995) study, task-technology fit was operationalized as user evaluation. Measuring perceived performance impacts operationalized performance impacts. A user rating of dependency on particular systems operationalized utilization. Goodhue and Thompson (1995) found that certain individual and task characteristics impacted utilization which then had a direct impact on the perception of performance.

3. SUBSEQUENT TASK-TECHNOLOGY FIT RESEARCH

Cane and McCarthy (2009) provide a summarization and categorization of over 100 subsequent task-technology fit research studies. A brief summary of the research pertinent to our study is presented herein.

Goodhue (1998) discussed the development and measurement validity of the task-technology fit instrument used in previous studies by pointing out that when looking for performance measures for system implementations, there are only a few uni-dimensional choices from which to choose. For example, *use* as a measure of evaluation may be problematic as it is possible that greater use could be the result of poor systems.

The user in Goodhue's (1998) research is defined as an individual who uses data personally in decision-making, or accesses it and passes it on to a decision-maker, and is *not* strictly defined as the "end-user who directly interacts with the computer" (p. 107). The research focused on testing the dimensions of the task-technology fit construct. He replaced *technology characteristics* used in prior research with the term *information systems and services*.

Belanger, Collins and Cheney (2001), in a field research project studying work group communication, surveyed telecommuters to determine telecommuting success based on availability of advanced information system technologies, availability of advanced communication technologies, and communication patterns.

D'Ambra and Rice (2001) found a direct relationship between high performance and a high level of task-technology fit. D'Ambra and

Wilson (2004a, 2004b) developed two models that include uncertainty reduction as a dimension in the task-technology fit construct, and as a construct in the task-technology fit model.

Nance and Straub's (1996) task-technology fit is based on Venkatraman's fit as matching (1989, in Nance and Straub), in which the individual characteristics are removed from the characterization of fit, and evaluated as an antecedent to an individual's IT usage choices. Their study hypothesizes that volume of data determines IT usage choices. Nance and Straub's results showed that fit (defined as selecting information technology for high-volume data tasks and manual procedures for low-volume data tasks) appears to influence task-level IT choices.

Dishaw and Strong (1998a) define task-technology fit as "the matching of the functional capability of available software with the activity demands of the task" (p. 109), and is modeled using Venkatraman's (1989) interaction approach to fit. They developed a method to compute task-technology fit as the computation of the interaction of task and technology characteristics.

There are two dimensions of task-technology fit in the Dishaw and Strong (1998b) model: production fit and coordination fit. Production fit is the interaction of analysis, representation and transformation, with the maintenance tasks of understanding and modification (planning, knowledge building, diagnosis, and modification). Coordination fit is the interaction of cooperation and control. Their research supported two hypotheses. First, higher production fit is associated with higher tool use, and second, higher coordination fit is associated with higher tool use.

Dishaw and Strong (2003) continued their work with their evaluation of factors in utilization of software maintenance tools. From this prior usage was added as a moderator of utilization. Dishaw and Strong (2003) found prior usage was significant. Strong, Dishaw and Bandy (2006), further extend the task-technology fit model by adding computer self-efficacy (CSE) as an individual characteristic. As in prior research (Dishaw & Strong, 1998b, 1999, 2003), task-technology fit is computed as an interaction. Results showed that including CSE increases the model's explanatory power, and CSE has an effect on utilization.

Murthy and Kerr (2000) tested several hypotheses on the task-technology fit of group support systems, investigating effectiveness of face-to-face communication compared to group support system-mediated communication under increasing information richness requirements. Tasks were identified as idea generation and problem solving. Their results indicated that for problem-solving tasks, subjects performed better when communicating face-to-face. There was no statistically significant difference in performance for idea generating tasks.

4. APPLICATIONS OF TASK-TECHNOLOGY FIT THEORY

Ferratt and Vlahos (1998) compared the task-technology fit of computer-based information systems (CBIS) across managers in Greece and the United States. Lim and Benbasat (2000) investigated task-representation fit and its effect on reducing information equivocality, which is defined as "the multiplicity of meaning conveyed by information about organizational activities" (Daft and Lengel, 1986, p. 211, in Lim & Benbasat, p. 451). The key task characteristic was analyzability, the key characteristic of representation was level of richness of presentation medium.

McCarthy, Aronson and Claffey (2002) studied enterprise data warehousing environments. Task characteristics were affected by information quality, reliability, business rule source, availability and timeliness. Individual characteristics were affected by ease of use, training, information usefulness, and the end user's relationship with the technology team. McCarthy et al. (2002) found that quality, training, reliability, business rule source, system availability, end user relationship with IT, and ease of use were all significant dimensions of task-technology fit for data warehousing systems.

Lightner (2002) found that combinations of technology and individual characteristics (age and domain knowledge) affect task performance using animated graphical displays.

McCarthy and Aronson (2003) tested task-technology fit in the context of knowledge management systems. They defined task characteristics as reliability, accessibility, right knowledge (quality), and compatibility; they defined individual characteristics as affecting ease of use, training, usefulness of the knowledge, and right level of knowledge. Task-technology fit was operationalized as the

combination of individual characteristics and task characteristics.

Grossman, Aronson, & McCarthy (2004) evaluated the task-technology fit of the Unified Modeling Language (UML) for use in systems development using Goodhue's task-technology fit instrument (Goodhue, 1998, in Grossman, et al. (2004)). They reported a wide variety of opinions on UML, indicating inconsistency with new technologies.

Lee, Cheng & Cheng (2007) studied task-technology fit, focusing on individual differences in the use of personal digital assistant (PDA) for mobile commerce. Lee et al. found that computer experience, cognitive style, and computer self-efficacy affect PDA usage.

The numerous studies of task-technology fit have validated that if user perceives that a technology will add value then they will use it. We look to apply this to the use of social media as an aid for a student's educational experience.

5. SOCIAL MEDIA

Social media has been defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content" (Kaplan and Haenlein, 2010). Tadros (2011) defines social media as "any media that help integrate technology into the lives of people for the purpose of communication" (p. 84).

Social media use has exploded in the past decade. As a result, Wankel (2011) states social media is increasingly intersecting with education. Social media technologies enhance participation because it is viewed as the social construction of knowledge. When social media is used to enhance learning outcomes the context of the learning extends beyond the classroom into any learning environment that the student participates in (Wankel, 2011).

Olofsson, Lindberg and Stodberg (2011) identify that research in the use of social media among online higher education students is linked to educational technology and includes technologies such as wikis, blogs, video, and social tagging. They found that shared video and blogging facilitate communication and reflection amongst students. Koohang, Floyd, Smith and Skovira (2010), posit that although social media provides a community, it does not provide a learning community because members

do not have a commitment to creating and sharing knowledge. Wankel and Wankel (2011) note that social media provides the potential opportunity to enhance university life and community development.

Young (2010) reports that one of the advantages of social media for students is that unlike course management systems, they already know how to use it. A survey of students at Los Medanos College in California found that 83% of the students approved of professors using Facebook for class updates. Suggestions for social media use at San Jose State University included: (1).Ask students to do role-playing exercises using Facebook or Twitter, (2).Use YouTube tracking to track posted lectures, and (3).Send students one minute video reminders for assignments.

In a demographic survey of 182 students and 64 faculty, Records, Pritchard, and Behling (2011) reported that 41.6% utilize Facebook for academic usage, 31.6% use LinkedIn and 12% use Twitter. They also reported that 82.7% use Facebook for personal usage, 35.75% use LinkedIn, and 30% use Twitter. Further they reported that advantages of using social media in the classroom include: "connectivity, communication, participation, group work, real-time use anywhere, real world examples, for people who are uncomfortable speaking in class, being able to participate in class when sick, and one comment 'ability to cheat on tests'" (p.177). The reported disadvantages were disruption and distraction.

Does social media create opportunities for students who grew up in a generation of hyperlinks and massive volumes of disconnected information, to be more engaged in their own learning? Is it perceived by students to be a tool to more effectively express their views than they might otherwise within a classroom? Tadros (2011) states "technology creates a more engaging and innovative classroom experience that makes students more interested in the learning process if the correct tools are used. Social media tools give students the ability to think critically and creatively" (p. 83). There is compelling anecdotal evidence that experts believe that social media is perceived by students to provide a tool to be more engaged in the classroom thereby improving their performance. However, to date, this has not been empirically studied.

6. METHODOLOGY

Based upon the prior task-technology fit research which has extensively looked at the use of technology in many different contexts our research question was “Does social media provide a tool that helps students in their studies or is it viewed as a distraction”. The question arose from anecdotally observed claims that social media is an essential tool used by students as a means to enhance their studies. To date, we found no research to substantiate that claim. The task-technology fit model provides a sound theoretical basis to test this assertion. Therefore the two research questions that arose from this were:

1. Do students perceive the use of social media technologies as having a positive impact on their performance?
2. What factors affect the use of social media in the classroom?

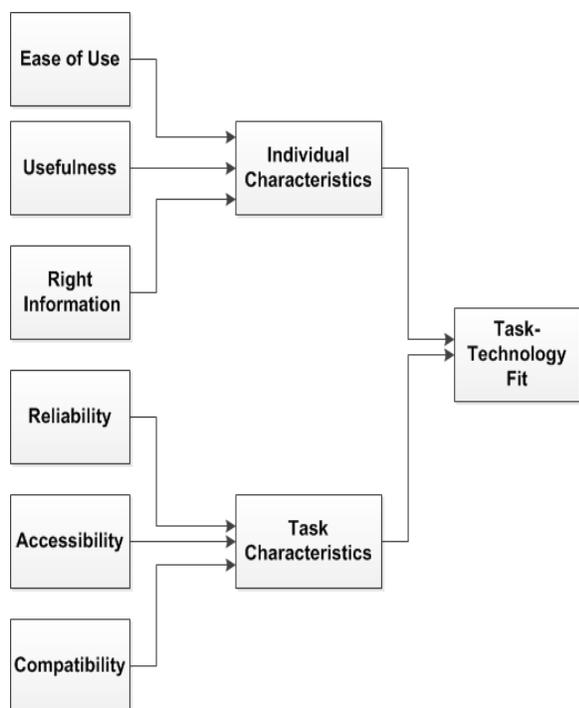


Figure 2. Research Model

There has been extensive study of task-technology fit that has led many researchers to conclude it serves as a surrogate for information systems success and therefore the stronger the task-technology fit the greater the impact on performance. Although much of the research on task-technology fit has centered on identifying

additional variables that impact task or individual characteristics, there are several that are common across much of the literature (Cane and McCarthy, 2009). These include ease of use, usefulness, providing the right information, accessibility, reliability and compatibility. As a result our research model for this study is:

The survey instrument developed by Goodhue and Thompson (1995) was modified to apply to the use of social media technologies. An initial pre-test was performed with twenty-two undergraduate students from a northeastern university computer information systems class. The purpose of this pre-test was to validate the clarity of the survey instructions and the questions. Participants were asked to comment on any question that was unclear, and to indicate why. Two questions were modified as a result. The results of the pre-test were incorporated into the final questionnaire. This pre-test was personally administered. The data were not used as part of content analysis or to determine construct validity.

The survey was administered to business and information systems students who were taking introductory information systems courses at three universities within the United States. The survey was online and the students were provided a link to the survey from their instructor. Participation in the survey was optional and not part of the administration or curriculum for the course. Each of the questions within the survey was part of a construct representing either a task or individual characteristic. In addition, there were questions that asked for the student to describe their personal use of social media as well as their use within courses if applicable.

7. RESULTS

There were a total of 137 responses received from a total of 246 students across the three universities that were surveyed. One response was incomplete and not used in the final analysis, yielding a response rate of 55%.

Students were asked which social media site they use most often. The results (presented in Figure 3) demonstrate a very strong preference for Facebook (in comparison, no student responded MySpace).

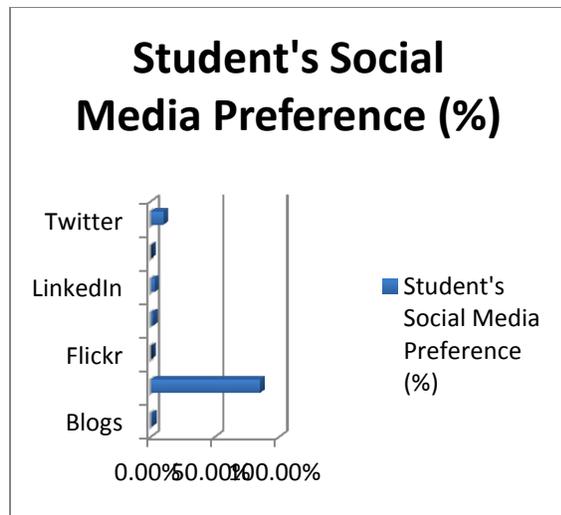


Figure 3. Social Media Most Often Used

Sixty-seven of 136 respondents (48.5%) indicated social media use as part of a college course. This group was the set that was used to analyze the task-technology fit as they represent the sample population of concern for our study. These students were asked which social media website was used in the classroom (presented in Figure 4). In some cases multiple sites were used.

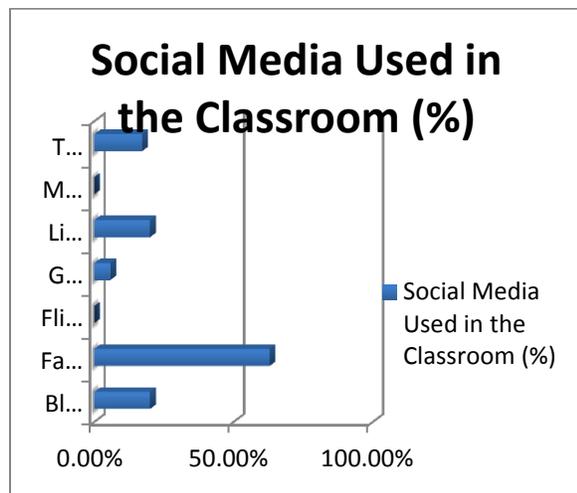


Figure 4. Social Media Used in the Classroom

There were several distinct ways in which social media was used within the classroom. In several cases it was used as a means to connect with outside constituents involved in service learning projects. In other cases it was used to interact with the professor and others in the class for case studies, creating blogs and analyzing social media campaigns. Blogs were used to describe and discuss issues related to

the course, while GoogleDocs was used to share program files for a programming course.

A confirmatory factor analysis was performed on the questions that comprised each variable. One question had a factor less than .5 and was eliminated from further analysis. Construct validity of the questions pertaining to the variables was tested using a Cronbach's Alpha test. The results of the Cronbach's Alpha test are presented in Table 1. Each of the variables exhibited an alpha score > .70 and were therefore included in the analysis of the results.

Table 1. Cronbach's Alpha

Construct	Alpha
Ease of Use	0.82
Usefulness	0.84
Right Information	0.81
Reliability	0.76
Accesibility	0.74
Compatibility	0.79

Multiple linear regression has been used in many of the prior task-technology fit studies (Cane and McCarthy, 2009) because it is appropriate when a single dependent variable is related to multiple independent variables. The individual and task characteristics variables meet this criterion. In a multiple regression model, the increment of the R^2 attribute to the linear interaction between the individual and task characteristics and the task-technology fit variable was tested at a significance level of .01. The R^2 coefficient was .442.

In addition to the survey questions students were asked to comment on their views of the use of social media in the classroom. The responses were mixed. Several commented that social media use would be ineffective in the classroom. They pointed out they use social media to "connect with fiends and voice their personal opinions". Students' indicated there was a line between their personal life and their school life and did not want them to intersect. In response to this survey, one student commented, "I hate that this school is trying to involve social media in the classroom".

There were an almost equal number of comments in favor of the use of social media within the classroom. Several students commented that they would check social media sites much more often than Blackboard or Web Advisor. They commented that although it can

be distracting, it was an effective way to reach a large number of users. Examples included using Facebook as a means to reach a wide group of people to support social causes that were the basis of part of the student's educational experiences. One student commented that they were using social media to identify survey participants for a research project that they were currently working on with a professor. Students also commented that Facebook is useful for connecting with team members on group projects. The students noted they would like to see Twitter used to update students when assignments are due. Finally, one student who has a dual accounting and information systems major indicated he/she use social media far more extensively in their information systems courses.

8. DISCUSSION

Based upon our survey results there is a task-technology fit when social media is used to support business classes in a university environment. This research is significant because it provide empirical evidence of the fit of the technology that extends beyond the anecdotal observations described in popular literature to date.

The individual and task characteristics that were tested (ease of use, usefulness, right information, accessibility, reliability, compatibility) provided a strong relationship of the fit of the social media technology in support of business courses. This is significant because it was the first time that task-technology fit was tested using social media as a context. Accessibility and reliability in particular are two variables that have yielded strong results in tests of task-technology fit. This is likely the result of continued improvements in both the technology itself and the network infrastructure that supports the technology. A longitudinal analysis of these variables could be conducted to determine if this is the reason.

Based upon the continuous reports of social media amongst the younger generations in the United States, it is not surprising that ease of use and compatibility contribute to the task-technology fit for the use of social media for coursework. However, this study contributes to the literature on the use and effectiveness of social media because it also demonstrates that in this context students perceive it to provide the right information and that that information is useful.

It is further significant to note that the technology was used not only as a means for students to collaborate with each other and their professor (which would only make it a surrogate for learning management systems), but it also enabled students to reach constituents beyond the classroom to support activities that are an important part of their educational experience. This research supports the contention of Dishaw and Strong (2003) that prior use impacts task-technology fit. One of the advantages of social media technology over learning management systems for freshman students is their familiarity with the technology. The participants identified Facebook as the mostly widely used technology for both personal and course work use. Its worldwide adoption has in part been driven by its ease of use and therefore does not require additional training on the part of the student to utilize. This has been universally acclaimed. This research contributes to the literature by providing empirical support of the task-technology fit for social media technology use in the classroom.

9. FUTURE WORK

One of the limitations of our study was that it only included students from universities within the United States. Further the three universities surveyed were traditional four-year institutions, where the average student's age who took the survey was 20 years old. We would like to expand this study to include international universities and to study of differences exist in both the fit of the technology and how it is used. It would also be interesting to compare these results to universities whose student body was comprised of more non-traditional students. Additionally, our results show a small number of social media technologies comprise the majority of the use. It would be interesting to conduct a more detailed study to determine if significant differences exist between the types of social media technology that are used.

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