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SOCIO-TECHNICAL BARRIERS AND BENEFITS OF LEVERAGING SOCIAL MEDIA WITHIN THE WRITING CENTER AND THE CLASSROOM AT MICHIGAN STATE UNIVERSITY: UNDERSTANDING THE CONFLICTS CAUSED BY DIFFERENT MODES OF PRODUCTION ON GROUP BEHAVIOR

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ABSTRACT

SOCIO-TECHNICAL BARRIERS AND BENEFITS OF LEVERAGING SOCIAL MEDIA WITHIN THE WRITING CENTER AND THE CLASSROOM AT MICHIGAN STATE UNIVERSITY: UNDERSTANDING THE CONFLICTS CAUSED BY DIFFERENT MODES OF PRODUCTION ON GROUP BEHAVIOR

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Social media leverage the group-forming and broadcasting capabilities of the Internet as a platform to create a space for multiple voices to be heard. This thesis addresses the question of what barriers and benefits exist in developing a social media website for the Writing Center at Michigan State University. We present results from a qualitative and quantitative study examining how students and instructors from different writing courses at Michigan State University use the Writing Center social media website within their classroom. We provide evidence that users negotiate multiple environments when using social media within a classroom. We suggest these environments operate within different modes of production; a commons-based peer mode (i.e., social media website) and a hierarchical mode (i.e., classroom). Each mode of production influences the behavior of the user, potentially changing the cost of contribution both in the classroom and online. We suggest that understanding the potential conflicts between these different environments and modes of production is essential when implementing a successful social media website within a classroom.

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INTRODUCTION

The Writing Center at Michigan State University (WC MSU) is seeking to establish an online social media website to facilitate a dialogue about the perceptions of academic writing at MSU. In order to understand the potential socio-technical barriers and benefits of building and deploying a social media writing center website at MSU, a pilot project was developed in partnership with several writing courses at MSU using Drupal, an open source content management platform.

For our pilot project we will consider the way writing is understood and practiced within academic institutions, including writing centers. We will argue for the benefit of having an online space for a dialogue about writing among different university groups at MSU. We will consider how social-technical capital has the potential to provide a useful way of rethinking social relations between groups within the academic institution. Finally we will consider the potential social and technical barriers of building a website that supports group interactions.

Many fields of research contribute to the understanding of the social and technical complexities of developing deploying online social software including writing center theory, computer supported cooperative work, and behavioral economics. We will describe a method of investigating our pilot project, and provide results from surveys, user logs, and interviews collected during the MSU Spring semester of 2009. We will also include a discussion that explores unanticipated behaviors that arose during our research.

1.1 The Distortion of Writing Centers

The way writing is understood and practiced is diverse within academic institutions. Rhonda Grego and Nancy Thompson (2008) listed infrastructure, resources, student body, faculty, and institutional and course histories as some of the contributing factors that influence the diversity of writing within an institution. A consequence of diversity is a discontinuity between the way writing is understood by faculty and administration and how it is practiced by students. Discontinuity is not necessarily negative; however, privileging one way of understanding writing over another becomes an obstacle for the students because it is often their voices that are compromised within the institution.

Writing centers have served as a space to mediate this discontinuity by engaging students individually about their writing through one-to-one conversations. The student-centered approach of the WC MSU often involves beginning with higher order issues (e.g., assignment guidelines, organization, support, voice, and tone) before moving on to lower order issues (e.g., sentence structure, usage, grammar, punctuation, and spelling). Mediating this discontinuity is complicated. Stephen Witte (1987) argued that writing centers exist in a paradox: "We represent the student, not the teacher. We represent the system, not the student. We represent neither, and we represent both" (p. 4).

Writing centers are caught between satisfying the individual needs of students as well as the institutional needs of the university. This paradox can be observed in the one-to-one conversations between writing center staff and students. For example, at MSU, the writing center primarily addresses student writing connected

to course work. In order to pass a class or some other academic requirement, students write to meet the standards of the institution. This puts the WC MSU in a position of engaging in conversations that seek to help the writer improve in order to pass their classes. As a consequence, whether unintentionally or not, the WC MSU potentially favors the institution's position on writing by reaffirming the standards of the institution, while at the same time attempting to support the individual needs of student writers.

A potential consequence of favoring the academic position is the normalization of students to the institutional point of view. According to Nancy Grimm (1996), students are marginalized by the writing center as a result of the normalization process within the academic institution. This is not only bad for student writers, but also bad for writing centers because, as Grimm argued, writing centers become "subordinate" (p. 524) within the hierarchical academic structure, acting to correct students' work within the institutional standard. In this way, Grimm suggested, writing centers "preserve the system by shaping students to suit the system" (p. 533). Despite the WC MSU student-oriented approach to advocate for student voices, the reality is that students and consultants adopt institutional goals, which Grimm referred to as a "distortion" (p. 537) of the writing process.

Despite the distortion, writing centers remain in a unique position to address this marginalization. Grimm identified the unique position of writing centers as a place for students to "negotiate conflicts" (1996, p. 530), and "better understand the cultural assumptions embedded in the educational discourse" (p. 537). Because writing centers exist within the university but outside course instruction,

writing centers have a potentially useful role in addressing this conflict between students, faculty, and administration. Grego and Thompson have identified similar "outside but alongside" (2008, p. 23) "third spaces" (p. 73), which they believe allow university administrators, faculty, student aides (consultants), and students to continually adapt to changing institutional environments with new teaching and learning strategies. The third space approach is the foundation for our social media pilot project. We anticipate our project will enable these groups to negotiate conflicts and address the distortion of academic writing at MSU.

Grimm suggested that writing centers should position themselves, not as subordinate entities (1996, p. 538), but as knowledge-makers and partners in the dialogue with the institution. The WC MSU's founding mission supports Grimm's push for a writing center to be active rather than passive regarding academic writing reform. Patricia Stock, a founding member of the WC MSU described the role of the WC MSU as "promoting sound literacy learning and teaching in the University, but also as an argument for the mission of state and land-grant universities and a case study of education reform in the current era" (1997, p. 11). Grimm suggested this change will happen by creating a space for multiple voices to be heard, thus visualizing the distortion that takes place in writing within the academic system (1996). One way for the WC MSU to promote sound literacy learning is to be proactive in engaging faculty, students, and administration in conversations about the understanding and practice of writing at MSU.

One proactive solution to foster a space for multiple voices to be heard is using online social media. Peter Kollock (1999) suggested that the Internet radically

reduces costs for contribution and cooperation, and increases the usefulness and availability of existing information. Cost can be understood by modeling a variety of behavioral economics such as: social costs (the cost incurred by the individual and the group), transaction costs (the cost incurred by participating in a group), and externalities (the positive or negative effect a decision has on members without their consent). Shirky argued that social media takes advantage of the group-forming and broadcasting capabilities embedded in the Internet, which have not been simultaneously available in previous media (e.g., telephony, television) (2003). The WC MSU website potentially reduces the costs and barriers involved with coordinating multiple groups around a dialogue about writing.

Reducing costs of cooperation also makes a difference, as it provides opportunities to "meet, plan, and discuss" (Kollock, 1999, p. 224) without the constraints of space or time. Kollock claimed that when the costs and benefits are altered, it alters the nature of the public good and the possibilities for collective action (p. 223). Yochai Benkler (2002) characterized this as a distinct, new form of peer production, resulting from a newly-altered transaction cost structure online.

Social media provides a unique opportunity to leverage the group-forming and broadcasting capabilities of the Internet as a platform to create a space for multiple voices to be heard. The WC MSU, as a third space both outside and inside the institution, is in a position to bring together students, faculty, and administrators to negotiate the conflicts arising from the distortion of writing at MSU. We are interested in understanding what socio-technical features potentially support or suppress this conversation. While we believe that online social media

has the potential to position the WC MSU as a knowledge-maker and partner in the dialogue, the starting point for our social media pilot project, in partnership with several writing courses at MSU, focuses on student and faculty groups.

1.2 Computer Supported Cooperative Work

When groups move online, the effects of this new environment on the group are not well understood by researchers (Sunstein, 2006). In order to develop appropriate, useful groupware that supports groups and encourages participation among university administration, faculty, and students, developers need to understand the complex social and technical issues surrounding social software and group interactions. Computer supported cooperative work (CSCW) is a field that addresses collaborative activities of groups supported by means of computer systems (Schmidt, 1991). CSCW is a useful framework for understanding the complex social and technical issues surrounding social software and group interactions. CSCW is commonly divided into four types of group interactions along two dimensions of place and two dimensions of time. Place refers to whether the group work is co-located or geographically distributed, and time describes if individuals collaborate synchronously or asynchronously (Johansen, 1988). Writing center work can be understood as a function of time and space between consultants and students.

A common approach to writing centers has been real time face-to-face conversations. Communication scholarship has favored face-to-face interactions as an ideal form of conversation (Schudson, 1978). Online writing center research has also focused on supporting synchronous face-to-face interactions between

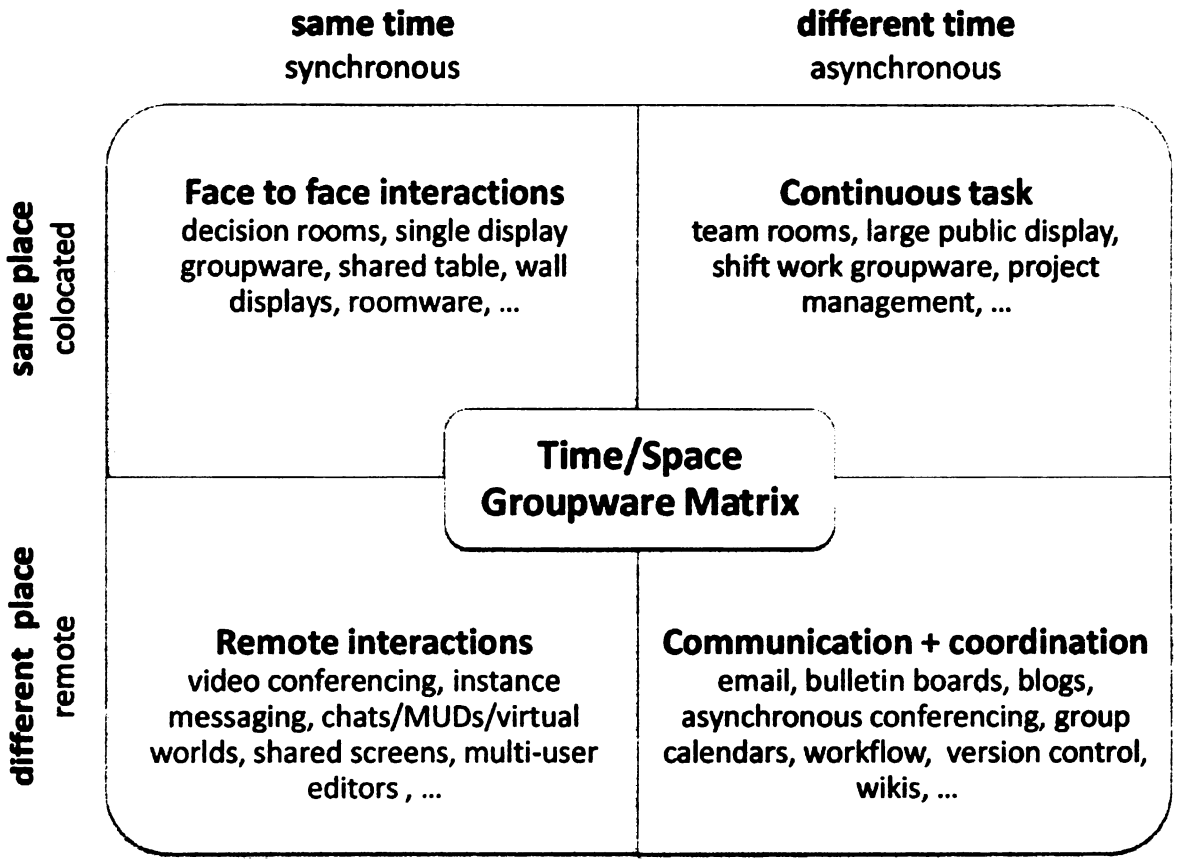

Figure 1. CSCW group interaction patterns along two dimensions: whether collaboration is geographically distributed or not, and whether individuals collaborate synchronously or not. Momo54. (2007). CSCW Matrix. Retrieved from http://en.wikipedia.org/wiki/File:Cscwmatrix.jpg

consultants and clients as a way to offer the same type of client-centered support services to students (Inman & Sewell, 2000); however, a common complaint is that online writing consultations are more difficult for clients and consultants than face to face interactions, because the degree to which the client and consultant rely on each other is high, and communication technologies impede social interactions that come easily in physical environments. Schudson suggested that social interactions can be facilitated by mass media. In addition, Joseph Walther (1996) noted that communication may be more easily enacted via technology. For example, anonymity

might enable people to feel more comfortable asking for help with their writing. So, the Internet, as a layer of communication technology, has the potential to support students beyond synchronous face-to-face interactions.

Our project suggests there are useful interactions for the work of the writing center beyond real time, face-to-face, one-to-one communication between writing center staff and clients. Our pilot project is interested in supporting the communication and coordination of multiple groups and asynchronous distance. CSCW research is well suited to address our project. Due to the relative infancy of this area of research relative to writing center work, the potential benefits and barriers of this type of CSCW need to be considered.

1.3 Benefits of Interaction

1.3.1 Social Capital

Social capital can be defined in multiple ways with different interpretations and uses. For our pilot project, we uses James Coleman's definition that social capital is functionally anything generated by networks of relationships, reciprocity, trust, and social norms that facilitates individual or collective action (2007). Understanding social capital can be useful for our pilot project in order to strengthen existing ties (bonding) between students in the same course and generate new ties (bridging) across courses (Putnam, 2001). Our understanding of social capital aligns with Grimm's perception of writing centers as a partner in the dialogue between the institution and its students.

We also agree with Grimm that writing centers are in an ideal position because

of their ability to "negotiate conflicts" between students, faculty, and administration (1996, p. 530). Grimm may be unintentionally referring to the writing center's ability to generate social capital based on their position inside and outside the institution. Francis Fukuyama (2002) claimed that bridging social capital, which refers to the building of connections between heterogeneous groups, is essential for a strong social capital because it enables connections across borders of all sorts (e.g., students, faculty, and administrators). Our social media pilot project is an attempt to increase social capital by building connections using technology supported social networks. The benefit for the WC MSU is that this social capital has the potential to provide a useful way of rethinking social relations between groups within the academic institution, as well as rethinking what collective action might be possible around a shared understating of writing.

1.3.2 Socio-Technical Capital

Paul Resnick (2002) suggested that technology, when paired appropriately with social practices, might not only increase social capital, but also create the opportunity for new forms of togetherness that are more suited for current lifestyles. Socio-technical capital refers to "the potential value that resides in technology-supported social networks" (Suthers, Chu, & Joseph, 2008, p. 857) He suggested that social media may have a role to play in the formation of new forms of social capital. Resnick gave several specific benefits of socio-technical capital that are relevant to our project: enabling interactions, expanding networks, maintaining histories, and restricting information flow.

1.3.2.1 Enabling Interactions

Online tools enable distance and asynchronous communication which we believe will be important in bringing groups together. Shirky (2005) has described the economic framing of the group organization problem as a coordination cost issue. In a physical world it is cumbersome to bring students, faculty, and administers together as a group in the same time and place. For example, an institution had to be created to coordinate the activities of the group. Coordination costs, Shirky argued, have decreased due to the Internet. This is supported by Jonathan Grudin (1994) who noted that the cost of developing, deploying, and maintaining software that supports group behavior is increasingly less expensive. He claimed that as the cost of developing, deploying, and supporting technology decreases more people have access to these tools in order to communicate. Shirky writes that social media tools are an alternative to institutional organizing because cooperation is embedded in the infrastructure. In other words, group coordination is a byproduct of the system itself. Our pilot project seeks to leverage the coordination capability of the Internet to connect groups and coordinate group action that would otherwise be a burden.

1.3.2.2 Expanding Interaction Networks

More people are online now than ever before. The Pew Internet & American Life Project statistics on Internet, broadband, and cell phone use (Rainie, 2010) reported that 74% of American adults (ages 18 and older) use the Internet, and 60% of American adults use broadband connections at home. Online networks makes it possible to reach larger groups of individuals and share information

quickly. The benefit for our project is that online networks support many-to-many type conversations, allowing people to both contribute (fan-out), and receive information (fan-in) (Resnick, 2002).

Another advantage for our project is that members potentially benefit from these connections because they gain access to different perspectives, new information, expertise, and ideas not available locally. For our pilot project, informal interaction free from the constraints of hierarchy and local rules (Wasko & Faraj, 2005) is also potentially valuable to disrupt the common hierarchical top-down power relationship that exists between administrators, faculty, and students. We believe providing the ability to communicate across courses will demonstrate that students in writing courses will perceive collaborating with students in other classes to be an asset.

Also, Resnick acknowledged that it is often difficult in large groups to know everyone. In a physical environment, information and resource sharing opportunities are potentially lost because the coordination costs are difficult to overcome. For example, at MSU, coordinating the discussion around how writing is practiced and how it is understood has been difficult. In addition, Miller and Shamsie (1996) noted that knowledge is a valuable resource, especially in uncertain environments. It is uncertain the extent to which our pilot project creates the opportunity for groups to overcome the uncertainty of knowing students and faculty who were previously isolated from discussions that occur in other courses.

1.3.2.3 History

Maintaining histories can be useful to contribute to shared knowledge, development of collective identity, and trust (Resnick, 2002). Resnick pointed out that participants can take advantage of a new form of togetherness through visualized interactions (e.g., threaded discussions, comments, user profiles). Much of the current dialogue that the WC MSU facilitates takes place at their physical centers, either individually or in small groups. These conversations are rarely captured, organized, or archived. We believe students will perceive a benefit in our pilot project as it provides an online space that makes it possible for users to access archives, reflect back, and visualize past interactions. For the WC MSU, highlighting connections between people potentially enhances the awareness among group members, creating a positive feedback loop of participation, improving the network, and leading to greater investment in discussions.

1.3.2.4 Anonymity

Discussions of writing within academic institutions will inherently deal with relations of power. Students, faculty, and administrators currently interact in physical space, within formal and informal hierarchies of power. Interactions where the identity of individuals is hidden from each other can allow group members to transcend stereotypes or take productive risks (M. Turoff et al., 2001). Restricting information, specifically identifying information (e.g., name, gender, age), provides opportunities for our pilot project members to speak anonymously. Limited identity may make it easier for students to feel protected while participating a the discussion with authority figures online. A common complaint in many courses is that students

do not feel comfortable speaking. We believe providing anonymity for students will encourage them to participate in ways that otherwise would not happen in the classroom.

1.4 Barriers to Interaction

1.4.1 Individuals vs. Groups

There is no one-size-fits-all solution to building software that supports group sharing and collaboration. Despite the potential benefits for the WC MSU project, this pilot project has identified several possible barriers. One question that arises when creating software to support groups is whether to treat groups as aggregates of individuals or as a single, cohesive unity. Wilfred Bion in his book Experiences in Groups (1950) suggests they are both; humans are fundamentally individual as well as social. Social media must respond to individual and group needs. Grudin notes that developers have a much better idea of how to improve experiences for single users than for groups. Mark Ackerman describes this as a gap between social requirements of groups and what is technically feasible to support them. "Simply put, we do not know how to construct systems that meet these findings" (Ackerman, 2000).

Online social media has lowered the cost of groups to form online; yet it is not clear what technical and social boundaries need to be in place to bring existing formalized groups together within an academic setting. (Shirky, 2010) suggests that groups are different than individuals, because you cannot specify in advance what the group will do. From a social perspective, Bion and Shirky advocate

for established group structures, which describe the norms of acceptable group membership. Both Bion and Shirky have argued that structures actually protect the group from potential problems arising from individual members.

1.4.2 Social Capital

Since there is no agreed upon definition of social capital, there is no widely held consensus on how to measure it or which combinations of strong and weak ties promote a better outcome. Research has shown the difficulty of establishing strong ties (i.e., close relationships) in groupware environments, which has been attributed to lack of cues (Clark & Brennan, 1991; Olson & Olson, 2000). For our pilot project we are concerned that some communication technologies may be useful only to groups of people who have already developed strong ties. It is unclear to what extent people in the same class have developed strong ties.

Social media often create networks which enable users to connect with a larger number of weak ties (i.e., impersonal connections) (Granovetter, 1973) than was previously possible through traditional face-to-face interaction (Donath & Boyd, 2004). Weak ties are commonly cited as important because they provide those involved with a large network of persons on which they can draw for resources beyond those available in one's immediate circle of strong ties (Granovetter, 1973). As Resnick pointed out, the effect is not clear on the gains and losses to social capital when weak ties displace stronger ties. It is unclear whether fostering weak ties will be at the expense of the site's usefulness for students in their courses.

1.4.3 Exception Handling

In the development of social software there is a difference between the way things are supposed to work and the way things actually work (Grudin, 1994). Often groupware is not able to accommodate a wide range of exceptions or improvisations by the users. Exceptions and improvisations, for example, refer to the way a user would normally attempt a task, or how a user might want to use the groupware in unexpected ways. In order to avoid breakdowns in groupware Grudin (1994) suggested learning how work is actually done rather than relying on how people say it is done. For our pilot project we are interested in any unexpected ways students and instructors use the WC MSU website. In order for both individuals and groups to benefit from this website a better understanding of the various social and technical patterns that exist between, and within, these groups needs to be established.

1.4.4 Cost vs. Benefit

Users perceiving a benefit from the use of groupware is also important (Wandersman, Imm, Chinman, & Kaftarian, 2000); however, social media software often requires additional work from individuals in that all group members must use the application. Not everyone benefits (Grudin, 1988). As Kollock suggested, Internet-based groupware radically reduces costs for contribution and cooperation, and increases the usefulness and availability of existing information.

Olson and Olson argued that a culture and incentives needed to be in place to reward collaboration, otherwise group members are less likely to work together; however, behavioral economics research suggests that individual motivations are

not as predictable as we previously thought and that individuals don't always act in predictable ways within groups (Ariely, 2008). What is clear is that unless the benefits are accessible and observable, users are unlikely to choose to continue to participate (Grudin, 1994). Ideally a mix of benefits of participation is available for users, ranging from lightweight to substantive (e.g., reminding members of their benefits and how their participation benefits the group) (Beenen et al., 2004). This mix creates gradients of costs and benefits for the potential user to evaluate. This is supported by Benkler who described in his article "Sharing Nicely" that:

> creative labor in the context of peer production can be harnessed when a project is broken up into discrete modules, whose granularity is varied and sufficiently fine grained to allow individuals with diverse motivations to engage in the effort at levels appropriate for their motivations but still provide stable contributions to the whole (2004, p. 336).

For our pilot project, it important to understand who is doing the work and who perceives benefits from this participation. Unless students accept their membership in the group as having a positive effect they may be unwilling to contribute time or energy to participating in the group. In order to avoid initial transaction costs of participation our pilot project focuses on writing courses at Michigan State University. In addition, we believe that the proximity of the courses to the work of the writing center suggests that the data collected will provide useful results to overall exploration of the ability of the WC MSU site to negotiate conflicts about writing between multiple groups at MSU.

1.4.5 Critical Mass

A potential consequence of misalignment of perceived cost and benefit is not

reaching a critical mass of users required to make the social system self-sustaining and fuel further growth. Critical mass refers to the amount of people or content that needs to be in place for a system to be self-sustaining (Grudin, 1994). Ackerman described this as the melt-down problem (Ackerman, & Palen, 1996)—if the number of active users falls beneath a threshold the group work will not succeed. Grudin notes that critical mass is often a requirement for communication intensive systems. He noted that a few non-users could sabotage the benefits for all users (1994). Participation from a critical mass of students and faculty seems necessary for the success of our pilot project. Otherwise, it may cause other students not to participate across courses.

Phillip Ball (2006) described several social factors influencing critical mass, including the number of participants, interrelatedness, and level of communication in a society or one of its subgroups. A common problem for new social media sites is seeding the site with users and content. In order to have an group of participants with at least a basic level of interrelatedness, our pilot project focused on writing courses, which provided an initial body of student and instructor participants willing to create content around topics about writing.

1.4.6 Social Loafing

Similar to critical mass, social loafing has the potential to reduce any positive feedback effect of users participating, which puts the site at risk of the meltdown problem identified by Ackerman. Although a benefit of participation for students is the value of having their voice heard, if the costs to collaborate or cooperate

is too high then the consequence may be social loafing. Our project is interested in understanding what balance of accountability, goal setting, and attribution is needed to encourage students and instructors to participate.

A common finding in the study of user-generated content is that people exert less effort to achieve a goal when they work in a group than when they work alone (Latané, Williams, & Harkins, 1979). Established explanations for social loafing is that people feel unmotivated when working with a team, because they think that their contributions will not be evaluated or considered (Karau & Williams, 1993; Smith & Kollock, 1999; Ostrom, 1990). This is even more true in social media systems, where large audiences may increase the trend to social loafing when people know they are not going to be accountable for their actions or performance. Bibb Latané (1979) suggested that attribution and equity (making a user's unique contributions visible to themselves and others), goal setting (assigning each member special, meaningful tasks), and contingency between input and output (making people accountable for their performance) also affects social loafing. It is unclear to what extent, with our project, accountability, goal setting, and attribution will effect participation with our pilot project.

1.4.7 Common Ground

Common ground refers to the to the knowledge that group members have in common (Olson & Olson, 2000). For our pilot project it is important to explore what technology and collaborative common ground exists between participants and where the breakdowns in shared goals exist. Common ground is important, especially

with asynchronous group work. We are interested in what conditions need to be in place for students and instructors to feel they want to participate and whether or not participants have the technical proficiency to use the communication tools. As mentioned previously, reports from Pew suggest that students and instructors are proficient in using social media tools; however, the level of readiness each group brings is unclear.

Olson and Olson described collaborative readiness as whether or not a group is predisposed to a "culture of sharing and collaboration" (2000, p. 23). A group with a history of sharing potentially lowers the barrier to introducing groupware solutions. Even if groups are ready to participate, groups themselves do not always have shared goals, values, knowledge, meanings, or histories (Boland Jr, Tenkasi, & Te'eni, 1994; Malone & Crowston, 1994). Groups members often have hidden agendas or multiple goals. The work gets accomplished even though there is not always a shared understanding (Kling, 1991; Suchman 1987). It is unclear with our pilot project whether or not writing courses have enough similarity to be sufficient to generate a culture of shared communication

Technology readiness refers to the technology habits of individual group members. Group members with a history of adopting new technology tend to be less inhibited by the introduction of groupware. Our belief is that social media tools, like blogs, are common enough among students that the barrier to participate is low.

1.4.8 Anonymity

Although, anonymity provides potential benefits, it also creates potential barriers to participation specifically with respect to reputation. Freidrick and Resnick (2001) noted "repetition causes people to cooperate in the present in order to avoid negative consequences in future interactions with the same people" (p. 2) Reputation is value in online conversations because without identity it can be difficult for students or instructors to generate reputation and be willing to interact with others. In our pilot project we are interested in the extent to which anonymity affects reputation and the potential to encourage social loafing, discourage attribution and accountability, and the development of weak ties. We are concerned that anonymity might also affect common ground within and across courses by limiting students' ability to find classmates' work or relevant work across courses.

1.5 Modes of Production

1.5.1 Markets and Firms

For decades our understanding of economic production has been that individuals order their productive activities in one of two ways: either as employees in firms following the directions of managers, or as individuals in markets following price signals. Markets in early twentieth century economic theory were typically understood to be isolated, and mainly guided by prices. The conventional economic thinking of the time suggested that because markets were efficient it should always be cheaper to contract out than to hire for the creation and distribution of goods. Economic theory shifted during World War I, as noted by Ronald Coase

in the Nature of the Firm (1937), when it became increasingly clear that perfect competition was no longer an adequate model of business (i.e., firm) behavior. He described a number of transaction costs to using the market. His notion was that the cost of obtaining goods or services was actually more than just the price of the goods. Coase identified that costs, including search and information costs, bargaining costs, keeping trade secrets, and policing and enforcement costs can all potentially add to the cost of procurement. He suggested that firms, as a second mode of production, would rise over a market when they can arrange to produce what they need internally and somehow avoid these costs. Of course Coase did not invent a second mode of production, but his work suggested that our explanations, not our behaviors, were unable to adequately account for the what was going on.

1.5.2 Commons Based Peer Production

Markets and firms have provided a general mode for understanding production and transaction costs and have been a useful tool in understanding the hidden costs of production. Yochai Benkler (2002) further questioned the rigid distinction between firms and markets. He introduced the concept of commons-based peer production, which describes a model of economic production in which the people are coordinated (usually with the aid of the Internet) in large, meaningful projects without traditional hierarchical organization.

Non-hierarchy production modes have existed for a long time, referred to as a commons. Elinor Ostrom (1990), for example has studied common pool resources, which describes a system of social arrangements regulating the

preservation, maintenance, and consumption of a human-made good. Online, commons exist often for the purpose of providing freely accessible information as well as opportunities to collaborate and share. Commons exist in various forms, often categorized along two properties: subtractability (does use by one person limit the use by another?) and exclusion (is this group opened or closed, either through membership or another imposed cost?) (Hess & Ostrom, 2007, pp. 8-10; Ostrom, 1990, pp. 30-33).

Benkler argued that commons-based peer production does not rely on prices or hierarchies as the primary incentive for resource allocation (2002). For example, an online commons like Wikipedia is both nonrival and non-exclusive and often referred to as a public good. Benkler provided many examples of commons-based modes of prodcution that already exist online, including GNU/Linux operating system, the Apache web server, Perl, sendmail, and BIND. Benkler claimed that the Internet has become a platform for overturning our previous assumptions about modes of production, specifically common pool resources. Just as Coase's firms emphasized the inadequacy of existing theories of economics, social media models have increasingly made it clear that markets and firms do not represent the entirety of modes of production. Benkler noted in Coase's Penguin (2002):

> [commons-based peer production's] central characteristic is that groups of individuals successfully collaborate on large-scale projects following a diverse cluster of motivational drives and social signals, rather than either market prices or managerial commands.

Benkler (2006) noted that voluntary contribution to a group was connected to personal motivations such as autonomy and competence, and social motivations

around connectedness and generosity.

1.5.3 Conflicting Modes of Production

Ostrom (1999) demonstrated that people are successful at managing resources on their own, rather than be managed by market or government forces, which suggests that in some cases a group using a resource can manage it better than either the market or the state. The idea is that groups that manage their common resource problems assume a shared commitment to a norm of cooperation. Ostrom acknowledges that commons are not panaceas. Mapping the optimal production model is an essential aspect of the success of a group production.

Shirky (2010) noted that different modes of production rely on different signals. For example, systems that rely on price signals or oversight to coordinate participant effort rely on a different set of motivations. It is unclear what combination of personal and social motivations need to be in place for our group to work as a commons.

In addition, how multiple modes of production conflict is not well understood. As Shirky pointed out, systems designed to promote certain modes of production risk crowding out benefits offered by other modes of production. He argued that assumptions of selfishness crowd out solutions that could arise around joint agreements between autonomous people. British social scientist Richard M. Titmuss came to a similar conclusion over 30 years ago, which he published in a well known study about blood donors (1971). Titmuss argued that the introduction of payment to blood donors could be counter-productive. Altruistic donors defected and were

substituted by donors solely interested in the monetary rewards. Titmuss claimed that American efforts to collect blood for transfusion were defective because they were debased by commerce. Although the theoretical possibility of crowding out is accepted among economists, many of them, however, have been critical about its empirical relevance (Carlson & Spencer, 1975). The point is that different modes of production can have a significant impact on the motivations and behavior of people. When multiple modes of production interact simultaneously there is not a clear understanding of how different structures affect each other. For our pilot project we are unsure to what extent the website, which supports commons-based peer production, potentially conflicts with the traditional hierarchy of the classroom.

1.6 Research Questions

Writing centers, because of their established position and mission within the institution, are positioned uniquely to explore the potential of online social models designed to address the distortion of writing within the academic institution. Asynchronous social models provide unique benefits for the WC MSU to overcome previous limitations of physical space and provide alternative models to synchronous consultations that have been the focus of online writing center research. Barriers to interaction also need to be addressed. These barriers are often contextual to the space and group being explored. In the pilot portion of this project we explore the socio-technical barriers and benefits to interaction in order to address whether a social model is applicable to the Writing Center website at MSU, and whether this model can scale to address the bigger issue of creating a space to discuss the

distortion of writing at Michigan State University. In the next section the pilot project will be discussed, including several writing courses that participated in the project and a description of the techniques used to collect data for the project.

METHODS

In the Spring of 2009, an exploratory case study of the WC MSU website was conducted across seven writing courses and 97 participants in the College of Arts and Letters at Michigan State University using surveys, semi-structured interviews, and weblog tracking.

Case studies are useful when there is a desire to understand complex social phenomenon (Yin, 2002). For this pilot project we were interested in collecting data about how work was structured, what types of interactions mattered to users, interpersonal relations between groups, and how these attitudes and behaviors shifted over the course of the project. A case study approach allowed the opportunity to explore questions of how and why participants behaved the way they did, capture data about contemporary events, and observe without controlling for the behavior of the participants. A multi-method approach (including surveys, user tracking, and interviews) was designed to collect this data because no single method provided the holistic approach necessary. Also, a multi-method approach increases case study validity through triangulation of the data collection.

2.1 Website Platform

In the Spring of 2007 the WC MSU began developing a website using Drupal, an open source content management platform. Drupal provided a web development framework in which to easily create a rich collaborative enviroment for users to interact on. Drupal was chosen as the web development framework to build the pilot

project on because it was easy to administer, it was extensible (plugins available to extend Drupal's core functionality), and scalable (can handle large amounts of users). Because the WC MSU is responsible for maintaining and extending the site, it was essential to use a framework that did not require significant programming experience, which was not available to the Center. Drupal's extensive module library meant the site could be customized fairly easily with limited programming knowledge. Anticipating the future needs of the WC MSU was important and Drupal has a strong community of developers to support future expansion of the WC MSU site.

2.2 Site-Enabled Opportunities

In order to keep the scope of the project narrow for this study, we focused on the blog section of the site. The blog section consisted of a set of features (some built into Drupal, and some configured specifically for the WC), which enabled several social capital affordances to create opportunities for new behaviors and attitudes to emerge around the issue of academic writing. All courses participating on the WC MSU website incorporated the blog section into their syllabus. Below are the features that compose the blog, including a discussion of the socio-technical barriers and benefits they addressed for this project.

2.2.1 Content Creation

Providing multiple ways to create content (gradients) lowers the cost for users to participate. Users had the ability to create new posts and receive feedback (comments), which enabled the many-to-many conversations that are common

across social media software. Commenting specifically enabled interactions within and across courses that otherwise would be cumbersome or obsolete. Threaded comments maintained history by visualizing interactions within a post.

Making it easier to compose content within the site also lowers the cost of contribution. A WYSIWYG editor provided basic text manipulation (e.g., bold, linking, lists) in order to lower contribution costs by bridging the gap between on- and offline writing. In addition, users had the ability to edit and delete their own content, another element that lowered contribution costs.

2.2.2 Anonymous Username

Usernames were set by students, which allowed them to choose individual levels of anonymity. Within each course it was at the discretion of the instructor to override this in their syllabus. Anonymity lowers the social cost of participation by making it easier for people to feel safe when creating content. Anonymity allows users to transcend stereotypes that might exist in the physical classroom and encourages productive risk taking in student writing. Similar to gradients of participation, usernames allow gradients of anonymity, providing students with a spectrum of identity to participate within. For example, a student using his last name would be semi-anonymous in a course where students engange only on a first name basis. Regardless of the gradient of anonymity, user contributions were uniquely visible to the group to address issues of attribution and social loafing. Posts and comments displayed meta-data of the content, including the contributing author.

2.2.3 Custom Views

Custom views helped filter content in relevant ways for users, addressing issues of social loafing and coordination costs. Coordination costs were lowered by making content easily accessible to users. Views were not grouped by course. Combining profiles with tagging encouraged users to discover content across courses. Initial views were created to display recent posts, recent comments, popular posts (an algorithm that took into account the number of user views and comments), and user specific content (profile). This enabled interactions across time and space that would otherwise be cumbersome.

Profiles also addressed social loafing issues by visualizing the participation of users. For example, users could be held accountable for not participating because their profile would clearly show less posts than other users.

2.2.4 User Profiles

The profile view made visible the contributions of individual students (teasers of posts and comments) as well as basic usage statistics of the site (member since date, last login). This profile view enabled students to visualize the progression of their work, refer back, and access referenced content (comments to their posts) easily. Profile content was linked back to original posts. Linking lowered coordination costs, allowing users to jump back and forth between user profiles and related content.

Although profiles were primarily developed to benefit the profile's owner, instructors and other students also benefited from this specific aggregated content,

since user profiles were viewable to all users across courses. For example, instructors could use views to keep track of student posts.

2.2.5 Tagging

Tagging was introduced as a way to lower the costs of coordination and build social capital. Tags were not course specific, which encouraged a rethinking of social relations around how social connections are made across courses. Lowering the cost to categorize content encouraged coordination. Free tagging (as opposed to pre-determined categories) allowed students in the same class to find each other quickly (strong ties), and also encouraged searching across other courses (weak ties). To encourage tagging, an AJAX search query was implemented, which suggested potential tags in real-time based on user input. Students creating content could organize it in relevant ways (e.g., by course, by topic). Multiple ways to access content also lowered coordination costs. making it easier for the creators and users to refer back to content. "Tag Views" generated custom views based on tags to display related posts to users.

2.2.6 Who's Online

In addition to displaying the history of user interactions through custom page views, a feature called "Who's Online" displayed real-time presence of users, listing all the users currently logged into the site with a link to their profile. Visualizing users on the site in one place establishes a common ground of participation and addresses social loafing by signaling when other people are on the site making contributions. A rethinking of social issues around writing is also encouraged as

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users across courses were visible to each other with links to encourage searching of user profiles.

2.3 Participants

In order to populate the site with real participants and avoid potential critical mass issues, our pilot project focused on students in undergraduate writing courses in the College of Arts and Letters at Michigan State University as the target audience for this case. This group was chosen due to their profile as typical clients of the WC MSU (Appendix 3). In order to maintain consistency between courses in our case study we chose not to pursue courses outside the College of Arts and Letters.

E-mail messages were sent to instructors who were known to be teaching a writing course in the upcoming semester prior to the the beginning of classes in December of 2008. The e-mail introduced the website and asked for their participation during the semester. Course instructors were recruited to use the WC MSU website blog feature to supplement existing course work. Each instructor was free to integrate the blogging activity differently to meet the needs of their particular class. Although suggestions were offered, how to incorporate the blog into their course syllabus was up to the discretion of the instructors.

2.4 Capturing Data

We believe that the combination of multiple observations, theories, methods, and empirical materials, can overcome the weaknesses or intrinsic biases that arise from single-method, single-observer, and single-theory studies. Both qualitative and quantitative methods were used to capture data about the course blogging

feature in order to cross examine the data collected and increase the credibility and validity of the results in the study. We used these methods with the intention of capturing both what people did (user logs and interviews), as well as the feelings and perceptions of students and instructors (surveys and interviews). Data was collected from student surveys, student and instructor interviews, and user logs of student use on the site. No data was collected during class sessions. Despite the use of human subjects in this study we were exempt from IRB. Data collected was kept confidential and any identifiable information about the students or instructors has been removed or altered.

2.4.1 Surveys

Surveys were chosen to collect data about students including: demographic information, writing attitude, attitude toward the Center, attitude toward online writing. A voluntary 40-question Likert-scale survey was distributed at two periods during the study. The first survey was sent out to participating courses before students used the site at the beginning of the semester. The second survey was distributed to participating courses near the end of the semester. Surveys were conducted by a member of the research team or by the instructors. Students could opt out simply by not completing the survey.

Surveys were analyzed using visual and non-visual statistical techniques comparing individuals and courses. An exploratory data analysis (EDA) approach was used to examine survey data results in order to uncover underlying structures and detect outliers and anomalies (Tukey, 1977). EDA was useful in order to keep

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an open mind while examining data. T-tests were used to look between groups to determine if there was a significant change from the first to the second survey. Correlations were used to explore relationships between questions and to consider whether questions tapped into underlying constructs.

For our case study, we consider the following chart (Figure 2) to when considering our effect size as a measure of the strength of the relationship between two variables. We use a conventional criteria (i.e., none, small, medium, or big) (Cohen & Crabtree, 2008) for interpreting the strength of the the relationship between variables. For our case study, we consider medium and big correlations to be a significant result.

Table 2.1 Correlation effect size table to determine significance of results.

Correlation	Negative	Positive
None	−0.09 to 0.0	0.0 to 0.09
Small	−0.3 to −0.1	0.1 to 0.3
Medium	−0.5 to −0.3	0.3 to 0.5
Big	−1.0 to −0.5	0.5 to 1.0

2.4.2 Interviews

Interviews provide insight into the rationale for user decisions and perceived causal inferences unavailable to surveys or user logs. We chose interviews as opposed to direct observation because of cost, convenience, and to avoid observation manipulation. Students were given the opportunity through the surveys to participate in interviews by including their e-mail address on the survey form. Their e-mail address was not used for any other purpose in the study other than

contacting students for interviews. Near the end of the semester, e-mails were sent out to instructors and students who agreed to be contacted about participating in follow-up interviews about their experience blogging on the WC MSU website.

Three rounds of e-mails were sent out to remind students of the interview schedule. Instructor interviews were set up when convenient for the instructors. Interviews were scheduled in the final weeks of the the semester after the users had completed the majority of the blog activity. Due to the additional effort requested of students to participate in the interviews during finals week at Michigan State University, a $10 incentive was provided to students who were interviewed. No incentive was offered for faculty.

Interviews were conducted at the Writing Center using a semi-structured method, which was flexible, less intrusive, and encouraged a two-way communication. A semi-structured method was appropriate to allow for the potentially different objectives each course had for using the site. In this way, we were hoping to not limit users to a pre-set range of responses based on their experiences. A moderator guide was developed based on the data collected from surveys and user logs, but interviewees were encouraged to ask questions of the interviewer, allowing interviewees the freedom to express their views in their own terms as well as have new questions brought up during the interview as a result of what the interviewee said. (Cohen & Crabtree, 2008). This approach clarified the meaning of the responses, increasing the validity of what the interviewees intended to say.

Interview data consisted of moderator notes as well as audio recordings and

transcriptions for reference. Interviews were recorded with a Zoom H4n recorder and transcribed using Mechanical Turk, an online marketplace for work offered by Amazon.com. Transcriptions were prepared by splitting raw audio clips into five-minute segments, which were posted online. Transcribers were offered a $2 payment per transcription. Precaution was taken to anonymize audio files before making them available online. Interviews were analyzed to identify various socio-technical benefits or barriers.

2.4.3 User tracking

One of the problems of conducting case studies of online activities is the geographic distribution of the work. User logs are informitive because they allow data to be collected about users unobtrusively over an extended period of time and, unlike surveys, user tracking is not subject to user bias. User logs help establish a timeline of user activity, establish key periods of site use, and identify individual and group usage patterns.

In order to reduce installation and configuration issues, user logs were collected using Drupal's built in Watchdog module. Watchdog's tight integration with the Drupal platform reduced performance concerns about using third-party user tracking software such as Javascript page tagging, which requires browsers to have JavaScript enabled, has potential firewall or privacy network issues, and may contribute to slow page loads.

We analyzed user logs visually and statistically. Using online visualization software Many Eyes, block histograms and treemaps were created in order to review

distributions of individual questions and analyze relationships within the user data.

Scatter plots were also created to visually evaluate correlations.

RESULTS

Seven instructors responded to the initial request for participants in the pilot project. All of the instructors who responded were invited to participate. Six Writing Rhetoric and American Culture courses and one English course were included in the project with a combined total of 97 students. Instructors participated in various ways with the project. Agnes (AL 201), George (WRA 110), Sammy (WRA 110), and Helen (WRA 395) integrated a blogging activity into their courses using the WC MSU website. One instructor, Monty (WRA 150), had already committed to using Wordpress, a free online content management system, for his course that semester. Beverly (WRA 110) used ANGEL, which is education-specific course management software supported by MSU, for her course. Although the WC MSU's website was an optional place for discussion no students from Beverly's class created accounts on the Writing Center site. One instructor, Vivian (ENG 313), chose not to use any online social software in her course.

As a result of the various levels of participation, not all modes of data collection were successful across all courses. The table below (Table 3.1) indicates whether or not data was collected for a particular course. Pre-survey data was collected across all courses. User log data was only collected for courses which used the WC MSU website (Agnes, George, Helen, and Sammy's courses). User data was not available from Wordpress.com or ANGEL. Interviews were opt-in. As a result, student and instructor data from interviews was collected for five of the

seven courses (Agnes, Beverly, Helen, Monty, and Sammy's courses for a total of 12 students and five instructors). Post-survey data was collected from all courses except WRA 150 (George's course). Time constraints hindered George's ability to distribute the survey. Due to the lack of data collected for certain courses (Agnes, Beverly, George, and Vivian's courses), only those with enough data to triangulate results (Helen, Monty, and Sammy's courses) between the surveys, the user logs, and the interviews are described in detail in the results below. When describing survey results and user tracking across courses then all courses will be included.

Table 3.1 Data Collection Among Course Groups

Data Type	Groups						
	Agnes	Beverly	George	Helen	Monty	Sammy	Vivian
	AL 201	WRA 110	WRA 110	WRA 395	WRA 150	WRA 110	ENG 313
Pre-Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Post-Survey	Yes	Yes	No	Yes	Yes	Yes	Yes
User Log: Instuctor	No	*	Yes	No	*	Yes	*
User Log: Student	Yes	*	Yes	Yes	*	Yes	*
Interview Instuctor	No	No	No	Yes	Yes	Yes	No
Interview: Student	Yes	Yes	No	Yes	Yes	Yes	No

Note: Survey data was collected only for students
* Refers to data collection that was not applicable to the course group

Some instructors required meetings before the semester began to discuss the potential use of the WC MSU website in their course (Beverly, George, Helen, and Sammy). Two major concerns for instructors arose. First, instructors were

concerned about how to incorporate the website into their course. Some instructors requested a presentation for their class about how to blog (Bevelry, George, and Helen), which was incorporated with administering the survey to students at the beginning of the semester. Another concern was content privacy for their students. No instructors refused to participate; however, Beverly, chose to make the blogging on the WC MSU website optional due to the sensitive topic of race and ethnicity in her course. She used ANGEL (MSU's course management software) for the required class discussions due the security of keeping posts hidden from those not enrolled in her class.

The data presented below is grouped by course. Although courses share many similarities in their focus on writing, the cultural and pedagogical differences of each classroom make generalizing across courses difficult. Where appropriate, a "naturalistic" generalization (Stake, 1995) based on the "harmonious" relationship between the experiences of collecting the research and the data itself will be used to look across courses and facilitate a greater understanding. Some data (survey and user logs) is useful to draw conclusions across courses. In those instances data will be presented as an aggregate.

3.1 Combined Course User Tracking Results

Forty-seven users across three courses (Agnes, Helen, and Sammy's courses) were tracked over a period of four months (January through April, 2009). A total of 6,186 clicks were recorded with an average of 131.62 clicks per user and 32.91 clicks per month. Students in George's course also used the site and were tracked;

however, due to the lack of post-survey results, it was decided that his course would be dropped from the tracking analysis.

Accounting for the difference in the number of students in each course, Helen's students were the most prolific on the site, including: clicking on blogs, editing content, deleting content, submitting blogs, clicking in forums, clicking on users, and searching using the tag feature. Sammy's students were most active in clicking on comments, looking at previews, and viewing "recent posts." Agnes' students used the search tool the most, visited the wiki section of the site, and encountered the "page not found" error the most.

Table 3.2 Writing Center Website Content View Totals

Content Views	Courses		
	Helen WRA 395	Sammy WRA 110	Total (All Courses)
Create Blog	216	442	864
Edit Blog	116	43	230
Delete Blog	2	2	4
View Blog	403	821	1622
Comments	27	282	336
Login	100	185	372
Page View	57	14	151
Forum View	16	5	33
Profile View	129	203	476
Search	36	61	183
Category Search	25	59	104
Access Denied Error	8	7	23
Page Not Found Error	26	5	64
Course Total	1161	2129	4462

Note: Survey data was collected only for students, not instructors

Table 3.3 Writing Center Website Content View Totals Averages (Avg)

Content Views	Courses		
	Helen WRA 395	Sammy WRA 110	Total (All Courses)
Create Blog	21.6*	17.7	18.4
Edit Blog	11.6*	1.7	4.9
Delete Blog	0.2*	0.1	0.1
View Blog	40.3*	32.8	34.5
Comments	2.7	11.3*	7.1
Login	10*	7.4	7.9
Page View	5.7	0.6	3.2
Forum View	1.6*	0.2	0.7
Profile View	12.9*	8.1	10.1
Search	3.6	2.4	3.9
Category Search	2.5*	2.4	2.2
Access Denied Error	0.8*	0.3	0.5
Page Not Found Error	2.6	0.2	1.4
Course Total	116.1*	85.2	94.9

* Refers to the highest total average for that category among all courses

During the process of collection, data updates were implemented to respond directly to student and instructor concerns and needs. This activity changed the nature of the study. For example, two prominent issues were server response time and the lack of course specific web pages for students to see who posted new content from each class. Rather than leaving these issues unresolved, they were fixed. Server configurations were adjusted and a tagging feature was implemented for students to be able to organize content by course-specific tags. As a result, the descriptions of the WC MSU website and courses should be viewed as moments in time and not generalized to all writing center websites.

3.2 Combined Course Survey Results

3.2.1 Pre-Survey Results

Students who indicated they were interested in taking the class (Q7) correlated to those who were willing to schedule an appointment at the Writing Center (Q9) ($p=0.00$, $r=0.419$) and spend time to improve their writing (Q12) ($p=0.00$, $r=0.444$).

Also, students who believed MSU had a positive impact on their writing (Q11) correlated to those who indicated they would seek help with their writing (Q20) ($p=0.00$, $r=0.426$), as well as to those who had other students they trusted to help them with their writing (Q10) ($p=0.00$, $r=0.441$). This suggests that the perception students have of their writing is important for their perception that the WC MSU would be useful.

Students who indicated they had improved their writing at MSU (Q22) also correlated to those who had other students they trusted to help them with their writing (Q10) ($p=0.00$, $r=0.713$). This suggests that making meaningful connections with people about writing is important to the students' perception that their writing will improve.

Students who indicated they benefited from their classmates' participation (Q19) correlated to those who believe their classmates benefited from their participation (Q31) ($p=0.00$, $r=0.436$). This suggests that students are interested in reading content from others in the MSU community.

3.2.2 Post-Survey Results

In the post-survey results, students who believed MSU had a positive impact on their writing (Q11) remained correlated to those who had other students they trusted to help them with their writing (Q10) ($p=0.00$, $r=0.505$).

Students who indicated they would ask a question about writing online (Q16) correlated to those who would answer someone's question online (Q25) ($p=0.00$, $r=0.424$). This suggests that those who are willing to help others are also likely to seek help themselves.

Students who indicated they participate in class discussions (Q8) correlated to those who believed that their classmates benefited from their participation (Q31) ($p=0.00$, $r=0.573$). This suggests that people participate when they perceive their contributions are useful to the group.

Students who indicated they benefited from their classmates' participation (Q19) remained correlated to those who believe their classmates benefited from their participation (Q31) ($p=0.00$, $r=0.468$).

Students who indicated they would read a blog written by an MSU student (Q38) remained correlated to those who indicated they would read a blog written by an MSU faculty member (Q40) ($p=0.00$, $r=0.649$).

3.3 Case Studies

Five faculty and 12 students were interviewed using a semi-structured method. Interviewees were encouraged to express themselves using their own terminology and experiences. Students and instructors from five courses (Agnes, Bevelry, Helen, Monty, and Sammy's courses) participated in the interviews. Interviews helped

identify various socio-technical benefits and barriers to participation on the WC MSU website. As mentioned above, due to the lack of supporting data to triangulate results, only student and instructor interviews from Helen (WRA 395), Monty (WRA 150), and Sammy's (WRA 110) courses are used in this study. Below is a summary of the interviews including course-specific survey and user tracking results where applicable.

Table 3.4 Demographic Survey Results

Demographic	Course		
	WRA 395	WRA 150	WRA 110
Students Enrolled	12	25	20
Gender			
Male	2	12	13
Female	10	13	7
Age			
18-21	12	25	20
22-24	0	0	0
Class			
Freshman	2	22	17
Sophmore	3	3	2
Junior	4	0	1
Senior	5	0	0
GPA			
0-2.49	1	0	3
2.5-2.99	1	6	5
3.0-3.49	5	6	8
3.5-4.0	5	13	4
Ethnicity			
Caucasian/White	12	15	16
African American	0	0	0
Native American	0	1	0
Asian	0	8	3
Pacific Islander	0	0	0
Hispanic/Latino	0	1	1
Multiracial	0	0	0
Non-Native Speakers	1	9	2
Degree Requirement	1	21	15

3.4 Case 1: Sammy's Course (WRA 110)

Twenty-five students were enrolled in Sammy's course focused on science and technology writing. According to the survey data (20 students) Sammy's class was predominantly Caucasian male freshmen, with GPAs evenly ranging between 0 and 4.0. Students were all in the same age group and most students responded that this course was required for their degree (TABLE 3.4). Three students volunteered to be interviewed about the their experiences using the WC MSU website: Odelette, Lucina and Cai. Sammy was also interviewed.

In conversations with Sammy about the syllabus, it seemed that he intended to use the site to strengthen the existing ties among students, and even though the site offered the ability to interact with other courses and other site participants, he determined that he did not want to focus on developing potential new ties across courses. Sammy used the site as a collaborative freewriting exercise about science and technology issues to encourage frequent writing and help students connect with each other online. Sammy explained in his interview that he was lenient with holding students accountable for specific topics. Requirements were loose. Sammy allowed students to write about topics that interested them, in some cases even if they were not writing about science and technology topics.

3.4.1 Common Ground

Pre-survey results indicate students had common beliefs ($1.1 > M > 3.9$) about several general writing questions. Students were interested in taking this course (Q7) ($M=3.90$, $SD=0.72$). In addition, students agreed strongly about

collaborating with others. Students responded that they valued what others had to say (Q30) (M=4.10, SD=0.64). Students indicated that they benefited from their classmates participation (Q19) (M=4.10, SD=0.31), and indicated they would spend time to improve their writing (Q12) (M=4.05, SD=0.51). Also, Sammy's students did not perceive themselves as strong writers. Post surveys indicated that students who expressed that writing came easily (Q17) (M=3.35, SD=0.75) strongly correlated to their agreement that they were good writers (Q15) (M=3.67, SD=0.67) (p=0.001, r=0.495).

3.4.2 Technology Readiness

Despite negative perceptions about computers, technology readiness was not a barrier for students. All students responded on the survey that they had created a blog in the past (Q2) (M=1.00, SD=0.00). Each mentioned the blog feature on the site as being easy to use. Despite Odelette's dislike of computers, she did not have a problem doing the blogs. "I am terrible on computers and I had no problems." Lucina mentioned that it was difficult to make her way around the site, especially because she was only on it once a week. "I'm not good at computers really, so it's probably my fault."

3.4.3 Expanding Interaction Networks

Although, students had the ability to "fan out," the distributed content was not always helpful to the group and influenced the cost of contribution. This created an issue for some students with finding meaning in the work. Lucina mentioned that her classmates were not writing about environmental topics, which was originally

assigned in the syllabus. She was frustrated that there was not defined topics to write about. "He would sometimes give us a topic, but then he'd like sometimes wouldn't, and we just had to find our own topic."

Collaboration readiness within and across courses was mixed. Surveys and interviews indicated a contradiction between what students said and what they did. For example, the pre-survey indicated that students who believed MSU had a positive impact on their writing (Q11) (M=3.85, SD=0.49) correlated with those who believed that there are students at MSU who they could trust to get help with their writing (Q10) (M=4.05, SD=0.51) (p=0.013, r=0.386). This signifies that students had a broad sense of who could help them with their writing. In addition, the pre-survey showed that students believed classmates benefited from their participation (Q31) (M=3.70, SD=0.57) was correlated to their belief that they benefited from their classmates participation (Q19) (M=4.10, SD=0.31) (p=0.044, r=0.317). Although this was lower than the aggregate across all courses (p=0.00, r=0.436), this indicates that students had initial expectations of gaining from various interactions with their peers, as well as a positive perspective about their own participation in the class; however, within the site, students only participated with their classmates (strong ties), and in some cases, only with friends, and not across courses (weak ties). This is supported by interviews, which showed that all three students considered only their classmates to be relevant participants on the WC MSU website. In addition, despite the ability to talk to an expanded network of students, Sammy noticed that some students clustered in groups online, only commenting on the posts of a few friends from class; however, this was not

confirmed in the student interviews.

Odellete had mixed feelings about the website being helpful, saying:

> I don't think it really did much to improve my writing.... I think I did benefit from doing the blogs because I also got to see my classmates' blogs. Reading those and commenting on those and then, in addition to that, a few times, maybe a couple of times, I had talked about what we did in class in my blog.

One reason for feeling that the website was not helpful might be that students did not perceive value in the content. For example, Odelette thought that no one outside of MSU would look at the posts, even though she liked reading her classmates' blogs. She said:

> I definitely felt like it was just me, like Michigan State University, there would be no one outside of that, and I also felt like it was more just WRA classes, it was for courses, so it wasn't...some websites like Twitter, anyone can see that. It's very...you know who's going to look at it, or who would be on that site.

She felt the blog was independent activity. Odellete and Cai both mentioned that class conversations influenced what they wrote online. Odelette said, "For the couple that I did do that on, they definitely did influence what I wrote because of what they brought up in class." Cai also was influenced more by the class discussion than the posts, "I found myself maybe sometimes referring to what the class said earlier on in the day. I never really went through and read someone else blog then wrote mine." Lucina expressed that her friend's posts influenced her blog submissions. "I had a friend on there, and I used to go on hers a lot. I would base sometimes off what she wrote, what I would write. She would give me ideas or something so it helped me."

3.4.4 Social Loafing

Surveys and interviews indicate that social loafing affected collaboration. Pre-survey results showed that students who were positive about spending time to improve their writing (Q12) were correlated to those indicating interest in taking the class (Q7) ($p=0.008$, $r=0.412$). In addition, pre-survey results suggested that students believed that class assignments made them a better writer (Q13) ($M=4.00$, $SD=0.56$); however, students were less positive about about whether posting online made them better writers (Q26) ($M=3.20$, $SD=0.70$) ($p=0.020$, $r=0.363$). Sammy noticed a handful of users were prolific content creators, though this condition did not translate specifically to students who excelled overall in his class. Few students completed their required posts on time, or at all. On average, each student in WRA 110 contributed roughly 17 posts and 11 comments over the course of the semester (Table 3.3).

No group structure of participation was developed among students, including a system of accountability for not posting content. As a consequence, students frequently posted at different times, creating the perception that there was not much interaction on the WC MSU website between students. Cai mentioned that many of his classmates were playing catch-up because they were not consistently posting every week, which made it difficult to get use out of their posts for class. In addition, infrequent posts created a paradox for students who used existing content for inspiration in their own writing. The cost of contribution was increased for Cai who was often frustrated because he did not know what to write about. Sammy encouraged the lack of goal setting and accountability with his leniency.

As expected, language was a barrier to participation for those whose first language was not English. Students who indicated that they would blog if they were better writers (Q32) (M=2.92, SD=1.08) was correlated to those who answered that English was their second language (p=0.007, r=0.413). This implies that language might be an prohibitive factor in readiness to participate online within the classroom. Rather than penalizing students, Sammy changed the syllabus mid-semester to reward extra credit to those who completed the requirements, rather than punishing the majority of the class.

3.4.5 Anonymity

Anonymity, as a gradient to participation, was a minor factor for students to take productive risks or transcend stereotypes. Pre-survey results indicated that students were mixed on whether or not they prefer to talk in person about their writing (Q23) (M=3.80, SD=0.62), and they were mixed about whether or not they would answer a question online (Q25) (M=3.55, SD=0.69) (p=0.002, r= -0.469). Lucina expressed that being anonymous might be more appropriate for a site like this because then one could be more free with what one wrote. "I would say anonymous, 'cause I think for me at least it makes me write more of what I actually believe and not worrying about other people, what they think about what I wrote." She used her MSU NetID (MSU NetID is a unique identifier providing access to MSU online services) to register for the site because she thought it would be easier to remember. She felt it was somewhat anonymous because people in the class did not know her by her last name.

For Cai anonymity lowered the cost of participation because he was not confident with his writing. Anonymity did not seem to disrupt students' individual sense of attribution, though it did create negative externalities with "fan in," making it difficult for classmates to collaborate, potentially effecting the value of enabling interactions among the group. Odelette said it was annoying when she could not figure out who people were and who posted or commented. Cai also struggled to find other classmates' posts, saying, "You couldn't tell who wrote them." As a consequence Cai did not read many classmates' posts or anyone else's in other classes.

3.4.6 Cost vs. Benefit

Transaction costs were lowered in limited ways. Students did read each others' content. On average students in Sammy's course read about 33 blog posts over the duration of the semester (Table 3.3). In some cases, participation across time and space did change the way students perceived existing relations with their classmates. Students did take advantage of the ability to read and be read by their peers. Odellete mentioned that blogging was like chatting. She said, "writing a lot helped me," but she also did not attribute blogging to improving her writing. Odelette's readiness to collaborate with the group was mixed. She expressed benefit from seeing her classmates blogs, saying, "reading and commenting and talking about it in class helped us go deeper." She also said it was not common for her not to read other classmates comments. Odellete acknowledged this contradiction, saying, "I know that sounds selfish when I say that out loud."

Despite transaction costs being lowered, students filtered much of their perceptions of the WC MSU website through their perceptions of the course. Cai said that blogging was better than turning in a paper: "Because that way, you just write it out there, it's up there, and he can comment on it. And other people can read it and comment on it." Lucina, however, saw this as a requirement that she rushed through, adding,

I probably should have taken more time on it. I mean I kind of just rushed through it because he said he wasn't really going to grade like on the content. He was just going to read it and make sure you did it. I mean I should have taken it more seriously then I could have done...like it would have benefited myself more even if he wasn't grading it. I probably could have done that.

A lack of agreement existed between Odellete's perception of computers (an indication of technology readiness) and her negative perception of using the WC MSU website. This discord is supported by the post-survey results, which showed students who expressed that they improved their writing at MSU (Q22) ($M=3.76$, $SD=0.70$) correlated to those who believed that MSU had a positive impact on their writing (Q11) ($M=4.00$, $SD=0.77$) ($p=0.00$, $r=0.583$). Odellete also indicated that given the choice she would choose not to blog again because she does not like computers.

3.4.7 Maintaining History

Interviews and user logs indicated that students valued access to archives of their own work. The profile was valuable to make visible the unique contributions of

individual students. Profile views were the second most popular destination on the site (blog roll page was viewed most) (Table 3.2); however, there was no evidence of students viewing classmate profiles, or profiles of students across courses. In addition, students took little advantage of various gradients to interact with their own own content, making edits about once every ten posts (Table 3.2), and deleting their own content even less.

The reaction to archiving conversations was mixed and influenced by a student's sense of being an individual or part of a larger group. The work for some students was meaningless. Odelette was not interested in coming back to her own work, saying:

> we didn't get graded on it, so I didn't really need to look at them, but if it was a more structured assignment with like question and answer that I needed to refer to, I think it would be a good feature.

Other students did not see their work as valuable to the group. Cai did not want his posts to stay up online. He did not see his content as a value to other students, and would delete the content if given the option, "just because I would probably be done with them." Other students were indifferent. Lucina wanted to leave it up because it might be useful to other classes. "Maybe if I'm taking another English class or I'm in an environmental class or something like science, maybe I need like a topic for an essay or something..." She also thought it was interesting to see "what happens" by just leaving them up.

3.4.8 Critical Mass

Students experienced few system errors ("access denied," or "page not

found") (Table 3.2), which is one indicator they did not use the site in unexpected ways. Student did not engage in social behavior beyond the assigned task. User log data shows that some exploration of the site existed, but it was limited to just a few students exploring various pages and forum posts (Table 3.2). Cai and Odellete did not know about other features of the site. For some students the course requirement overwhelmed any interest in additional points of participation. As Cai said, "I just wanted to get it done and over with."

Ties that were formed on the site did not sustain after the course concluded. Students did not see their presence as contributors as being uniquely meaningful to the WC MSU website. Neither Cai or Lucina expressed any perceived value of using the site outside of class; however, Lucina mentioned that she might use the site if her friends were on it, or, if she knew more people it would be more "fun." Students did perceive a value of the WC MSU website to potentially expand interactions with others across courses. Odelette mentioned that she would only use the site if she needed help, but she would prefer scheduling an appointment at the Writing Center, saying, "I probably would schedule an appointment. I told you I'm not that into computers. More into face to face just like direct feedback on what I'm doing."

For Sammy, the social features available in the pilot project did not meet his expectations. The interface was difficult for him to navigate, specifically finding his class posts, and the use of pseudonyms made it difficult for him to locate the posts of his students. Sammy expressed frustration about the social-technical gap that exists in using social media withing the classroom. He mentioned that in order for the blog to be useful it needed to be tightly integrated into the course work, which was

not his approach with this class. Despite the students pereived collaboration and technology readiness, due to the costs of coordination on his part, Sammy did not see a lot of worth in blogs in the classroom as they did not add value as a different medium in which to write. He does not expect to be using blogs in his classes in the future. Finally, Sammy also believed that hosting the blog on the Writing Center website, with its affiliation with MSU, created conflicts with students' willingness to take chances with their writing, thereby stifling the potential conversations of his students.

3.4.9 Perceptions of the Writing Center

Students who were positive about spending time to improve their writing (Q12) (M=4.05, SD=0.51) was also correlated to scheduling an appointment at the Writing Center (Q9) (M=3.55, SD=0.76) (p=0.002, r=0.462). This indicates that students perceive that the WC MSU can help them improve their writing.

Students indicated that they perceived the WC MSU was not for bad writers (Q27) (M=1.92, SD=0.51). This was negatively correlated to several other responses, including that they were willing to spend time to improve their writing (Q12) (M=4.33, SD=1.5) (p=0.012, r= -0.385), that class assignments made them better writers (Q13) (M=3.58, SD=0.67) (p=0.002, r= -0.467), that writing is an important skill to get a job (Q14) (p=0.002, r= -0.472), and that the WC MSU makes better writers (Q35) (M=3.92, SD=0.51) (p=0.017, r= -0.372). This indicates that students who were interested in improving their writing also perceived the WC MSU as a place for all types of writers and that the WC MSU

could help improve their writing.

3.4.10 Post Survey

Post surveys indicate no significant differences ($p < .01$) from pre-survey responses. Students remained interested in taking the course (Q7) (M=3.95, SD=0.59). They also continued to believe that writing was important to getting a job (Q14) (M=4.24, SD=0.62). In addition, students agreed strongly about collaborating with others. Students responded that they valued what others had to say (Q30) (M=3.81, SD=0.40). Finally, students also continued to indicate positively that they benefited from their classmates participation (Q19) (M=3.90, SD=0.54), and that they would spend time to improve their writing (Q12) (M=4.00, SD=0.63).

Similar to the pre-survey, students who indicated that their classmates benefited from their participation (Q31) (M=3.62, SD=0.50) correlated to their agreement that they participate in class (Q8) (M=3.86, SD=0.79) (p=0.013, r=0.384). This indicates that students who choose to participate do so because they believe it is valuable to the class.

Students who indicated they would read a faculty blog at MSU (Q40) (M=3.43, SD=0.87) correlated to their agreement that they would read a blog from an MSU student (M=3.67, SD=0.80) (p=0.001, r=0.485). This indicates that students are interested in writing bounded by MSU beyond academic courses.

3.5 Case 2: Helen's Course (WRA 395)

Helen, the Assistant Director of the WC MSU, was the instructor of WRA

395 in the Spring semester of 2009. WRA 395 is an upper-level writing center theory and practice course. In addition to satisfying graduation requirements for undergrads, WRA 395 is also a pre-requisite for undergraduate students interested in working as consultants at the Writing Center. 12 students were enrolled in WRA 395, primarily Caucasian upper class women. Students identified having GPAs ranging from 0-4.0. One student in the course identified as being a Russian non-native English speaker. All students, except one, identified WRA 395 as not being required for their degree. The most common major of this course was professional writing. Six students were interviewed: Antonio, Doris, Hanna, Celia, Carolyn and Betty. Helen was also interviewed.

3.5.1 Common Ground

Pre-surveys indicated several positive responses from students. For example, students showed they were interested in taking the class (Q7) ($M=4.00$, $SD=1.21$), which also correlated with the belief that MSU has had a positive impact on their writing (Q11) ($M=3.58$, $SD=1.00$) ($p=0.00$, $r=0.791$). This suggests that students in this course generally had a positive attitude towards writing. Also, students were willing to spend time to improve their writing (Q12) ($M=4.33$, $SD=1.5$), as well as generally believed that writing came easily to them (Q17) ($M=4.33$, $SD=0.65$). In addition, students indicated they wrote outside of class assignments (Q18) ($M=4.25$, $SD=0.62$), and were willing to help others with their classwork (Q36) ($M=4.08$, $SD=0.67$). This was expected from students in an upper-level writing course. These results suggest that students enrolled in courses that emphasize

autonomy and competency might be interested in participating commons-based peer website like our pilot project.

Although this was not Helen's first time teaching or using blogs in the classroom, it was her first time teaching this course. She decided to stick closely to the previous instructor's syllabus, which also had a blog element. She was concerned that students would be reluctant to use technology, or would not find it valuable. Interviews indicated that students were already experienced with the structure of blogging (Q2) (M=1.33, SD=0.65), which potentially lowered the cost of contribution. For example, Antonio and Celia explained they both had previous experience with online journals. Celia said, "I went through like DeadJournal and LiveJournal and Xanga and Wordpress and all of those things, like, from age, like, nine 'til now." Betty also kept her own blog, and saw the WC MSU site as having more editing requirements than her personal blog. She said:

> Actually, I have a blog so I was—it's kind of the same process I use when I do my blogging except when it was to be posted to the brain center blog there was a little more editing going on versus my own blog, in which I could get away with using improper grammar and syntax.

Previous blog experiences allowed students to potentially transition more easily to using the WC MSU website, despite perceived technology deficiencies indicated by Hanna and Doris. Interviews also suggest that the user interface was not a barrier to student use. Hanna and Doris thought the website interface was what they expected, especially since Hanna did not consider herself computer savvy. Hanna said, "That's how I think of writing in blog, you know you type it in and then hit like submit or whatever, so I mean that would be my general idea of how to do

it before I even saw the website." Even given the competancy of her students, Helen used the first class to make sure people were registered on the site and were able to post content.

Despite a perceived collaborative and technology readiness from interviews, technical barriers were a challenge, potentially raising costs of participation. Helen mentioned that it was hard to copy/paste, the site went down frequently, and it was hard to search for relevant course posts. She did mention that, adding a tagging feature was helpful to search for course content. Hanna and Celia also expressed frustration in accessing their own content and their classmate's posts before the tagging feature was added. Hannah said, "when I wanted to count how many [posts] I had, I kind of like had to search around for my name, and kind of go in different places trying to find a link to my blog." On average, students created about 21 posts and read roughly 40 blog posts over the course of the semester (TABLE 3.3).

3.5.2 Rethinking Social Relations

Helen saw the potential of the site to help students rethink social relations with course instructors and strengthen ties between each other. Helen used the blog to shift student behavior away from the conventions of instructor authority, allowing students to take productive risks. "Blogging needs to be something that students feel they can voice an opinion without any type of feedback other than other consultants, other classmates, other people who may read it, but certainly not from me." Helen's philosophy was not to interfere with the students online. She was aware of her presence as a potential barrier to contribution and collaboration.

Helen frequented the blog, but she avoided commenting because she did not want her contributions guiding the conversation. She wanted her students to have a different perspective of her role online than as facilitator in the classroom. She felt that students would write what they really meant on the website instead of in assigned, individual work that is turned in, where they are only trying to please the teacher. She also hoped the WC MSU website would lower contribution costs by encouraging students to worry less about grammar and stay focused on the concepts of the course. She believed students would benefit because they would become better thinkers.

Despite Helen's interest in making the site a positive writing space, pre-surveys suggested that students were mixed about whether posting made them better writers (Q26) ($M=2.75$, $SD=0.51$) which correlated to those who believed they benefited from their classmates participation (Q19) ($p=0.024$, $r=0.479$). Also, post-survey results indicated that students who believed there were other MSU students they trusted for help with their writing (Q10) ($M=3.75$, $SD=1.06$) correlated to the belief that MSU had a positive impact on their writing (Q11) ($M=3.58$, $SD=1.00$) ($p=0.00$, $r=0.747$). This showed that having strong ties to others in regards to writing has an impact on whether students perceive the college writing experience as being positive.

One might think that students would make a connection between posting online and classmate participation, but as interviews indicate, despite Helen's attempt to distance herself as an authority figure on the WC MSU website, some students persisted in their perception of the instructor's presence. For example,

Carolyn said she did not think others were reading her posts, so she still wrote for the instructor. Doris read classmates posts first to avoid being repetitive for the instructor, "I don't know, I don't like saying the same things that other people are saying. Um, I feel like it's boring for the professor." In addition she also felt that she was collaborating more with Writing Center staff, if anyone. Although Doris saw in the additional features of the site, like the wiki and forums, the potential to collaborate, she did not take advantage of them, saying, "[to] really take advantage of those things, I think it's easier to google it."

Not all attitudes were negative. Celia valued the site as strengthening existing ties among classmates by building cohesion in the classroom, saying, "I mean if we didn't have that, there was nothing else that held the class together at all. We read but people had no interest for reading if they didn't have to blog about it." Hanna felt more comfortable participating online than in person. She usually did not talk in class discussions because she did not want to "sound stupid." Antonio also expressed appreciation that blogging allowed him to say things he would not normally say in class; however, he did not have a problem with his classmates reading his posts, saying, "I know people enough in that class to where I wouldn't have a problem with them reading what I write on a normal basis anyway." He mentioned that if he was writing in a more anonymous environment he would be more cautious about his username and what he wrote. Betty expressed appreciation that classmates' posts helped her gain a different point of view about the readings, commenting:

I say I benefit from that because that way I, if I didn't fully understand

> a concept that the author was talking about, I was able to see what my classmates were thinking and maybe going back and, with their comments in mind, re-reading the section and that way I could either disagree or agree with their opinion.

The potential of becoming future staff of the Writing Center seemed to influence student perception of the WC MSU website. For example, Celia thought the blog was a useful transition into the Writing Center, because it enabled her to figure out how to conduct herself as consultant. "It was a good place to apply theory to experience."

Pre-surveys indicate that students who believed there were MSU students whom they trusted for help with their writing (Q10) ($M=3.75$, $SD=1.06$) correlated to the belief that MSU had a positive impact on their writing (Q11) ($M=3.58$, $SD=1.00$) ($p=0.00$, $r=0.747$). This suggests that having strong ties to others around writing has an impact on whether students perceive their college writing experience as being positive. Pre-surveys also indicated students had mixed feelings about whether classmate participation was useful for them (Q19) ($M=3.25$, $SD=0.62$). Interviews suggest that the membership in WRA 395 negatively affected the value of contributing online for some students. For example, Carolyn did not think people bothered to read blogs of classmates because they talked about the blog topics in class. She said, "I never really bothered to read any of my coworkers—I mean classmates—blogs, um, because I had already gotten their opinions in, like, class and, uh, I didn't really care about, like, reading, like, more about it." This suggests that the students do not necessarily have the same trust in online connections that they do in face-to-face connections.

3.5.3 Expanding Interaction Networks

Pre-surveys indicated that students who perceived they had improved their writing at MSU (Q22) (M=3.92, SD=1.08) correlated to those who trusted someone to help them with their writing (Q10) (p=0.007, r=0.555). Interviews nonetheless suggested that students did not value drawing on resources and collaborating with others across courses. The post survey showed they had a more positive attitude about whether classmate participation was useful for them (Q19) (M=3.50, SD=0.71), but the difference was not significant (p=0.473). Helen mainly saw the value of the WC MSU website for students in WRA 395 as being a resource to other WRA 395 students. She intended the structure of the online collaborative space to be open for students to fan-out by voicing concerns, responding to readings, and connecting Writing Center training to conversations in class. Helen was mixed in her expectations about the site as a place to develop ties and collaborate across courses. Helen saw her class as:

> doing their own thing.... I think we're unique in that we're, you know, we're trying to train students to become consultants so that, in and of itself, I don't know that there's any assignments that we could have done that would have mirrored or in any way facilitated or been a part of the other classes that were doing it.

This suggests that even the instructor, who promoted the ability to talk across courses, did not entirely support the idea that courses should interact across the WC MSU website. She discussed that other courses would benefit from the website because they were writing about similar topics (referring to the shared topics of first-year writing courses). Helen did perceive a benefit of the website, which was

to make WRA 395 students aware of the larger audience of the website as a space where anyone can read and respond. "They know that it's out there for the public, and they know that anybody can read it, and they often know that classmates at a minimum can respond to it, if not people from all over the world," she said.

Students interviewed for this course did not perceive the content across courses to be relevant. Although post-survey results indicated an increase in agreement that students valued what others had to say (Q30) (M=4.10, SD=0.32), that students were willing to help others (Q36) (M=4.10, SD=0.32), and that students would answer someone's question online (Q25) (M=4.20, SD=0.63), interviews did not match the survey results. For example, Doris was initially curious to see what other writing classes were doing, stating, "I noticed they were using the site too with the tag cloud, or whatever. And so I looked at some of their stuff, but not very long... maybe like three different blog posts." Hanna said that it was hard reading posts from students in other courses because she did not have the same perspective and did not know what was discussed in class. She admitted that she did not read any student blogs, even her classmates', saying, "I haven't read other peoples blogs, so it's like I don't know how they would benefit me." Celia thought having peers writing in one place was a good thing although she did not like people "writing about their day" (as opposed to posts about writing topics) because she tried hard to make her content relevant. This suggests that the value of classmates' opinions and a willingness to help others might depend on the context of the situation.

The large amount of first-year writing courses participating (and posting) on the WC MSU website potentially created a negative externality, raising contribution

costs. A side effect was that WRA 395 students were frustrated by the perceived clutter caused by the content of other courses. Carolyn thought it was important that the classes were separated so she did not have to sift through many non-relevant blog posts. Celia was frustrated that blog posts were lost "in the shuffle.... It's just a mixture of blogs from all different classes." In some cases students stereotyped the work of other courses on the whole as being useless to the site. Celia did not think the classes pertained to the site and made it "confusing and disorienting." She felt other classes did not hold themselves to the same writing standards as their class. "They bring down the overall quality [and] make people less interested." Doris agreed that most of the writing on the site was not relevant or helpful to others on the WC MSU website. For Celia, it made the website less helpful since the clutter brought down the overall credibility of the website.

Despite what the interviews suggest, students continued to believe that there were those to help them with their writing (Q10) (M=4.10, SD=0.57); however, this may be a response to their work as a Writing Center consultant more than as a student participant on the website. Post-survey results indicate that students still believed they were willing to improve their writing (Q12) (M=4.60, SD=0.52), which correlated to the continued belief that there were those to help them with their writing (Q10) (M=4.10, SD=0.57) (p=0.007, r=0.555), and correlated to those who believed MSU had a positive impact on their writing (Q11) (M=4.30, SD=0.48) (p=0.00, r=0.799). This suggests that despite frustrations with the WC MSU website, students were still interested in working with others to improve their writing. Finally, post-survey results indicated that students had an increased

interest in reading faculty blogs (Q40) (M=3.80, SD=0.79), which correlated to those who indicated they would read an MSU student's blog (Q38) (M=3.90, SD=0.57) (p=0.023, r=0.481). So although this project did not foster the type of collaboration we expected, it suggests that students are interested in the activities of their classmates and instructors.

3.5.4 Social Loafing

Pre-survey results indicated that students who were interested in taking the course (Q7) correlated to a willingness to spend time to improve their writing (Q12) (M=4.33, SD=1.15) (p=0.000, r=0.719). Social loafing was a barrier to strengthening existing ties among students, creating group structure, and lowering the costs of collaboration and contribution. Although, on average, Helen's students created about 22 posts (TABLE 3.3), they did not complete their blogs on time. Helen was aware of the lack of posting and struggled to provide incentives to complete the requirements on a weekly basis. Doris admitted to not keeping up with the blog posts. She posted when she was "in the mood." Doris said there was not a community on the site at that point, because people did not post until the end of the semester. "No one got to know each other online," she said. Lack of accountability reduced collaborative readiness, creating a feedback loop of social loafing. Doris said that seeing others not doing the work made her feel better that she did not. Doris also indicated that she enjoyed being able to see who was on the site when she was ("Who's Online" feature), which encouraged her to come back to the site and participate later.

Social loafing appeared to be contagious with other WRA 395 students. Hanna said, "I don't think people were reading other peoples' blogs very much. Because, I know I wasn't really reading other peoples'." She discussed that her posts were influenced not by the quality of the other posts, but the length. "I just wanted them to be consistent so they were all around the same length," Hanna said. Doris was also influenced by her classmates, saying:

> I went on to see how many posts I had, and compare that to how many posts I needed. To see how far my classmates...how many posts my classmates had. I think if the rest of my classmates had kept up on their blog posts, I might have kept up on mine more.

Despite social loafing, the post survey indicated that students had a continued willingness to spend time to improve their writing (Q12) (M=4.33, SD=1.15), which correlated with the perception that MSU continued to have a positive impact on their writing (Q11) (M=3.58, SD=1.00) (p=0.00, r=0.777). This apparent contradiction between participation in this project and the perception of spending time to improve their writing suggests students do not consider, at least for this project, the assigned writing to be beneficial.

3.5.5 Anonymity

Anonymity did not appear to encourage risk taking, and, in some cases, added to the collaboration cost for students due to lack of attribution and accountability. Doris mentioned that if she did not know who it was that posted, she would not comment on their post, stating, "no one really wants to go through and, like, read their classmates' posts because they have other things to do." She continued that some people in her class had "weird handles" (usernames). Helen

encouraged students to chose usernames that could not be identified. Her rationale for anonymity was "If you're anonymous, chances are you'll be much more willing to give your opinion." Many students ignored this and used their MSU NetID or variations of their first or last names as usernames. Helen said, "this whole idea of... of trying to... to protect the students by encouraging them to be anonymous just doesn't seem too effective."

Lack of privacy seemed to reduce the students' perceived readiness to discuss issues surrounding their work on the WC MSU website. Doris thought a completely private website would be better for WRA 395 students because their content would only be viewable their classmates and potential Writing Center staff:

> I think that [different levels of privacy] would be probably the best option because I posted something about misplaced modifiers and grammar rules, well obviously—well not obviously but the majority of my class doesn't need or want to read about grammar rules. But when I'm posting stuff about a difficult experience I had with a client, I don't want potential clients seeing that and then being deterred from coming to the WC because they think we're talking about them negatively.

Doris preferred private over anonymous contribution because too high a degree of anonymity lost any value in the response for her classmates. For example, she wanted to write about clients, but her posts were not private, so she felt she could not write anything useful for fear of offending clients or fellow staff members. Doris chose a username that would be very clear for her classmates because, due to the physical proximity of the class, "chances are people find out who I am." It appeared that Doris did specifically have potential clients in mind (not just her classmates) when thinking of anonymity.

> I think it's effective just to, like, have yourself presented as one person, not as [Doris] and TimZ20PeaceLove, whatever. Just to have one identity so, like, if people like you make an appointment, read, comment, whatever. And if they don't like you, don't make an appointment, comment, read, whatever.

3.5.6 Individual vs. Group

Although Helen did not perceive a value in interacting with students across courses, she did perceive a value for her students to interact with existing WC MSU staff and clients. Given the proximity of WRA 395 to the work of the Writing Center, for Helen the pilot project lowered the cost of collaboration with these groups to read and comment on WRA 395 student posts. She did not believe this interaction would be possible if the website were not hosted by the WC MSU. In this way the site created a gradient of participation to the Writng Center itself for students, which potentially lowered the barrier for participation for students. Through the website, students could begin to participate in the ongoing discussions of the WC MSU in a limited capacity and consultants could get to know each other before starting to work at the Writing Center. Previously, new consultants would have to wait for orientation sessions at the beginning of each semester to meet the majority of staff members.

WRA 395 students seemed to have conflicted perceptions about the value of their content in combination with identifying as part of the class, the Writing Center, and MSU as a larger community. Social loafing was a problem, but identifying with multiple groups seemed, for some, to generate a sense of accountability and meaningfulness in their posts. Celia felt more obligated to make posts useful

when writing on the WC MSU website, because the msu.edu domain made it more authoritative. "I feel like what I write is really out there... as opposed to Blogspot" (a free online blogging service). She said, "anyone could set up a Wordpress." This is supported, in part, by the user logs, which show a significant use of the editing feature of the site (TABLE 3,2). This may suggest that some students were reworking their content before publishing it.

Being part of the Writing Center group may have affected risk taking among Helen's students. For example, Doris believed one of the reasons her posts were not timely was her self-consciousness about what Writing Center staff would think of her posts:

> [Helen] is yelling at us via e-mail about this. I don't want to post something that isn't good, or that I'm not happy with, and I'm kind of a perfectionist, so there's that. But I don't want to post that kind of stuff, like, online. Other people are going to see it and, I don't know, they might kind of, like, judge me for it.

Proximity of the site to the Writing Center may have negatively affected some students' perceived value of their contributions. Doris did not think the WC MSU website was helpful for their class because it was not a "discussion." "It would have been equally effective, like, just to have people just raising them up and just e-mailing it to her or whatever."

3.5.8 Maintaining History

Due to the unique connection of the course to her work at the Writing Center, Helen was interested in keeping a history of the blogs to refer back to. "I'm able to go back from the very beginning and see how things begin to change

and fluctuate from one class to the next, perhaps based on changes that I make to certain assignments, to certain readings." She used previous blogs to gain insight for future courses, as well a gauge to see what issues might be arising in the Writing Center. She also resisted the idea of deleting content because she did not want to decide what to delete. As she discussed with her class, part of audience awareness is knowing your stuff is "up there."

Students had mixed reasons for the value of maintaining a history on the site. Antonio did not think the posts should be taken down because it would help future students taking the class, stating, "it might have softened the blow of jumping into a new class right away." As mentioned before, Betty thought it was helpful to hear other classmates opinions. Being able to go back was valuable. "If it was one of the readings I was having an issue with I would go back and reread it," she said. In addition, Betty appreciated the ability to track changes in opinions over the course of the semester. "Having a record of what was said at this point and time is important, because we can see how peoples' opinion change and how the website and the world itself changed over a course of a semester." To summarize her own work, however, Betty did not use the site because it was easier to go back to her computer where she saved copies of her posts.

Celia thought it was cool to know this homework would not be gone forever. Other students were indifferent to keeping the site up, saying, "So it does have, like, a function that extends beyond the class, which makes it different from most homework, so I guess that influenced the way I saw it, like homework with a twist or something." Carolyn did not care if they were deleted because often they were

redundant and "it was just a matter of fulfilling this 12 blog requirement."

Maintaining history also did not affect risk taking among students or the sense of attribution. No students interviewed expressed concern about their identity being attached to their posts for future users to see. This was supported by Helen, who observed, "They are so much more open when it comes to just puttin' themselves out there and not caring who knows it's them."

3.5.9 Critical Mass

The connection of the course to the Writing Center favored overcoming issues of critical mass. Despite lack of interest in the material beyond the course, students expressed interest in the WC MSU website as consultants, and expressed interest in contributing content as writing center consultants. User log data shows that a moderate amount of site exploration existed (Table 3.2). Considering their connection to the Writing Center as consultants-in-training, it is unclear from the user logs the extent their exploration of the site was due to work-related issues, class requirements, or other interests.

Post-survey results indicated students remained interested in taking the course (Q7) (M=4.30, SD=0.67). Students still believed they were willing to impove their writing (Q12) (M=4.60, SD=0.52), they still perceived themselves as good writers (Q15) (M=4.30, SD=0.57), and still believed that writing came easily for them (Q17) (M=4.50, SD=0.53). Despite some of the frustration over the assignment, students indicated they improved their writing at MSU (Q22) (M=4.20, SD=0.63), and students continued to believed that MSU had a positive

impact on their writing (Q11) (M=4.30, SD=0.48), a statistical increase from the pre-survey (p=0.051). This indicates that this pilot project did not dramatically change their impressions of their writing.

3.6 Case 3: Monty's Course (WRA 150)

Monty, a PhD candidate in Rhetoric and Writing, taught WRA 150 with a focus on pop-culture writing, with 27 students enrolled. According to the survey data, which included 25 students (12 male and 13 female), Monty's class was predominantly Caucasian freshman. There were a total of nine ESL students enrolled in the course. Most students (21) responded that this course was required for their degree. Two students, Carlos and Mabel were interviewed about their experience using a Wordpress blog. Both are ESL international students. Monty was also interviewed.

Monty had a significant amount of previous blogging experience. He used blogging as an instructor, a student, and personally. He has used Wordpress exclusively as the platform for his blog assignments. For WRA 150, rather than the class blogging in a group space, each student created their own blog. Monty maintained a central Wordpress blog for the course, with materials and resources on it. This structure reduced the ability for students to easily fan-out and interact across time and space.

3.6.1 Common Ground

Pre-survey results showed students had common beliefs. Students indicated they were interested in taking the class (Q7) (M=4.18, SD=0.66). Also, students

indicated they participated in class discussions (Q8) (M=4.08, SD=0.57) and were willing to spend time to improve their writing (Q12) (M=4.20, SD=0.58). A willingness to spend time to improve their writing correlated with student interest in scheduling an appointment at the WC MSU (Q9) (M=3.76, SD=0.72). This suggests that setting the Writing Center up to host the blog assignment might be a good match and would put students in proximity to the Writing Center.

3.6.2 Technology Readiness

Monty perceived his students as exhibiting technology readiness. Monty saw students as a "technology oriented generation," where "blogging was just another norm." Students seemed to meet Monty's expectations. Pre-survey results show that most students had created a blog post previously (Q2) (M=1.00, SD=0.37). Monty saw Wordpress as having a low barrier to interaction. Monty appreciated the layout of Wordpress because it is "accessible" and not "super techy." He mentioned, for example, the ease of embedding video. Although, he admitted that he only knew a limited amount about how to use Wordpress himself, he did point out that he spent time troubleshooting problems of his students on their individual sites throughout the semester.

Monty noted that students were not able to comment on each other's work. One distinguishing feature of Wordpress is the fact that students essentially had their own websites. Although they all agreed to read each other's work, the website did not promote creating connections between students.

3.6.3 Rethinking Social Relations

Monty saw the website as a space to rethink expectations about the course. He liked Wordpress as a rhetorical space because it took people out of the normal everyday comfort zone. Monty stressed to his students that it was their space, so there were few guidelines. Blog posts, roughly 250 words related to the readings, were due over the weekend.

Monty used the site to enable a different type of interaction with his students than his conventional role as instructor. He tried to be a peer online, dislocating "teaching authority" and letting the students speak. He saw the space, including his own blog, as collaborative although he was aware that his presence was perceived as "watching us." As a result, he limited his presence on the site. He thought that if he was the only one responding, it would feel more like an assignment. "No matter how much of a peer I try to make myself, I think sometimes the nature of the education system and the idea of the writing teacher comes into play." Monty thought students responded well to comments.

For Monty, blogs are a different type of tool for students to learn how to write. Monty mentioned that online writing was different than print for his WRA 150 course. He noticed that students were doing "cool" things on their blog, like uploading and embedding video, and writing analysis to their peers, which was not happening in their papers. "I think sometimes students like [the] blog as being the space where they didn't necessarily have a lot of boundaries." He acknowledged that blogs do not transfer well to paper and that sometimes students have to turn off their blog voice and move into a more academic voice, which limits their ideas.

Students had particular views about writing and this course. Pre-survey data indicated that students were mixed about their interest in taking this course (Q7) (M=3.92, SD=0.76). Students indicated they participated in class discussions (Q8) (M=4.08, SD=0.57); however, they did not write outside of class assignments (Q18) (M=2.96, SD=0.98). They also responded that there was a correct way to write for assignments (Q37) (M=4.0, SD=0.96). Although not correlated, students also believed that writing was important to getting a job in the future. Also, pre-surveys showed that students did not connect the quality of their writing with a willingness to post online (Q32) (M=2.75, SD=0.85). Finally, post-survey results suggest that perceptions about whether there was a correct way to write (Q37) went down significantly from the pre-survey (M=3.41, SD=0.91) (p=0.036).

3.6.4 Expanding Interaction Networks

Initially, Monty identified the blog as a way to get students thinking about a text or a course concept, before discussing it in class. Monty said he tried to push the idea of community, so people would be comfortable posting on each others blogs. Monty spoke about the need for a space for people to speak their mind about difficult topics in class. He discussed in class his expectations, but (similar to Sammy) gave his students freedom to use their blogs however they wanted. This suggests a potential barrier to strengthening ties between students. Although, Monty encouraged students to discuss topics with each other, the freedom to blog about whatever they wanted combined with the student websites being separate seemed to hinder the development of strong ties among students using the social

media tools.

Monty was clearly aware of the potential for strengthening weak ties among students across courses, but was not able to develop this potential. Monty considered using the WC MSU website, saying, "I like about the idea is that there's a lot of people using it and if things come up, or conversations come up about usage and stuff like that, you have a community of people." He believed this would have been especially useful for things like troubleshooting problems on the site. Monty said if he did use blogs again in the classroom he would be interested in using ANGEL (MSU's course management system) as a central location for documents and syllabi instead of hosting his own Wordpress site. He believed it would be easier for his students to access these materials. In addition, Monty suggested that he would use his own blog to interact with students and be more of a presence online.

3.6.5 Enable Interactions

Post-survey results indicate that students perceived the blog assignment made them better writers (Q13) (M=4.09, SD=0.53); however, not all students were ready to collaborate with others within their course. Mabel said she would prefer turning in papers: "I am more familiar with just writing the paper... I'm not familiar with using blog to communicate with each other." Overall, nonetheless, Mabel expressed that the blog was useful to work on individual projects, not necessarily to interact with students in her class. "Only my professor is looking at my blog and we [Mabel and her fellow students] didn't have real communication." This seems to support the post-survey results which indicate students prefer to talk

in person with someone for help with their writing (Q23) (M=4.08, SD=0.69).

Reactions were mixed about the benefit of online collaboration. Carlos saw the separation between the individual student sites as a barrier to strengthening ties between members of the class. He believed it would have been nice to be able to see what others in class were doing, yet all the blogs were separated. "We actually did form a Facebook group of the class, and that was more, I mean that's more of a group atmosphere than what [Wordpress] was." Carlos believed it was important that the content was viewable by everyone, but preferred everyone on the same page so they could "compare" things. Mabel, by contrast, had no interest in reading things her classmates posted.

Post-survey results indicated that students thought their classmates made them better writers (Q13) (M=4.09, SD=0.53), which also correlated to the perception that MSU made them a better writer (Q11) (M=4.18, SD=0.50) (p=0.00, r=0.641). Question 11 was also correlated to perceptions that MSU has improved a student's writing (Q22) (M=4.09, SD=0.53) (p=0.00, r=0.71). In addition, students who indicated they participated in class discussions (Q8) (M=4.27, SD=0.63) correlated to perceptions that classmates benefited from their participation (Q31) (M=3.59, SD=0.59) (p=0.00, r=0.637). Students perception (Q31) is also correlated to their belief that they were good writers (Q15) (M=3.68, SD=0.89), and that they benefited from their classmates participation (Q19) (M=3.86, SD=0.56).

3.6.6 Exception Handling

Expanding interactions among other students was an unexpected use of the site. Students began building ties on their own and leveraging the gradients to participate for their own purposes. Monty asked students to respond more to their peers after he noticed a couple were already doing that on their own. This corresponds to students indicating on the survey they were willing to spend time to improve their writing (Q12) (M=4.2, SD=0.58).

Students in WRA 150 also used the site in different ways to create and manage content. Monty noticed that students were using the blog to compose drafts of their class projects although this was not explicitly suggested. Carlos expressed that he used the site to post "quick ideas" to go back to when working on a project. Despite a lack of connection between the individual sites, students overcame some issues of social loafing by leveraging the site to make their work meaningful.

3.6.7 Managing Dependencies

Getting feedback from other students participating on the site was important. Carlos said if Monty posted a comment, an e-mail message would be sent announcing it to the author. Mabel saw only her instructor as providing "real" communication (feedback) because only her instructor looked at the posts. In addition, Carlos said Monty would always e-mail students about what they did in class and what he wanted them to do for that week. It was "cool" that the site let people know who was looking at their page.

Students who perceived they benefited from their classmates' participation (Q19) (M=3.76, SD=0.44) negatively correlated to those who indicated English

was not their native language (p=0.001, r= -0.452). Perception of classmate participation (Q19) was correlated to perceptions that classmates benefited from their participation (Q31) (M=3.67, SD=0.56) (p=0.00, r=0.519). This suggests that students whose native language is not English perceive their participation to be valued less by others, and perceive they benefit less from their classmates' participation.

3.6.8 Social Loafing

Accountability and attribution were not factors in online participation because students had their own sites. Although students indicated in the survey they participated in class discussions (Q8) (M=4.27, SD=0.63), user logs and interviews suggest social loafing persisted. For example, Mabel acknowledged not providing much written feedback online because she did not know how to answer her classmates' questions even though, as she pointed out, "the class is not so difficult for international students."

3.6.9 Individual vs. Group

Students interviewed did not express a sense of group structure because the sites were separated. Reactions were mixed as to the value of Wordpress to foster a sense of group within the larger MSU community. Carlos said using this site did not make him feel part of MSU. The Facebook group mentioned earlier fostered more of a group atmosphere. Mabel said she did feel she was part of the group although not necessarily one with a high degree of interactivity. Mabel stated, "In one way, you all are working together because you're all posting to the same site,

but yet you're posting about different things so that's kind of not the same as maybe working together to produce something."

Monty did feel an online group existed and that he was part of the online group. He felt the group was established as a result of face-to-face interaction in class and the student sites continued this structure online. "I felt like, in a lot of ways, we had already established the group in class.... The blog played a interesting role in terms of continuing the...in-class conversations and people being comfortable," he said.

Despite the interest from surveys and interviews regarding collaboration by students and instructors, participation on the sites did not appear to be collaborative. Observations and interviews suggest that Wordpress, as a collection of isolated sites, encouraged individual rather than group behavior. Wordpress offered no features which allowed students to link to each others' sites. In addition, as mentioned before, Monty encouraged students to make use of the technology on their terms. As a consequence, student presence each others websites was sporadic and the content created on each site was not necessarily relevant to content on any other site.

3.6.10 Anonymity

When building their sites, about half the students used their own names as usernames. In describing his students' username choices, Monty said:

> Some of them would have very obvious things like, you know, John Smith for their name, things like very specific identity markers in their name. And some would have completely different, completely different stuff that was more personalized or more specific to

Hockeyguy09 or something like that.

Anonymity proved a challenge to strengthening ties between classmates because students could not identify each other. Carlos said there was no identifying information on classmates sites except their names, which were required for the class. Carlos said knowing who was writing was important for a sense of community. This sense of community would be lost if students were totally anonymous. He believed it would have been better to add more information, saying, "That'd be a cool thing to add, is maybe like a picture, or an avatar." Given the opportunity to choose again, Carlos would have used a picture and not been so anonymous. "I think the whole sense of a community would have been lost if it were an anonymous blog," he said.

When creating content anonymity did not appear to be a factor in risk taking. Knowing real names did not change how or what Carlos wrote. He said:

> I definitely considered the possibility that maybe someone would be looking at my blog, see my name, and then maybe try and look it up on Facebook, or MySpace, to learn more about me.... I would definitely expect you know maybe future employers maybe to check out what I've written on that website.... I think if it were to be anonymous it wouldn't be as helpful of a blog.

Monty also used the blog to discuss privacy. He gave students the choice of managing their privacy settings. Students were instructed on the relationship between privacy and searchability. Viewing by others and privacy was also discussed. Monty said, "I talk to them all about this sort of 'what it means to blog online, what it means to compose digitally,' you know? What it means for [class] audiences and real audiences." He noticed some students did not care whether or not their names were traceable. They saw the online sites as another academic space. At the same

time, most students limited accessibility to the content of their sites. "Most of my students made their profile or their blogs open, but not searchable.... So, they didn't want their blog to be searchable on search engines like Google.... But I noticed most all of them wanted to have an open space." This suggests students were comfortable with others reading their work although it is not clear to what limit that comfort extends. It appears that students were comfortable making their content available to the larger MSU community but possibly no further. Also, It is not clear whether the technology itself (i.e., Wordpress) caused concern among students regarding the potential of others outside MSU to view their work as opposed to the WC MSU website or ANGEL, which are controlled exclusively by MSU.

3.6.11 Cost vs. Benefit

Monty did notice that, for some students, the blog enabled interactions which would otherwise be cumbersome and some students contributed more online than they participated in class discussions. This observed benefit is not supported by the students. Pre-survey responses suggest that students preferred to talk in person for help with their writing (Q23) (M=3.92, SD=0.70). This preference increased in the post survey (M=4.23, SD=0.69) suggesting an unrevealed cost. The students' aversion to online collaboration may be due to a variety of elements such as the structure of the site, fragmentation, the assignments themselves, or even the freedom students were provided with to use the technology on their own terms.

Monty experimented with using the blogs before and after class to generate discussion. Student postings created after class discussions were more successful;

otherwise students were hesitant to express their ideas. Monty said, "Sometimes there was this idea of being right, or students wanting to appear like they were giving a right answer." He mentioned that the blogs were more successful as a connector to things that were already brought up in class than "using technology to express themselves."

3.6.12 Maintaining History

Due to the separated structure of the student sites, visualizing interactions was limited to comments. Students indicated MSU had a positive impact on their writing (Q11) ($M=4.18$, $SD=0.50$). This was a significant difference from the pre-survey ($p=0.032$); however, students had mixed reactions to the benefit of maintaining their content once the goal of the blogs had been met. Mabel did not feel using the site to review what was written had benefit. "[After] I have finished my paper, I don't have to use the information from that blog. So, I don't think it's useful for my future study." Carlos said he would be:

> upset if their stuff was deleted, like losing part of their life at MSU. I would just feel like I lost work that I put time into doing, and I guess I would feel like I've lost a part of my life at MSU, I guess. Because it's always a good spot to go back and see what classes I've taken, see what I've been interested in.

He intended to keep the content up so the site could be visited in the future.

Monty was concerned about the potential consequences of maintaining identities online. He gave students the option of deleting their blogs at the end of the semester. In the past he instructed students to delete their blog posts. "I gave them a really long discussion talk about that and let them sort of do it how they

wanted." As an instructor, maintaining ties among students through the website was not valuable. Monty said he only was interested in using Wordpress for his class. He did not keep up with student blogs after the semester because they were not his students anymore.

3.6.13 Post Survey

Students believed they improved their writing at MSU (Q22) (M=4.09, SD=0.53). This was a significant difference from the pre-survey (p=0.001). This suggests students found value in the course, which implies that although students struggled in various ways with the WC MSU website, they found it useful. Also, although interest in reading a faculty blog (Q40) went down (M=3.36, SD=0.58) (p=0.023); students remained fairly positive about the benefits of such an activity.

3.7 Summary

Seven instructors responded to the initial request for participants in the pilot project. Not all modes of data collection were successful across all courses; only courses with enough data to triangulate results (Helen, Monty, and Sammy's courses) were described in our results.

Students indicated in surveys they were interested in collaborating. Also, they seemed technologically ready to do so as well. Interviews suggested that students were nonetheless reluctant to collaborate within their own class and especially across classes. Although critical mass was achieved in some respect with the assignment motivating students to use the site, social loafing was a problem. Students didn't complete the assignments on time, which may have negatively

affected student interest in participating on the site. After the semester was over, students quickly abandoned using the WC MSU site.

Most students identified with being part of their classroom. Many students as identified with being part of MSU. No students in the interviews indicated that they explicitly felt connected with students across other courses. In many cases, students were frustrated by the presence of the other courses. Many saw them as a hindrance to searching for the work of students in their own course. Also, Students were mixed on their interest in taking advantage of previous conversations, as well as being interested in maintaining archives of their work after the course ended. Interviews suggested that the assignment for the courses did not encourage students to build on previous conversations. And many students, after the courses concluded, were not interested in returning to their previous work.

Anonymity had unexpected results. In many cases students wanted to be known, at least to their classmates. Anonymity seemed to work as a hindrance for many students, especially when commenting on the work of the classmates. Although some students were concerned about their name being connected to their work, it seemed to not be about issues of voicing risky opinions.

Overall, although the WC MSU website did lower many technical costs of contribution, it seems that the socio-technical cost of collaborating in a meaningful, and sustainable way remained high. Although students and instructors saw the potential for the site to connect to rethink issues of authority in the classroom and connect with students across classrooms, user logs and interviews indicated that instructor authority was still prevalent and students remained reluctant to connect

across courses.

DISCUSSION

The goal of our social media pilot project was to explore whether a social model was appropriate for writing centers by populating a limited version of the WC MSU website with several writing courses at Michigan State University. Specific features were developed that we believed would foster the potential value that resides in technology-supported social networks (i.e., socio-technical capital), as well as negate anticipated barriers of groupware. In the course of deploying the site, collecting and analyzing the data, unexpected behaviors from the students and instructors were observed. These behaviors were not accounted for in the methods and collected data. This discrepancy led to a refocusing of the data gathered and applying the data to understanding the use of social media in the classroom.

As mentioned before, Ackerman (2000) suggested a gap exists between the social complexities of groups and what is technically feasible to support them. Our findings support Ackerman's claim; however, we propose Ackerman (and others who research topics within computer supported cooperative work) may not have gone far enough in explaining the inconsistencies of group behavior by not taking into account mixed modes of production in multiple user environments.

4.1 Multiple Modes of Production

Modes of production takes into account different characteristics of the environment, influence of social relationships, and means of production on behavior. We suggest that modes of production should be evaluated when researching socio-

technical issues of groups working in multiple environments in order to understand potential conflicts between different environments and consequently potential conflicts of group behavior.

Similar to Bion (1950) who claimed that humans behave both as individuals and groups simultaneously, observations from our pilot project suggest that groups work in multiple environments. Our discussion argues that students and instructors interacted within a classroom hierarchy alongside a social media commons. The characteristics of each of these environments potentially favored different group behaviors, and in some cases these environments conflicted. Students and instructors were mixed on responding to the structure of the course and the possibility of the commons-based website. This conflict affected student and instructor behavior, potentially negating the socio-technical benefits we sought to foster with our pilot project. Below is a discussion on how modes of production may have influenced student and instructor behavior with maintaining history, anonymity, group structure, social loafing, critical mass, and common ground.

Maintaining histories (e.g., threaded discussions, comments, user profiles) can be used to share knowledge and develop collective identity and trust (Resnick 2002). We anticipated that students and instructors would welcome this collective feature, which in a physical environment is often the responsibility of individuals to maintain.

Our observation shows that the structure of the site overwhelmed much of the interest we expected from students to take advantage of a shared history. We believe that the structure of the course blog assignments negated any benefit of

the site as a commons. For example, most instructors used the blog as an activity to inform in-class discussions. After a discussion that particular content was no longer relevant and was no longer returned to as a class. Content was also graded by quantity of posts. Although this was an explicit move on the part of instructors to remove issues of teacher authority from the online space, there were no social or technical structures in place to encourage autonomy or competency, which is emphsized in a commons-based model. As a result, students did not value maintaining history because they were just turning the work in to their instructor. As Cai (a student in Sammy's WRA 110 course) said, "I just wanted to get it done and over with." There was no value for students to maintain a record of what they created except for utilitarian purposes like checking how many posts they needed to complete the assignment. Students responded that they valued class discussion, but the structure of the classroom did not promote students to go back to their work for any meaningful study.

The WC MSU website seemed to favor the instructors' use of the history feature. Instructors commented in the interviews that they used the history features to refer back to content in order to guide class discussions. For example, Monty (WRA 150) indicated he often used the blog to stimulate thinking about a topic before they discussed it in class. Also, instructors used the history feature to tally counts of content for particular students to assign grades. Instructors indicated that they saw a long term value in maintaining a history of student work as a way to improve their courses in future semesters.

Despite this lack of perceived value in the shared knowledge that was

produced, students and instructors were conflicted about deleting the content and removing the site. The work for some students was meaningless. Odelette, from Sammy's WRA 110 course, was not interested in coming back to her own work because she did not get a grade on it and it did not relate to anything else. She said:

> We didn't get graded on it so I didn't really need to look at them, but if it was a more structured assignment with, like, question and answer that I needed to refer to, I think it would be a good feature.

Carolyn, from Helen's WRA 395 course, did not care if the posts were deleted because often they were redundant and "it was just a matter of fulfilling this twelve blog requirement"; however, Antonio, also from WRA 395, did not think the posts should be taken down because it would help future students taking the class. "It might have softened the blow of jumping into a new class right away," he said. Carlos, from Monty's WRA 150 course, indicated he would be upset if this content was deleted, saying it would be

like losing part of their life at MSU.... I would just feel like I lost work that I put time into doing, and I guess I would feel like I've lost a part of my life at MSU. Because it's always a good spot to go back and see what classes I've taken, see what I've been interested in.

4.3 Anonymity Conflicts

As mentioned in the Introduction, restricting identifying information (e.g., name, gender, age), provides opportunities for members to speak anonymously or with limited identity. This level of anonymity may have made it easier, specifically for students, to feel protected when participating in the discussion with authority

figures (i.e., instructors) online. We anticipated that students and instructors would value anonymity in order to transcend stereotypes or speak freely. This was supported by initial instructor conversations which acknowledged the problem of teacher authority in the classroom and its effect on classroom discussion.

Student responses to anonymity in our project were inconsistent. For example, Lucina, from Sammy's WRA 110 course, expressed that being anonymous might be more appropriate for a site like this, because one can be more free with what one writes. "I would say anonymous, 'cause I think for me at least it makes me write more of what I actually believe and not worrying about other people, what they think about what I wrote." This was in contrast to her classmate Odelette who said it was annoying when she could not figure out who was posting or commenting. Doris, from Helen's WRA 395 course, elaborated that some people in her class had "weird handles." If she did not know who it was, she was not going to post. Carlos, from Monty's WRA 150 course, said that knowing who was writing was important for a sense of community, which would be lost if classmates were anonymous.

We believe that anonymity and reputation were also an issue. Resnick (2009) noted "Reputations spread information about people's behavior, so that expectations of future interactions can in uence behavior even if the future interactions may be with different people than those in the present" (p. 2). The structure of the courses and the technical features of the WC MSU website did not encourage reputation building, which we believe discouraged students to take advantage of the potential to be anonymous.

The structure of the courses offered a basic reputation. Students in the same

class shared a basic familiarity that seemed enough of a reputation to stimulate some participation among students. In some cases, those with a stronger friendship seemed to have more interactions online. For example, Sammy noticed that friends would post feedback on each others' content. Complete anonymity without a technical mechanism to record and visualize reputation seemed to stall any participation within or across courses. We saw this when Doris mentioned "weird handles" stopped her from commenting. Also there was no way for people to build reputation and prove that content across courses was useful. This was both a social and technical issue. Consequently, even though everyone was a newcomer to the WC MSU website, there was no social or technical mechanism to provide incentives for building reputation and encouraging collaboration within or across courses.

We believe the inconsistent reactions to anonymity indicate students and instructors were influenced by conflicting modes of production. The structure of the site promoted anonymity, which was encouraged by the instructors. It seems that students responding to a hierarchical structure might see anonymity as problematic to their work, because it potentially raises the transactions costs to collaborate. For example, Carolyn, in Helen's WRA 395 course, said she did not think other students were reading her posts, so she wrote for the instructor. Also, despite the support of anonymity by instructors, students overall perceived anonymity to be less useful. For example, Cai, in Sammy's WRA 110 course, said "I just wanted to get it done and over with." One explanation might be that in a hierarchical structure anonymity is less useful because it disrupts people's understandings of where they fit in the group. Even though instructors verbally encouraged the use of anonymity, there

was no reinforcement with the site or the class structure to support people being anonymous. As a result it appears that students responded more favorably to the structure of the site over the possibility of anonymity in the commons.

4.4 Group Structure Conflicts

We anticipated that norms of acceptable group membership was an important barrier to overcome. Students were inconsistent when talking about group behavior. For example, Cai from Sammy's WRA 110 course mentioned that many of his classmates were playing catch-up because they were not consistently posting every week, which made it difficult to get use out of their posts for class; whereas, Celia, in Helen's WRA 395 course, indicated that multiple groups on the site increased her sense of accountability. She felt more obligated to make posts useful when writing on the WC MSU blog, because the msu.edu domain made it more authoritative. "I feel like what I write is really out there... [as] opposed to Blogspot" (a free online blogging service). She said, "anyone could set up a Wordpress." Odelette, from Sammy's WRA 110 course, felt the value of a group was mixed. She expressed benefit from seeing her classmates blogs, saying, "reading and commenting and talking about it in class helped us go deeper"; however, she said it was not common for her to read other classmates comments. Group participation, or inconsistent group participation, also impacts other socio-technical features such as maintaining history. For example, Cai did not want his posts to stay up online. He did not see his content as valuable to other students and would delete the content if given the option, "just because I would probably be done with them."

4.4.1 Individual vs. Group

Our results from interviews suggest that students' inconsistency in talking about group behavior might be due to students being influenced by modes of production that, in turn, influence students' perception of the usefulness of participating as a cohesive group. One explanation may be due to a lack of initial behavioral norms to establish the online group structure. Shirky (2010) argued that it is important for a young social site to be seeded with people who are able to quickly establish and enforce a norm of behavior. In the case of our site, the instructors intentionally removed themselves. In our pilot project most students were guided by the number of posts they were required to submit before the end of the semester with little guidance as to how to interact with their peers online. Monty, the WRA 150 instructor, indicated he intended for his students to use the space for "freewriting." Although instructors had good intentions for removing authority from the online space, it may not have been enough guidance to set reasonable expectations about what is and is not acceptable behavior online.

We believe that, with no online group structure to inform acceptable behavior, students defaulted to the hierarchical classroom expectations which emphasized the quantification of participation for students, rather than reinforcing peer-based behaviors. Thinking about the behavioral norms in terms of transaction costs may be a useful approach. Benkler (2002) argued that peer production was a viable mode of production because information technology reduced the transaction costs that previously prevented the coordination of large amounts of free labor. Thus, low transaction costs have been understood to be a key to peer production; however, it

is unclear whether transactions costs change when modes of production overlap. The cost of peer participation might be low if the site is isolated from the classroom, but might change when the classroom hierarchy is introduced. If this is the case, its not clear if the hierarchy raises the initially low cost of participation, or is itself a lower cost when compared to the social model.

4.4.2 Social Loafing

An observed consequence of group structure conflicts was a increase in issues of social loafing, where people exert less effort to achieve a goal when they work in a group, as opposed to when they work alone. Our surveys suggested that students were willing to spend time to improve their writing (Q12) in both pre-survey (M=4.156, SD=0.669) and post survey (M=4.082, 0.624). Students acted inconsistently with the surveys for various reasons. Mabel, an ESL student in Monty's WRA 150 course, acknowledged that she did not provide much written feedback online because she did not know how to answer her classmates' questions, even though, as she pointed out, "the class is not so difficult for international students." Doris, in Helen's WRA 395 course, said there was not a community on the site at that point because people did not post until the end of the semester.

Our pilot project supported a technical means to reduce social loafing by promoting attribution and accountability, such as displaying usernames next to posted content. We observed that there was minimal group structure to reinforce what was acceptable group behavior on the site within any of the classes. For example, Sammy, the instructor of WRA 110, noticed only a handful of users

completed their required posts on time, or at all. He ended up changing the syllabus to make the assignment no longer a requirement in order to accommodate the social loafing of his students. Although Sammy may have made the right decision to adjust his course to accommodate the behavior of his students, their social loafing suggests that group structure was not properly established.

4.5 Critical Mass and Common Ground Conflicts

Critical mass refers to the amount of users required to make the social system self-sustaining and fuel further growth. The choice to embed the social media pilot project in the classroom was initially influenced by an interest in overcoming the problem of critical mass, which has led to a refocusing of the interpretation of the data gathered from the social media pilot project. Grudin (1994) identified several factors affecting critical mass for groups: number of participants, interrelatedness (similar to Olson & Olson's concept of common ground; 2000), and the level of communication (similar to Olson & Olson's concept of coupling). Our observations suggest that despite an adequate number of participants, student and instructor readiness and interrelatedness were inconsistent due to the structure of the courses.

4.5.1 Common Ground (Collaborative and Technology Readiness)

Common ground refers to the to the knowledge group members have in common (Olson & Olson, 2000). Olson and Olson described collaborative readiness as whether or not a group is predisposed to a "culture of sharing and collaboration." It was assumed for this pilot project that common ground and readiness (technological and collaborative) were important, especially with asynchronous group work.

Students indicated they valued what others had to say (Q30). Pre-survey (M=4.037, SD=0.576) and post-survey (M=3.907, SD=0.502) results were consistently positive. This suggests that although they did not make that connection in our pilot project, students are interested in the contributions of others potentially under different socio-technical conditions. Students also indicated in both pre- and post surveys that they are willing to spend time to improve their writing. Pre-surveys (M=4.156, SD=0.669) and post surveys (M=4.082, SD=0.624) remained consistently positive. This alone does not suggest that students are willing to spend time on a social media site in the classroom, but implies that students are potentially interested in participating in activities they believe will improve their writing. Results of an ANOVA test average of whether students consider themselves good writers (Q15) significantly increased pre-survey (M=3.491, SD=0.791) to post survey (M=3.753, SD=0.764) (p=0.017). Similarly, students indicated they have improved their writing at MSU (Q22): pre-survey (M=3.624, SD=0.825) and post survey (M=3.938, SD=0.642) (p=0.003). This is supported by interviews from students like Odelette who said the course blog assignment was a positive experience overall and she did not mind doing the assignment because it did not seem like an additional workload. This suggests that the pilot project may have played a part in changing student perceptions of writing.

Surveys and interviews implied that students exhibited collaborative and technological readiness. For example, surveys showed that students were interested in helping and getting help from their peers. Students consistently indicated they valued hearing what others had to say (Q30), pre-survey (M=4.037, SD=0.576)

and post survey (M=3.907, SD=0.502). Similarly, students indicated they believed their classmates would help with their writing (Q34), pre-survey (M=3.624, SD=0.574) and post survey (M=3.629, SD=0.618). Monty, the instructor of WRA 150, perceived his students as exhibiting technology readiness. Monty saw students as a technology oriented generation where "blogging was just another norm." Students seemed to meet Monty's expectations. Pre-survey results show that most students had created a blog post previously (Q2) (M=1.00, SD=0.37), which implies they were technologically ready. Students who, like Hanna from Helen's WRA 395 course, did not consider themselves computer savvy were fine using the WC MSU website. "That's how I think of writing in [a] blog, you know you type it in and then hit, like, submit or whatever, so I mean that would be my general idea of how to do it before I even saw the website," Hanna said.

Assumed readiness is supported by a recent report (Lenhart et al., 2010) from the Pew Internet & American Life Project. The report indicated that nearly three quarters of online teens (73%) and young adults (72%) use social network sites; however, in our project, there were inconsistencies between what students indicated and what they did. For example, Doris, in Helen's WRA 395 course, felt that most of the writing on the site was not relevant or helpful to others on the WC MSU website. It may not be the case that students were not interested in collaboration. Although students indicated in various ways their readiness to collaborate, they may have not been adequately prepared to collaborate within conflicting modes of production.

One explanation might be that certain environmental characteristics which

prepare students to be ready to collaborate in an hierarchical mode of production may not be adequate to encourage collaboration in an online commons. This explanation supports our observations that students indicated they would be favorable to collaborate from a classroom perspective, but did not translate into a social model in an academic setting. The failure to collaborate does not suggest that classroom collaboration does not exist or is not compatible with online commons-based modes of production but rather that common ground might be different depending on the environment and mode of production. It may be important that both students and instructors have the same common ground expectations and share a similar understanding of technological and collaborative readiness in order for the best outcome to be achieved.

4.5.2 Coupling

Olson and Olson (2000) described the degree to which individuals rely on each other as tightly coupled work; The more dependency there is between group members, the more tightly coupled the work. Olson and Olson argued that tightly coupled work was more challenging for groups working asynchronously. The student work within our pilot project was not expected to be tightly coupled; even though students were expected to collaborate, the structure of the course blog assignment emphasized individual postings. Loose coupling seems to have had a negative impact on building social capital among students. Tight coupling may address some of the conflicting issues we have observed, such as an interest in maintaining history, group structure, and building socio-technical capital. This

is supported by Sammy, the instructor of WRA 110, who suggested that, in order for the blog to be an effective tool within his classroom, it needed to have tighter integration between the blog assignment and other course activities. He criticized his own assignment as being less useful to the class other than the brief discussions. He imagined that more integration between the content online and the course itself would encourage more meaningful connections between the students and their own work and the work of others.

4.6 Rethinking Social Media in the Classroom

Our project leveraged university courses as a mechanism to overcome the problem of achieving critical mass for the WC MSU website by seeding our pilot project with active participants from writing courses. This choice had unforeseen consequences, mainly that our research supports a conversation about the use of social media specifically in the classroom.

4.6.1 Social Media Is Not Useful

Different conclusions are being made about the usefulness of social media in various educational settings. A recent study (Jacobs, Egert, & Barnes, 2009) conducted by the Lab for Social Computing at the Rochester Institute of Technology and funded by the National Science Foundation challenged the argument made by social media advocates that tools like Facebook and Twitter can improve interaction in the classroom. The study indicated that the use of social media in classroom settings has little effect on building connections or social capital among students. Jacobs, Egert, and Barnes led a three-year study on how classmates connected to

each other. Susan Barnes stated there was an assumption that students knew how to use social media but they did not know how to use it in an education setting. Barnes, quoted by Dube in a press release for the Rochester Institute of Technology said that their "findings show that the incorporation of social media had no measurable impact on social connections, to the point that students did not consider other members of the class to be part of their social network" (Dube, 2010, n.p.).

The findings by Jacobs, Egert, and Barnes are supported by Ron Hosen (2003), who also observed problems when fostering social capital in the classroom because there was little incentive to build social capital in an education setting. He noted that strangers (e.g., students) gather for purposes of convenience (e.g., obtain course credit) with little incentive to communicate (e.g., get a good grade), which fostered parallel rather than interactive behavior.

Additional research into social networks shows that students use social networks to stengthen existing ties rather than build new ones. For example, Ellison et al. (2007) suggested that students view the primary audience for their profile to be people with whom they already share an offline connection.

4.6.2 Social Media Is Useful

Examples that imply Facebook is a useful companion to the classroom do exist. Shirky (2008) offers up the case of Chris Avenir, a freshman student at Ryerson University in Toronto, Canada, created an online study group for his class using Facebook. Avenir's study group attracted 146 students, who could asynchronously and at a distance post solutions and read solutions posted by others. While

certainly not the first example of using social media as a study group, Avenir's case demonstrates the potential many educators see in using social networks in the classroom, which is leveraging the fact that learning is a social activity. Social media tools like Facebook represent opportunities for instructors to incorporate student discussions, whether formal or informal, into the pedagogical landscape.

4.6.3 Social Media Is Unique

Grudin (2009) noted that it is not always clear why social media succeeded in the workplace when they did not seem to be successful in experiments, or why social media have failed in the workplace but have been successful in experiments. One reason for this volatility when deploying social media may be its uniqueness as a communication tool. Shirky (2008) challenges the idea that social media, like Facebook, is old media in a new package. He argued that Facebook is unique unto itself, claiming that old analogies are inadequate to describe the circumstances of groups using social media. The uniqueness of social media in part is supported by Shirky's earlier claim that the Internet is unique as a group forming and communication tool. We believe that Shirky is tapping into Benkler's (2002) concept that these online spaces are operating within a commons-based mode of production. If this is the case, than it is not clear to what extent these different modes of production intersect and potentially conflict.

Grudin (2009) provides insight into what might be going on with these social media tools. In a lecture Grudin gave on the history of communication tools in the workplace, he identified a trend that communication tools we take for granted today,

like e-mail and instant messenger, took years before they were accepted in the work place. Grudin noticed that companies initially rejected these communication tools as "a waste of time" partly because they were ephemeral and the conversations were not saved. Grudin also noted these new tools disrupted or nullified existing modes of communication and social structures of accountability and authority. Avenir and his Facebook study group can be categorized as disruptive: The reaction from Ryeson University was to have Avenir expelled on accounts that creating the group was an act of cheating. Although Avenir was not expelled, he was still punished by receiving a zero on one assignment and having a disciplinary note put in his file. Avenir's experience shows how social media can create real-world conflicts with established authority. Grudin argued that, despite an objection by management, these tools would continue to be brought into the workplace because they provide an efficient means by which people can do their work. Grudin concluded that a conflict would remain unless or until there was alignment between the expectations of the manager (e.g., instructor) and contributor (e.g., student).

Alignment of social media in academic spaces has proved difficult. One explanation may be that each example mentioned (including our pilot project) has approached the use of social media in the classroom from a different focus. For example, Avenir's case was not a formal use of social media in the classroom, and was narrow in scope and time. Jacobs' (2010) research valued the "formal education of students on the professional use, design and implementation of social media systems" (p. 4) as a "support system throughout their professional careers" (p. 1). These examples may not need to contradict each other. We may have no

useful framework in which to place these examples in relation to each other.

In the end, Grudin and Shirky may both be right. Social media software may be unique because it is working in a different mode of production; however, it is possible that social media will eventually make its way into classrooms and organizations either formally (like our project) or informally (like Avenir's Facebook group), as the students using it find it efficient to do their work. Our ability to formally embed these social media tools in the classroom may depend on the extent to which we understand the conflict between different modes of production.

4.6.4 Social Media Behavior Framework

Grudin (2009) noted that a typology of group behavior might be useful when discussing and assessing the use of communications technologies. James McGrath's "Time, Interaction, and Performance (TIP) Theory" (1991) (Figure III) might prove useful as a framework for future research in order to understand the inconsistency introduced by Grudin, as well as understanding potential conflicts within intersecting modes of production. McGrath claimed groups follow different developmental paths to reach the same outcome. For example, Grudin mentioned that video might be useful as member support for non-native speakers to resolve conflicts, even though it might not directly lead to the development of the project. McGrath also suggested group members "are not necessarily engaged in the same mode for all functions, nor are they necessarily engaged in the same mode for a given function on different projects that may be concurrent" (1991, p. 153).

While his framework was not specifically addressing social media across

multiple environments, this might help understand for example why students and instructors in our pilot project acted in ways different from what they indicated in their surveys and interviews. Furthermore, this framework might also be useful to more accurately target socio-technical features to the behaviors of group member for different developmental paths. In addition, understanding the different modes of production, might be useful along with McGrath's framework, to begin to address merging social media within the classroom or other hierarchical institutions.

Table 3.5 McGrath's Time, Interaction, and Performance (TIP) theory model

Modes	Functions		
	Production	Well-being	Member Support
Mode I: Inception	Production Demand/ Opportunity	Interaction Demand/ Opportunity	Inclusion Demand/ Opportunity
Mode II: Problem Solving	Technical Problem Solving	Role Network Definition	Position/ Status Attainment
Mode III: Conflict Resolution	Policy Conflict Resolution	Power/ Payoff Distribution	Contribution/ Payoff Relationships
Mode IV: Execution	Performance	Interaction	Participation

Adapted from Figure 1 in McGrath, 1991, p. 154.

Clearly a more sophisticated case study needs to be developed to understand the role of social media within academic institutions. When measured against McGrath, our pilot project was too narrow in its approach. While our goal was to change behavior, our design appears to have focused on features in terms of their ability to generate performance, interaction, and participation. We believe that the

usefulness of a particular social media tool within an environment might reside in other modes or functions that are not always obvious to a final project.

4.7 Limitations

As our discussion suggests, unexpected behaviors led to a refocusing of the interpretation of the data gathered from the social media pilot project. This refocusing has led to useful insights about the potential conflicts between modes of production; yet, it limited our ability to address the potential of the WC MSU website as a place to create the opportunity for new behaviors and attitudes to emerge around the issue of academic writing.

Due to the lack of concrete data operationalization, lack of exact definitions of each variable decreased the quality of our surveys and user logs. As a result, the ability to replicate this research has suffered. Consequently our results are not as robust as they could be.

Our surveys were subject to several potential distortions. Students appeared to avoid responding at the extremes of the five-item scale (central tendency bias). One reason might be that the questions were not worded in a compelling way that provoked students to make a more defined choice. Another reason might be the use of a five point rating scale (as opposed to something shorter like a three point rating scale), although the use of a smaller scale would reduce the granularity of the data. Also, students' responses seemed to reflect the tone of the statements as they were presented (acquiescence response bias). For example, questions presented in a positive tone received more affirmative responses. Finally, several survey questions

(Q1-Q6) were determined to be double barreled and as a result less useful for analysis. These questions were not used to analyze data, consequently reducing the conclusions which could be drawn.

A lack of interviews across all courses impacted the study. Interviews were collected from students and instructors from only three courses out of a total of seven. This left gaps in analysis and limited the scope of the project. Without interviews to triangulate the research, many of the courses that participated in the pilot project were not included in the results or discussion.

From a technical viewpoint Drupal's internal user log system was not sufficient to establish time-lines of usage. Drupal has no internal analytics software to visualize the information that is collected. Also, there was no easy way to extract user log data from Drupal to use with third party analytic and visualization software. This limited the extent to which conclusions could be made in reference to user time and movements on the site. In the future, using Google Analytics in combination with Drupal's Watchdog user tracking would be beneficial to analyze the user log data.

4.8 Conclusion

The Writing Center at Michigan State University (WC MSU) sought to establish an online social media website to facilitate a dialogue about the perceptions of writing at MSU. We began our research by considering the way writing is understood and practiced within academic institutions, including the WC MSU. We saw how writing centers are often caught between the need to satisfy the individual needs of

students as well as the institutional needs of the university. This conflict has led to a distortion of writing within the university. We suggested one proactive solution to this problem was to foster a space for multiple voices to be heard using online social media, hosted by the WC MSU. Online social media was attractive because it reduced the cost of contribution and cooperation and increased the usefulness and availability of existing information. We considered how social-technical capital additionally had the potential to provide a useful way of rethinking social relations between groups within the academic institution, enabling interactions that otherwise would be difficult, expanding interaction networks, maintaining histories, and providing anonymity to allow group members the opportunity to take productive risks. We considered the potential social and technical barriers of building a website that supported groups, including: responding to individual and group needs, exception handling, transaction costs, critical mass, social loafing, common ground, and anonymity. Finally, we considered the role of different modes of production and their influence on student and instructor behavior.

In the Spring of 2009, an exploratory case study of the WC MSU website was conducted across seven writing courses and 97 participants in the College of Arts and Letters at Michigan State University using surveys, semi-structured interviews, and weblog tracking. Our pilot project was developed in Drupal, which provided a framework for creating the specific social capital affordances we anticipated would be valuable to support discussions about writing among writing courses at MSU. Data was collected over the course of the semester, but was not collected across all courses. Consequently, data was only available for triangulation for three out of the

original seven courses that participated.

In the course of deploying the site and collecting and analyzing the data, unexpected behaviors from the students and instructors were observed. These behaviors were not accounted for in the methods and collected data. This discrepancy led to a refocusing of the interpretation of the data gathered from the social media pilot project. We considered the impact of intersecting environmental structures on student and instructor behavior. We suggested that students and instructors in our pilot project seemed to act within multiple environments influenced by unique modes of production (hierarchical and commons-based). These modes of production potentially conflicted, creating unexpected group behaviors. Finally, we suggested that future work might take into account McGrath's typology of group behavior, which, as Grudin suggested, might be useful when discussing and assessing the use of communications technologies between experimental spaces and the workplace.

In its current form, our social media pilot project was not a successful social model for the classroom. The conflict in modes of production between the commons of the website and the hierarchy of the classroom maintained the norms of the classroom and did not encourage autonomy and competency on the WC MSU website. Pairing social production with classrooms is not inherently a bad idea. As mentioned before, students forming study groups on Facebook have found value in using social media congruently with classroom work; however, conflicting modes of production need to be considered as well as how the various socio-technical features fit within the different developmental paths of students and instructors. Students and instructors who participated with the WC MSU website appear to have been

influenced by both by firm-based and social models of production. We believe that pursuing a social model within courses would require more coordination among instructors and their assignments and a clearer structure of group behavior online. Commons-based and hierarchical modes of production are both useful, but in order to build successful websites, whether alongside courses, inside them, or otherwise, it is important to fully understand the ways different modes of production interact as well as the barriers and benefits that will affect how people interact on the site.

This research does not reject the value of social media models for online writing centers or classrooms. Having a framework for considering the socio-technical capital, group modes, and environments builds confidence that additional exploration integrating a social media model would be successful in the future. Our research and the research of others show that there is not one useful way to integrate social media into a classroom. McGrath is useful as a framework to explore the potential use of social media in different points of the education process. This framework allows researchers the opportiunity to begin to see social media as a spectrum of uses during different parts of the education process and supporting different group functions. Connections can be made about how social media could be a benefit and where it might be a barrier. McGrath's framework may be a mode of production, as we observed in our study. Conflicts in different environments are not regular and happen at different points in the cycle of the classroom. Social media may be successful when targeted in limited ways; for example, to negotiate conflicts during a problem solving period of a project. Uses of social media may not be relegated to informal uses outside of the classroom. Formal situations may not

need to be as tightly coupled as suggested by Sammy.

When researchers observe communication technologies like social media within institutions the results are unexpected. This is the challenge researchers face when investigating the use of social media in an institution like the classroom. Our discussion has focused on identifying the potential conflict that arises when online social media, a unique mode of production, intersects with the hierarchical environment of the classroom. More research needs to be done and more social media sites need to be built before we will fully understand the socio-technical complexity and potential opportunities of social media for writing centers, classrooms, and academic institutions.

APPENDIX A: SURVEY QUESTIONS

Email Address: _____

May we contact you about participating in a follow up interview?

Yes No

With which gender do you identify (if any)?

Male Female Not listed: _____

How old are you?

18-21 22-24 24-27 27-35 35-40 40+

What class are currently in?

Freshman Sophomore Junior Senior Graduate

What is your current GPA?

0-2.49 2.5-2.99 3-3.49 3.5-4

With which ethnicity do you identify (if any)?

Caucasian/White African American Native American Asian
Pacific Islander Hispanic/Latino Multiracial Not listed:

Is English your native language?

Yes No if No, please specify: _____

What is your major? _____

Is this class required for your degree?

Yes No

Please indicate the extent to which you agree with the statements.

Q1: I have downloaded a podcast

Have done this / have not / Have not, but am interested / not interested

Q2: I have created a blog post online

Have done this / have not / Have not, but am interested / not interested

Q3: I have scheduled an appointment at the Writing Center

Have done this / have not / Have not, but am interested / not interested

Q4: I have been to the Writing Center

Have done this / have not / Have not, but am interested / not interested

Q5: I have participated in an online forum

Have done this / have not / Have not, but am interested / not interested

Q6: I go online to seek help with my writing

Have done this / have not / Have not, but am interested / not interested

Please indicate the extent to which you agree with the statements.

Q7: I am interested in taking this class

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q8: I participate in class discussions

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q9: I would schedule an appointment at the Writing Center

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q10: There are students at MSU I trust to help me with my writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q11: MSU has had a positive impact on my writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q12: I am willing to spend time to improve my writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q13: Class assignments make me a better writer

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q14: Writing is an important skill for getting a good job

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q15: I am a good writer

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q16: I would ask a question about writing online

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q17: Writing is something that comes easily to me

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q18: I write outside of class assignments

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q19: I benefit from my classmates' participation in class

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q20: I seek help with my writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q21: I would contribute to the Writing Center website outside of this class

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q22: I have improved my writing at MSU

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q23: I prefer to talk in person with someone for help with my writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q24: I consider creating a video as writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree

Strongly

Q25: I would answer someone's question online

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q26: Posting online makes me a better writer

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q27: The Writing Center is for people who are bad writers

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q28: I would search the Writing Center website for help with a class project

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q29: People who work at the Writing Center are experts in writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q30: I value others hearing what I have to say

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q31: My classmates benefit from my class participation

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q32: I would post a blog if I were a better writer

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q33: There is a correct way to write to my friends

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q34: My classmates will help me with my writing

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q35: The Writing Center makes better writers

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q36: I am willing to help others with their class projects

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q37:There is a correct way to write for class assignments

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q38: I would read a blog written by an MSU student

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q39: The Writing Center can help me with a class presentation

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

Q40: I would read a blog written by an MSU faculty member

Strongly Disagree / Disagree / Neither Agree or Disagree / Agree / Agree Strongly

APPENDIX B: SURVEY CONSENT FORM

You will complete a survey, which will take approximately 20-30 minutes to complete. The questionnaire will ask you about your attitudes, behaviors, and feelings, as well as demographic questions.

The same survey will be offered to you again at the end of this semester. We will use these surveys to increase knowledge about how students use online tools, such as blogging, to improve their writing

There are no obvious physical, legal, or economic risks associated with participating in this study. However, you will be asked questions about yourself, which sometimes can make people uncomfortable. You do not have to answer any questions that you do not wish to answer.

Participation in this study does not guarantee any beneficial results to you. However, many people enjoy answering questions about themselves. As a result of participating you may better understand your own values about writing and use of online technologies.

Other potential benefits include increased knowledge about the perceptions of students' use of educational online tools for students, faculty and web developers as well as a potential benefit of writing pedagogy.

This survey asks for your email address, and we will use this information to conduct a raffle of three $20 Amazon.com gift certificates. To be eligible for the raffle you must complete both surveys. Estimated odds of winning are 3:150. Your email address and responses will be stored for one day after all surveys are collected. Gift certificate recipients will be contacted via email to make arrangements within one day after all surveys are collected.You indicate your voluntary agreement to participate in this research and have your answers included in the data set by completing and submitting the attached survey. As with any research project, your participation is voluntary and you are free to discontinue your participation at any time.

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Copies of the survey data will be retained for three years after publication of any results.Your privacy will be protected to the maximum extent allowable by law. No personally identifiable information will be reported in any research product. Moreover, only trained research staff will have access to your responses. Within these restrictions, results of this study will be made available to you upon request.

This is a scientific study conducted by Noah Ullmann of the Department of Telecommunication, Information Studies, and Media. Questions or concerns about this research should be directed to Mr. Ullmann via e-mail at ullmannn@msu.edu or at 517 648 1512.

APPNENDIX C: WRITING CENTER AT MICHIGAN STATE UNIVERSITY CLIENT DEMOGRAPHICS 2004-2008

Table C.1 Reservation by Standing	
Faculty	34
Freshman	584
Graduate Student MA	358
Grduate Student PhD	415
Junio	284
Iother	58
Senior	280
Sophmore	269
Staff	7
Unspecified	122
Total	2411

Table C.2 Reservations by Language	
Chinese	380
English	1086
Korean	588
Arabic	34
Spansih	27
Total	2115

Table C.3 Reservations by Gender	
Female	1467
Male	776
No Response	120
Other	18
Total	2381

Table C.4 Reservations by Ethnicity	
African American/Non-Hispanic	176
American Indian or Alaskan	4
Asian/Pacific Islander	1131
Caucasua/non-hispanic	608
Chicano/Mexican	11
American	
Hispanic	34
Non-specified	315
Other	115
Total	2394

APPENDIX D: WRA 110 INDEPENDENT SAMPLE T-TEST

Table D.1 WRA 110 Independent Sample t-test

Q7

p value: 0.799 1
t statistic: -0.256
O'Brien's test for homogeneity of variance: 0.941 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.9	0.718	3	5
Post	21	3.952	0.59	3	5

Q8

p value: 0.562 1
t statistic: -0.586
O'Brien's test for homogeneity of variance: 0.123 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.7	0.923	2	5
Post	21	3.857	0.793	2	5

Q9

p value: 0.744 1
t statistic: 0.328
O'Brien's test for homogeneity of variance: 0.61 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.55	0.759	2	5
Post	21	3.476	0.68	2	4

Q10

p value: 0.539 1
t statistic: 0.62
O'Brien's test for homogeneity of variance: 0.423 2

Survey	N	Mean	SD	Min	Max
Pre	20	4.05	0.51	3	5
Post	21	3.952	0.498	3	5

Table D.1 Continued

Q11

p value: 0.466 1
t statistic: -0.737
O'Brien's test for homogeneity of variance: 0.411 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.85	0.489	3	5
Post	21	4	0.775	3	5

Q12

p value: 0.783 1
t statistic: 0.278
O'Brien's test for homogeneity of variance: 0.421 2

Survey	N	Mean	SD	Min	Max
Pre	20	4.05	0.51	3	5
Post	21	4	0.632	3	5

Q13

p value: 0.335 1
t statistic: 0.975
O'Brien's test for homogeneity of variance: 0.044 2

Survey	N	Mean	SD	Min	Max
Pre	20	4	0.562	3	5
Post	21	3.81	0.68	2	5

Q14

p value: 0.402 1
t statistic: 0.847
O'Brien's test for homogeneity of variance: 0.396 2

Survey	N	Mean	SD	Min	Max
Pre	20	4.4	0.598	3	5
Post	21	4.238	0.625	3	5

Table D.1 Continued

Q15

p value: 0.429 1

t statistic: -0.799

O'Brien's test for homogeneity of variance: 0.398 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.45	0.686	2	4
Post	21	3.619	0.669	2	4

Q16

p value: 0.879 1

t statistic: -0.153

O'Brien's test for homogeneity of variance: 0.908 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.3	0.657	2	4
Post	21	3.333	0.73	2	4

Q17

p value: 0.304 1

t statistic: -1.042

O'Brien's test for homogeneity of variance: 0.371 2

Survey	N	Mean	SD	Min	Max
Pre	20	2.9	0.718	2	4
Post	21	3.19	1.03	0	5

Q18

p value: 0.879 1

t statistic: 0.153

O'Brien's test for homogeneity of variance: 0.458 2

Survey	N	Mean	SD	Min	Max
Pre	20	2.95	1.05	1	4
Post	21	2.905	0.831	2	4

Table D.1 Continued

Q19

p value: 0.165 1

t statistic: 1.415

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	4.1	0.308	4	5
Post	21	3.905	0.539	3	5

Q20

p value: 0.783 1

t statistic: 0.278

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.55	0.605	2	4
Post	21	3.476	1.03	0	5

Q21

p value: 0.698 1

t statistic: 0.391

O'Brien's test for homogeneity of variance: 0.573 2

Survey	N	Mean	SD	Min	Max
Pre	20	2.7	0.733	2	4
Post	21	2.619	0.59	2	4

Q22

p value: 0.489 1

t statistic: 0.699

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.9	0.553	3	5
Post	21	3.762	0.7	3	5

Table D.1 Continued

Q23

p value: 0.775 1
t statistic: -0.288
O'Brien's test for homogeneity of variance: 0.412 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.8	0.616	3	5
Post	21	3.857	0.655	3	5

Q24

p value: 0.219 1
t statistic: -1.25
O'Brien's test for homogeneity of variance: 0.745 2

Survey	N	Mean	SD	Min	Max
Pre	20	2.6	0.883	2	5
Post	21	2.952	0.921	2	4

Q25

p value: 0.309 1
t statistic: 1.032
O'Brien's test for homogeneity of variance: 0.124 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.55	0.686	2	4
Post	21	3.333	0.658	2	4

Q26

p value: 0.875 1
t statistic: -0.159
O'Brien's test for homogeneity of variance: 0.64 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.2	0.696	2	4
Post	21	3.238	0.831	2	5

Table D.1 Continued

Q27

p value: 0.388 1
t statistic: -0.874
O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	1.8	0.523	1	3
Post	21	1.952	0.59	1	3

Q28

p value: 0.747 1
t statistic: -0.324
O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.4	0.754	2	4
Post	21	3.476	0.75	2	4

Q29

p value: 0.747 1
t statistic: -0.324
O'Brien's test for homogeneity of variance: 0.766 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.4	0.821	2	4
Post	21	3.476	0.68	2	4

Q30

p value: 0.088 1
t statistic: 1.748
O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	4.1	0.641	2	5
Post	21	3.81	0.402	3	4

Table D.1 Continued

Q31

p value: 0.631 1

t statistic: 0.485

O'Brien's test for homogeneity of variance: 0.577 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.7	0.571	3	5
Post	21	3.619	0.498	3	4

Q32

p value: 0.408 1

t statistic: -0.836

O'Brien's test for homogeneity of variance: 0.244 2

Survey	N	Mean	SD	Min	Max
Pre	20	2.85	1.04	1	5
Post	21	3.095	0.831	2	4

Q33

p value: 0.994 1

t statistic: 0.008

O'Brien's test for homogeneity of variance: 0.524 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.05	0.999	1	4
Post	21	3.048	0.973	1	4

Q34

p value: 0.117 1

t statistic: 1.603

O'Brien's test for homogeneity of variance: 0.492 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.9	0.308	3	4
Post	21	3.667	0.577	2	4

Table D.1 Continued

Q35

p value: 0.809 1

t statistic:
0.244

O'Brien's test for homogeneity of variance: 0.942 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.9	0.553	3	5
Post	21	3.857	0.573	3	5

Q36

p value: 0.667 1

t statistic: -0.434

O'Brien's test for homogeneity of variance: 0.428 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.85	0.489	3	5
Post	21	3.905	0.301	3	4

Q37

p value: 0.599 1

t statistic: -0.53

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.75	0.639	2	4
Post	21	3.857	0.655	2	5

Q38

p value: 0.353 1

t statistic: 0.939

O'Brien's test for homogeneity of variance: 0.508 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.85	0.366	3	4
Post	21	3.667	0.796	2	5

Table D.1 Continued

Q39

p value: 0.792 1

t statistic: 0.266

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.9	0.447	3	5
Post	21	3.857	0.573	2	5

Q40

p value: 0.931 1

t statistic: 0.087

O'Brien's test for homogeneity of variance: 0.016 2

Survey	N	Mean	SD	Min	Max
Pre	20	3.45	0.686	2	4
Post	21	3.429	0.87	2	5

1 If p is small, e.g. less than 0.01, or 0.001, you can assume the result is statistically significant i.e. there is a difference.

2 If the value is small, e.g. less than 0.01, or 0.001, you can assume there is a difference in variance.

APPENDIX E: WRA 395 INDEPENDENT SAMPLE T-TEST

Table E.1 WRA 395 Independent Sample t-test

Q7

p value: 0.493 1
t statistic: -0.699
O'Brien's test for homogeneity of variance: 0.373 2

Survey	N	Mean	SD	Min	Max
Pre	12	4	1.206	1	5
Post	10	4.3	0.675	3	5

Q8

p value: 0.531 1
t statistic: 0.638
O'Brien's test for homogeneity of variance: 0.539 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.75	0.866	2	5
Post	10	3.5	0.972	2	5

Q9

p value: 0.699 1
t statistic: -0.393
O'Brien's test for homogeneity of variance: 0.015 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.833	1.193	1	5
Post	10	4	0.667	3	5

Q10

p value: 0.359 1
t statistic: -0.939
O'Brien's test for homogeneity of variance: 0.011 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.75	1.055	1	5
Post	10	4.1	0.568	3	5

Table E.1 Continued

Q11

p value: 0.051 1
t statistic: -2.075
O'Brien's test for homogeneity of variance: 0.376 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.583	0.996	1	5
Post	10	4.3	0.483	4	5

Q12

p value: 0.508 1
t statistic: -0.674
O'Brien's test for homogeneity of variance: 0.477 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.333	1.155	1	5
Post	10	4.6	0.516	4	5

Q13

p value: 0.959 1
t statistic: -0.052
O'Brien's test for homogeneity of variance: 0.418 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.583	0.669	2	4
Post	10	3.6	0.843	2	5

Q14

p value: 0.332 1
t statistic: -0.994
O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.25	1.357	1	5
Post	10	4.7	0.483	4	5

Table E.1 Continued

Q15

p value: 0.503 1

t statistic: -0.682

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.083	0.793	2	5
Post	10	4.3	0.675	3	5

Q16

p value: 0.805 1

t statistic: 0.25

O'Brien's test for homogeneity of variance: 0.376 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.75	0.452	3	4
Post	10	3.7	0.483	3	4

Q17

p value: 0.523 1

t statistic: -0.65

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.333	0.651	3	5
Post	10	4.5	0.527	4	5

Q18

p value: 0.172 1

t statistic: -1.418

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.25	0.622	3	5
Post	10	4.6	0.516	4	5

Table E.1 Continued

Q19

p value: 0.473 1

t statistic: -0.731

O'Brien's test for homogeneity of variance: 0.564 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.25	0.866	1	4
Post	10	3.5	0.707	2	4

Q20

p value: 0.757 1

t statistic: -0.313

O'Brien's test for homogeneity of variance: 0.305 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.167	1.03	1	5
Post	10	3.3	0.949	2	5

Q21

p value: 0.891 1

t statistic: -0.139

O'Brien's test for homogeneity of variance: 0.365 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.333	1.155	2	5
Post	10	3.4	1.075	2	5

Q22

p value: 0.475 1

t statistic: -0.728

O'Brien's test for homogeneity of variance: 0.714 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.917	1.084	1	5
Post	10	4.2	0.632	3	5

Table E.1 Continued

Q23

p value: 0.55 1
t statistic: 0.608
O'Brien's test for homogeneity of variance: 0.347 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.833	0.937	2	5
Post	10	3.6	0.843	2	5

Q24

p value: 0.207 1
t statistic: -1.303
O'Brien's test for homogeneity of variance: 0.544 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.167	0.718	2	4
Post	10	3.6	0.843	2	5

Q25

p value: 0.388 1
t statistic: -0.883
O'Brien's test for homogeneity of variance: 0.44 2

Survey	N	Mean	SD	Min	Max
Pre	12	4	0.426	3	5
Post	10	4.2	0.632	3	5

Q26

p value: 0.089 1
t statistic: -1.786
O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	2.75	0.754	2	4
Post	10	3.3	0.675	2	4

Table E.1 Continued

Q27

p value: 0.638 1

t statistic: 0.477

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	1.917	0.515	1	3
Post	10	1.8	0.632	1	3

Q28

p value: 0.827 1

t statistic: -0.222

O'Brien's test for homogeneity of variance: 0.942 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.417	0.9	2	5
Post	10	3.5	0.85	2	4

Q29

p value: 0.127 1

t statistic: 1.59

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.333	0.888	2	4
Post	10	2.8	0.632	2	4

Q30

p value: 0.339 1

t statistic: -0.98

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.917	0.515	3	5
Post	10	4.1	0.316	4	5

Table E.1 Continued

Q31

p value: 0.78 1

t statistic: -0.284

O'Brien's test for homogeneity of variance: 0.294 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.417	0.669	2	4
Post	10	3.5	0.707	2	4

Q32

p value: 0.686 1

t statistic: -0.41

O'Brien's test for homogeneity of variance: 0.54 2

Survey	N	Mean	SD	Min	Max
Pre	12	2.917	1.084	1	5
Post	10	3.1	0.994	2	5

Q33

p value: 0.644 1

t statistic: -0.469

O'Brien's test for homogeneity of variance: 0.466 2

Survey	N	Mean	SD	Min	Max
Pre	12	2.75	0.754	2	4
Post	10	2.9	0.738	2	4

Q34

p value: 0.277 1

t statistic: 1.117

O'Brien's test for homogeneity of variance: 0.401 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.583	0.515	3	4
Post	10	3.3	0.675	2	4

Table E.1 Continued

Q35

p value: 0.207 1

t statistic: 1.303

O'Brien's test for homogeneity of variance: 0.493 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.917	0.289	3	4
Post	10	3.7	0.483	3	4

Q36

p value: 0.943 1

t statistic: -0.072

O'Brien's test for homogeneity of variance: 0.835 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.083	0.669	3	5
Post	10	4.1	0.316	4	5

Q37

p value: 0.237 1

t statistic: 1.218

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.833	0.718	3	5
Post	10	3.5	0.527	3	4

Q38

p value: 0.564 1

t statistic: -0.586

O'Brien's test for homogeneity of variance: 0.922 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.75	0.622	3	5
Post	10	3.9	0.568	3	5

Table E.1 Continued

Q39

p value: 0.573 1

t statistic: -0.573

O'Brien's test for homogeneity of variance: 0.406 2

Survey	N	Mean	SD	Min	Max
Pre	12	4.083	0.515	3	5
Post	10	4.2	0.422	4	5

Q40

p value: 0.231 1

t statistic: -1.235

O'Brien's test for homogeneity of variance: 0.678 2

Survey	N	Mean	SD	Min	Max
Pre	12	3.417	0.669	2	4
Post	10	3.8	0.789	2	5

1 If p is small, e.g. less than 0.01, or 0.001, you can assume the result is statistically significant i.e. there is a difference.

2 If the value is small, e.g. less than 0.01, or 0.001, you can assume there is a difference in variance.

APPENDIX F: WRA 150 INDEPENDENT SAMPLE T-TEST

Table F.1 WRA 150 Independent Sample t-test

Q7

p value: 0.218 1
t statistic: -1.25
O'Brien's test for homogeneity of variance: 0.947 2

Group	N	Mean	SD	Min	Max
1	25	3.92	0.759	2	5
2	22	4.182	0.664	3	5

Q8

p value: 0.278 1
t statistic: -1.099
O'Brien's test for homogeneity of variance: 0.477 2

Group	N	Mean	SD	Min	Max
1	25	4.08	0.572	3	5
2	22	4.273	0.631	3	5

Q9

p value: 0.578 1
t statistic: 0.56
O'Brien's test for homogeneity of variance: 0.507 2

Group	N	Mean	SD	Min	Max
1	25	3.76	0.723	2	5
2	22	3.636	0.79	2	5

Q10

p value: 0.446 1
t statistic: 0.768
O'Brien's test for homogeneity of variance: 0.765 2

Survey	N	Mean	SD	Min	Max
Pre	25	4	0.5	3	5
Post	22	3.864	0.71	2	5

Table F.1 Continued

Q11

p value: 0.032 1
t statistic: -2.207
O'Brien's test for homogeneity of variance: 0.428 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.84	0.554	3	5
Post	22	4.182	0.501	3	5

Q12

p value: 0.333 1
t statistic: 0.978
O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	25	4.2	0.577	3	5
Post	22	4	0.816	2	5

Q13

p value: 0.258 1
t statistic: -1.147
O'Brien's test for homogeneity of variance: 0.423 2

Survey	N	Mean	SD	Min	Max
Pre	24	3.917	0.504	2	5
Post	22	4.091	0.526	3	5

Q14

p value: 0.248 1
t statistic: -1.171
O'Brien's test for homogeneity of variance: 0.55 2

Survey	N	Mean	SD	Min	Max
Pre	25	4.36	0.49	4	5
Post	22	4.545	0.596	3	5

Table F.1 Continued

Q15

p value: 0.138 1

t statistic: -1.511

O'Brien's test for homogeneity of variance: 0.664 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.32	0.748	2	4
Post	22	3.682	0.894	2	5

Q16

p value: 0.7 1

t statistic: -0.388

O'Brien's test for homogeneity of variance: 0.926 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.36	0.81	2	4
Post	22	3.455	0.858	2	5

Q17

p value: 0.583 1

t statistic: 0.552

O'Brien's test for homogeneity of variance: 0.502 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.24	0.831	2	5
Post	22	3.091	1.019	1	4

Q18

p value: 0.862 1

t statistic: 0.175

O'Brien's test for homogeneity of variance: 0.225 2

Survey	N	Mean	SD	Min	Max
Pre	25	2.96	0.978	2	5
Post	22	2.909	1.019	2	5

Table F.1 Continued

Q19

p value: 0.48 1

t statistic: -0.712

O'Brien's test for homogeneity of variance: 0.296 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.76	0.436	3	4
Post	22	3.864	0.56	3	5

Q20

p value: 0.21 1

t statistic: -1.272

O'Brien's test for homogeneity of variance: 0.301 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.36	0.7	2	4
Post	22	3.636	0.79	2	5

Q21

p value: 0.46 1

t statistic: 0.745

O'Brien's test for homogeneity of variance: 0.422 2

Survey	N	Mean	SD	Min	Max
Pre	24	3.083	0.776	2	4
Post	22	2.909	0.811	2	4

Q22

p value: 0.001 1

t statistic: -3.498

O'Brien's test for homogeneity of variance: 0.356 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.48	0.653	2	4
Post	22	4.091	0.526	3	5

Table F.1 Continued

Q23

p value: 0.063 1

t statistic: -1.905

O'Brien's test for homogeneity of variance: 0.964 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.92	0.4	3	5
Post	22	4.227	0.685	3	5

Q24

p value: 0.143 1

t statistic: -1.492

O'Brien's test for homogeneity of variance: 0.467 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.12	0.881	1	4
Post	22	3.5	0.859	2	5

Q25

p value: 0.617 1

t statistic:
0.503

O'Brien's test for homogeneity of variance: 0.868 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.52	0.714	2	4
Post	22	3.409	0.796	2	5

Q26

p value: 0.268 1

t statistic: 1.122

O'Brien's test for homogeneity of variance: 0.473 2

Survey	N	Mean	SD	Min	Max
Pre	24	3.5	0.659	2	4
Post	22	3.227	0.973	2	5

Table F.1 Continued

Q27

p value: 0.829 1

t statistic: -0.218

O'Brien's test for homogeneity of variance: 0.478 2

Survey	N	Mean	SD	Min	Max
Pre	25	2.04	0.735	1	4
Post	22	2.091	0.868	1	5

Q28

p value: 0.195 1

t statistic: 1.315

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.8	0.408	3	4
Post	22	3.591	0.666	2	5

Q29

p value: 0.397 1

t statistic: 0.856

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	24	3.5	0.78	2	5
Post	22	3.318	0.646	2	4

Q30

p value: 0.751 1

t statistic: 0.319

O'Brien's test for homogeneity of variance: 0.432 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.92	0.702	2	5
Post	22	3.864	0.468	3	5

Table F.1 Continued

Q31

p value: 0.659 1

t statistic: 0.445

O'Brien's test for homogeneity of variance: 0.596 2

Survey	N	Mean	SD	Min	Max
Pre	24	3.667	0.565	2	4
Post	22	3.591	0.59	3	5

Q32

p value: 0.792 1

t statistic: 0.266

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	24	2.75	0.847	2	5
Post	22	2.682	0.894	1	4

Q33

p value: 0.54 1

t statistic: 0.618

O'Brien's test for homogeneity of variance: 0.41 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.2	0.913	2	5
Post	22	3.045	0.785	2	4

Q34

p value: 0.414 1

t statistic: -0.825

O'Brien's test for homogeneity of variance: 0.308 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.64	0.569	2	4
Post	22	3.773	0.528	2	4

Table F.1 Continued

Q35

p value: 0.26 1

t statistic: 1.14

O'Brien's test for homogeneity of variance: 0.496 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.84	0.374	3	4
Post	22	3.682	0.568	3	5

Q36

p value: 0.328 1

t statistic: 0.988

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.92	0.572	2	5
Post	22	3.773	0.429	3	4

Q37

p value: 0.036 1

t statistic: 2.163

O'Brien's test for homogeneity of variance: 0.502 2

Survey	N	Mean	SD	Min	Max
Pre	25	4	0.957	2	5
Post	22	3.409	0.908	2	5

Q38

p value: 0.266 1

t statistic: 1.126

O'Brien's test for homogeneity of variance: 1.0 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.76	0.523	3	5
Post	22	3.591	0.503	3	4

Table F.1 Continued

Q39

p value: 0.413 1

t statistic: 0.826

O'Brien's test for homogeneity of variance: 0.383 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.8	0.5	3	5
Post	22	3.682	0.477	3	4

Q40

p value: 0.023 1

t statistic: 2.348

O'Brien's test for homogeneity of variance: 0.331 2

Survey	N	Mean	SD	Min	Max
Pre	25	3.72	0.458	3	4
Post	22	3.364	0.581	2	4

1 If p is small, e.g. less than 0.01, or 0.001, you can assume the result is statistically significant i.e. there is a difference.

2 If the value is small, e.g. less than 0.01, or 0.001, you can assume there is a difference in variance.

APPENDIX G: PRE-SURVEY CORRELATIONS (WRA 110, WRA 395, WRA 150)

Table G.1 Pre-Survey Correlations (WRA 110, WRA 395, WRA 150)

Q8
Q8/Q7
0.411
0.000

Q9		
Q9/Gender	Q9/ESL	Q9/Q7
0.191	0.190	0.419
0.047	0.049	0.000

Q10		
Q10/Q7	Q10/Q8	Q10/Q9
0.311	0.219	0.244
0.001	0.022	0.010

Q11		
Q11/Q7	Q11/Q9	Q11/Q10
0.374	0.301	0.441
0.000	0.001	0.000

Q12	
Q12/Q7	Q12/9
0.444	0.372
0.000	0.000

Q13		
Q12/Q9	Q12/Q11	Q13/Q12
0.291	0.323	0.297
0.002	0.001	0.002

Table G.1 Continued

Q14

Q14/Class	Q14/Q9	Q14/Q9	Q14/Q11	Q14/Q12	Q14/Q13
0.231	0.309	0.309	0.368	0.536	0.363
0.015	0.001	0.001	0.000	0.000	0.000

Q15

Q15/Class	Q15/GPA	Q15/ESL	Q15/ Required	Q15/Q14
0.323	0.219	-0.296	0.214	0.190
0.001	0.023	0.002	0.027	0.049

Q16

Q16/Class
0.230
0.016

Q17

Q17/Class	Q17/GPA	Q17/ESL	Q17/ Required	Q17/Q15
0.328	0.267	-0.246	0.270	0.707
0.000	0.005	0.010	0.005	0.000

Q18

Q18/ Gender	Q18/Class	Q18/GPA	Q18/GPA	Q18/Q12	Q18/14	Q18/Q15
0.233	0.387	0.359	0.359	0.204	0.222	0.344
0.015	0.000	0.000	0.000	0.034	0.020	0.000
Q18/Q16	Q18/Q17					
0.191	0.409					
0.047	0.000					

Table G.1 Continued

Q19

Q19/ESL	Q19/ Required	Q19/ Required	Q19/Q10	Q19/Q11	Q19/Q12	Q19/Q13
-0.199	-0.230	0.277	0.370	0.189	0.300	0.196
0.039	0.017	0.004	0.000	0.049	0.002	0.042
Q19/Q14						
0.311						
0.001						

Q20

Q20/Q9	Q20/Q10	Q20/Q11	Q20/Q12	Q20/Q14	Q20/Q19	Q21/ESL
0.403	0.208	0.426	0.533	0.227	0.207	0.231
0.000	0.030	0.000	0.000	0.018	0.031	0.017

Q21

Q21/Q7	Q21/Q11	Q21/Q20
0.242	0.234	0.258
0.012	0.015	0.007

Q22

Q22/Class	Q22/Q7	Q22/Q9	Q22/Q10	Q22/Q10	Q22/Q12	Q22/Q14
0.275	0.262	0.202	0.256	0.713	0.275	0.268
0.004	0.006	0.036	0.007	0.000	0.004	0.005
Q22/Q18	Q22/Q20					
0.210	0.333					
0.028	0.000					

Q24

Q24/Class
0.218
0.023

Q25

Q25/Class	Q25/GPA	Q25/Q18	Q25/Q19
0.240	0.324	0.285	0.233
0.012	0.001	0.003	0.015

Table G.1 Continued

Q26				
Q26/Q11	Q26/Q12	Q26/Q13	Q26/Q14	Q26/Q19
0.231	0.241	0.285	0.261	0.371
0.016	0.012	0.003	0.006	0.000

Q27						
Q27/Q12	Q27/Q13	Q27/Q14	Q27/Q15	Q27/Q18	Q27/Q20	Q27/Q21
-0.253	-0.262	-0.331	-0.232	-0.223	-0.187	-0.218
0.008	0.006	0.000	0.016	0.020	0.052	0.024

Q29	
Q29/Class	Q29/ESL
-0.310	0.199
0.001	0.040

Q31				
Q31/Q8	Q31/Q13	Q31/Q19	Q31/Q25	Q31/Q26
0.395	0.216	0.436	0.293	0.319
0.000	0.025	0.000	0.002	0.001

Q32					
Q32/ESL	Q32/Q12	Q32/Q15	Q32/Q21	Q32/Q26	Q32/Q29
0.357	0.252	-0.290	0.210	0.251	0.203
0.000	0.008	0.002	0.030	0.009	0.036

Q33		
Q33/Class	Q33/ESL	Q33/ Required
-0.231	0.209	-0.215
0.016	0.030	0.026

Q34	
Q34/Q19	Q34/Q31
0.331	0.236
0.000	0.014

Table G.1 Continued

Q35		
Q35/Q8	Q35/Q13	Q35/Q27
-0.199	0.272	-0.243
0.038	0.004	0.011

Q36						
Q36/Q8	Q36/Q13	Q36/Q18	Q36/Q21	Q36/Q25	Q36/Q31	Q36/Q32
0.226	0.232	0.268	0.196	0.361	0.218	0.215
0.019	0.016	0.005	0.045	0.000	0.024	0.026
Q36/Q34						
0.341						
0.000						

Q37	
Q37/Q10	Q37/Q33
0.227	0.227
0.018	0.017

Q38						
Q38/GPA	Q38/Q9	Q38/Q13	Q38/Q16	Q38/Q18	Q38/Q25	Q38/Q27
0.284	0.219	0.260	0.230	0.217	0.336	-0.342
0.003	0.023	0.007	0.017	0.024	0.000	0.000
Q38/Q32	Q38/Q34	Q38/Q35	Q38/Q36			
0.304	0.321	0.269	0.263			
0.001	0.001	0.005	0.006			

Q39						
Q39/Q9	Q39/Q10	Q39/Q11	Q39/Q12	Q39/Q13	Q39/Q20	Q39/Q26
0.223	0.326	0.208	0.268	0.219	0.259	0.241
0.019	0.001	0.030	0.005	0.022	0.007	0.012
Q39/Q32	Q39/Q35	Q39/Q36	Q39/Q38			
0.332	0.311	0.207	0.193			
0.000	0.001	0.031	0.045			

N=109

Pre-Survey Correlations At Least $P < .05$

APPENDIX H: POST-SURVEY CORRELATIONS (WRA 110, WRA 395, WRA 150)

Table H.1 Post-Survey Correlations (WRA 110, WRA 395, WRA 150)

Q7
Class
-0.275
0.006

Q9	
Gender	Q9/Age
0.249	-0.263
0.014	0.01

Q10	
Q10/Q8	Q10/Q9
0.221	0.36
0.029	0

Q11			
Q11/Q7	Q11/Q8	Q11/Q9	Q11/Q10
0.244	0.22	0.2	0.505
0.016	0.03	0.05	0

Q12	
Q12/ Gender	Q12/Q11
0.282	0.351
0.005	0

Q13				
Q13/Q7	Q13/Q8	Q13/Q10	Q13/Q11	Q13/Q12
0.343	0.23	0.266	0.366	0.313
0.001	0.024	0.008	0	0.002

Table H.1 Continued

Q14			
Q14/Q8	Q14/Q10	Q14/11	Q14/Q13
0.214	0.23	0.377	0.309
0.035	0.024	0	0.002

Q15				
Q15/ Class	Q15/GPA	Q15/ Ethnicity	Q15/ESL	Q15/Q14
0.258	0.365	-0.301	-0.29	0.286
0.011	0	0.003	0.004	0.005

Q16					
Q16/ Gender	Q16/Q9	Q16/Q10	Q16/Q11	Q16/Q12	Q16/Q13
0.215	0.239	0.287	0.199	0.259	0.248
0.035	0.018	0.004	0.05	0.01	0.014

Q17				
Q17/ Class	Q17/ Ethnicity	Q17/ESL	Q17q12	Q17/Q15
0.341	-0.272	-0.371	0.236	0.721
0.001	0.007	0	0.021	0

Q18			
Q18/ Gender	Q18/Q12	Q18/Q15	Q18/Q16
0.289	0.425	0.41	0.276
0.004	0	0	0.007

Q19
Q19/Q16
0.268
0.008

Table H.1 Continued

Q20					
Q21/ Gender	Q21/GPA	Q21/ESL	Q21/Q11	Q21/Q12	Q21/Q18
0.277	0.234	0.278	0.224	0.281	0.232
0.006	0.022	0.006	0.028	0.006	0.023

Q21				
Q22/Q8	Q22/Q10	Q22/Q11	Q22/Q12	Q22/Q20
0.22	0.38	0.604	0.247	0.206
0.03	0	0	0.015	0.044

Q22					
Q23/Q8	Q23/Q11	Q23/Q13	Q23/Q14	Q23/Q14	Q23/Q22
0.302	0.237	0.217	0.266	0.248	0.264
0.003	0.02	0.034	0.009	0.015	0.009

Q23					
Q24/ Gender	Q24/ Class	Q24/Q8	Q24/Q15	Q24/Q17	Q24/Q18
0.212	0.246	0.203	0.333	0.213	0.206
0.037	0.015	0.046	0.001	0.037	0.044

Q24						
Q25/Q14	Q25/Q15	Q25/Q16	Q25/Q17	Q25/Q19	Q25/Q21	Q25/Q22
0.202	0.307	0.424	0.357	0.289	0.216	0.201
0.047	0.002	0	0	0.004	0.035	0.048
Q25/Q24						
0.299						
0.003						

Table H.1 Continued

Q25

Q26/ Gender	Q26/Q11	Q26/Q12	Q26/Q13	Q26/Q15	Q26/Q16	Q26/Q17
0.221	0.226	0.392	0.31	0.266	0.282	0.212
0.03	0.026	0	0.002	0.008	0.005	0.038
Q26/Q18	Q26/Q19	Q26/Q21	Q26/Q24	Q26/Q25		
0.216	0.326	0.245	0.3	0.307		
0.034	0.001	0.016	0.003	0.002		

Q26

Q27/ESL	Q27/Q10	Q127/ Q14
0.274	-0.36	-0.233
0.007	0	0.021

Q27

Q28/Q7	Q28/Q9	Q28/Q16	Q28/Q21
0.372	0.376	0.367	0.339
0	0	0	0.001

Q29

Q29/Q22	Q29/Q24	Q29/Q27
-0.214	0.244	0.208
0.036	0.016	0.041

Q30

Q30/Q15	Q30/Q18	Q30/Q19	Q30/Q23	Q30/Q25
0.211	0.203	0.212	0.271	0.246
0.038	0.047	0.037	0.007	0.015

Q31

Q31/Q8	Q31/Q10	Q31/Q13	Q31/Q15	Q31/Q17	Q31/Q19	Q31/Q22
0.573	0.235	0.265	0.345	0.239	0.468	0.336
0	0.021	0.009	0.001	0.019	0	0.001
Q31/Q25	Q31/Q26	Q31/Q30				
0.408	0.399	0.253				
0	0	0.013				

Table H.1 Continued

Q32

Q32/ Gender	Q32/ESL	Q32/Q12	Q32/Q16	Q32/Q18	Q32/Q26
0.206	0.236	0.347	0.202	0.278	0.327
0.043	0.02	0	0.047	0.006	0.001

Q33

Q33/ Class	Q33/Q30
-0.203	0.254
0.046	0.012

Q34

Q34/Age	Q34/Q10	Q34/Q11	Q34/Q11	Q34/Q16	Q34/Q19	Q34/Q26
-0.287	0.351	0.268	0.2	0.356	0.394	0.296
0.005	0	0.008	0.05	0	0	0.003
Q34/Q30	Q34/Q31					
0.257	0.237					
0.011	0.019					

Q35

Q35/Q29
0.205
0.044

Q36

Q36/GPA	Q36/Q14	Q36/Q15	Q36/Q16	Q36/Q17	Q36/Q18	Q36/Q19
0.237	0.253	0.24	0.293	0.304	0.254	0.328
0.02	0.012	0.018	0.004	0.003	0.013	0.001
Q36/Q25	Q36/Q26	Q36/Q31	Q37/Q33			
0.341	0.237	0.253	0.258			
0.001	0.019	0.012	0.011			

Table H.1 Continued

Q38						
Q38/Q9	Q28/Q16	Q38/Q18	Q38/Q12	Q38/Q26	Q38/Q28	Q28/Q32
0.341	0.355	0.227	0.317	0.245	0.441	0.293
0.001	0	0.026	0.002	0.016	0	0.004
Q38/Q35	Q38/Q36					
0.263	0.237					
0.009	0.019					

Q39						
Q39/Q10	Q39/Q11	Q29/Q22	Q39/Q26	Q39/Q30	Q39/Q31	Q39/Q38
0.313	0.234	0.248	0.211	0.256	0.236	0.362
0.002	0.021	0.015	0.038	0.011	0.02	0

Q40						
Q40/ Gender	Q40/Q11	Q40/Q12	Q40/Q15	Q40/Q16	Q40/Q18	Q40/Q21
0.257	0.204	0.234	0.276	0.215	0.251	0.358
0.011	0.045	0.021	0.006	0.035	0.014	0
Q40/Q22	Q40/Q25	Q40/Q28	Q40/Q31	Q40/Q38	Q40/Q39	
0.244	0.24	0.32	0.235	0.649	0.449	
0.016	0.018	0.001	0.021	0	0	

N=97

Pre-Survey Correlations At Least $P < .05$

APPENDIX I: CREATIVE COMMONS LICENSE

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