Assignment 2—Pilot Field Study: Team Report and Class Presentation

Cloud-Based Lesson Planning and Iterative Design Thinking

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A teacher's lesson plans evolve over time—they are revised and tweaked, adjusting for what worked and what did not. After a lesson is delivered, a teacher may reflect on whether outcomes and goals were met. A teacher may note how long activities took and account for what was engaging for students. Certain materials that would have aided student success may also be rewritten into a lesson plan. For example, if a website or a certain book may have helped students, a teacher could add it into the plan for future use. This process describes the application of design thinking to lesson plan writing. Iterative in nature, design thinking has several successive steps: ideation, prototyping, testing, and then prototyping again (Bers, 2008).

With onset of the online lesson planning services more readily available to schools, administrators and teachers alike are facing the challenge of implementation. Administrators can be burdened with data-driven reporting requirements for funding. Teachers are often in the position of negotiating evolving pedagogical methodology with their method of instructional delivery. The tension then arises regarding how to negotiate the implementation of top-down directives into a teacher's personal teaching style.

Educational institutions have been moving towards paperless, or computer-based, recordkeeping; student information systems (e.g., gradebooks, attendance monitoring, individualized education plan tracking) are already available online. The changing landscape of education politics, funding, operations, and teaching methods are quickly shifting to a data-driven decision making model. Teachers, like administrators, are often faced with the task of gathering actionable information. These initiatives are also tied to data-driven decision-making, in which information is gathered, assessed, and acted upon. Administrative lesson plan reviews fall under this purview—it is part of the process of

observing a teacher's performance. The administrator's goal is also to ensure that teachers adhere to state-adopted standards.

Using technology, like online lesson plans, can enable teachers to easily track student progress. The implications of understanding teacher motivation and behavior relating to the adoption new administrative technologies in the classroom is pertinent to district sustainability, scalability, and growth.

Iterative Design

Mental models describe how individuals—and outside groups—perceive ideas (Senge, 2006). In a classroom, what a teacher intends may not align with the student's experience. Effective student-centered learning is a conversation between the student and the teacher. Learning is an iterative process. Because one can never anticipate unintended consequences, it is undetermined whether the students' experience will match the teacher's mental model of a lesson. Only a cycle of tests, feedback, and iteration would promote the mental models to match the proposed need. Student feedback can be assessed to create a conversation of participatory design. The result is a classroom in which everyone strives continually to learn and grow at his or her best capacity.

Lesson plans are the teacher's design document in which mental models are presented. In essence, the teacher's mental model of lesson delivery is tested and revised until is better "fits" the needs of others. The teacher-designer, the administration, and/or the students can assess the success of the lesson, and provide feedback to the teacher. The purpose of this pilot study is to determine whether or not Internet-based lesson planning tools promote the frequency of lesson plan reflection and iteration.

Cloud Computing

Cloud computing colloquially refers to a system of managing data-storage and data access. The "cloud" refers to off-site server(s) storage, accessible to the user through an Internet network (NIST, 2011). "Cloud" based delivery solutions are available for institutional purchase through a service provider, there are three types of "cloud" based general services available to institutions: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS) (NIST, 2011). The difference between the three types of services rests in the back-end support, rarely affecting the look and feel of the service for the targeted user. Although there are drawbacks to using these types of services, the benefits often far outweigh the costs. Implementing a cloud-based solution allows a kind of institutional collaboration, affecting all aspects of school operation. It is up to the institution to decide the best fit for their organization, with considerations being made to funding and operations.

Using the cloud-based resources on a granular level—in this case in the classroom as a design space for a lesson plan—allows for collection of highly detailed data. Information can be aggregated and used as a reference for organizational decisions on all levels. For the teacher, the benefit of using such data includes the opportunity to augment lesson plans in real time, with many purposes in mind. With access to an Internet, a teacher can begin a document at a workstation, save it in the "cloud," and then continue editing the document from another computer, a tablet, or even a smartphone. As a result, a system of portability exists across devices and platforms. Cloud computing is "recognized as a means of improving productivity and expanding collaboration in education" (Johnson, Adams, Estrada, and Freeman, 2014, p. 36).

The use of cloud-based lesson planning tool was examined in this study's two surveyed schools. The service is from OnCourse Systems for Education. Using the Lesson Planner portal, accessible via computer browser, enables teachers to access plans from multiple locations and devices. This system has the potential to lower barriers to lesson plan access, views, and edits. A modification or adjustment could, theoretically, be executed at the conclusion of a particular lesson. Because a copy-and-paste function exists, teachers can reuse the current year's plans in the future.

OnCourse is fully Internet-based; it is accessible anywhere there is a connection to the Web ("OnCourse Systems for Education," 2014). Standards can be attached by clicking strands on a pull-down menu. Peer collaboration (e.g., co-teachers, grade-level discipline teams), copy-and-paste functionality of standards, and file sharing are software features. Teachers do not have a dedicated tablet application for editing; however, plans can be viewed via a mobile browser. The Lesson Planner editing tool can only be utilized via laptop or desktop computer, using an Internet browser. Teachers may opt to attach documents for homework or for the lesson itself. Once uploaded, documents can be accessible from anywhere. Administrators can review and give feedback to a teacher's posted lessons ("OnCourse Systems for Education," 2014).

OnCourse sponsored a pilot study of its own in 2007. It found that teachers revised plans more frequently than with prior technologies—including the use of word processing tools, as well as pen and paper, to track plans (Waters, 2007). A participant in an article describing the pilot noted, "Teachers check last year's plan and adjust it to the needs of the new [school] year. Or they can lift good ideas from other teachers' plans" (Waters, 2007, p. 47). No formal research study exists to attest to the efficacy of this

claim. Furthermore, the article, which described the OnCourse pilot study and its potential to lower barriers to lesson plan iterations, is seven years old. There is also little to no research about how other Internet-based tools affect design changes.

Cloud-based lesson planning, like other educational technology tools, should be implemented using a systemic model. As opposed to technocentric approach, in which the technology becomes the focal point of learning, OnCourse Lesson Planner is designed to be a tool to help users record and share lessons. In other words, the system of the learning environment—not the technology itself—should be the focus of design.

Literature Review

Cloud computing has the potential to change the way teachers deliver instruction. This technology can be used to enhance instruction. It enables educators to have access to information and data across the Internet. Internet-based tools provide teachers with the ability to manage storage, platforms (Mac, PC, mobile), and services remotely (Blue and Tirotta, 2011). This can give teachers the ability to share data with their colleagues.

Cloud computing has become more ubiquitous in educational institutions. Google's list of cloud-based services includes collaborative document and spreadsheet tools, as well as Internet-based email. In New York State, over 3 million students and 200,000 teachers use Google Apps (Denton, 2012). The Oregon Department of Education initiated Google Applications ("Google Apps") for teachers and students as a tool to infuse technology for teaching and learning.

Like other new technologies, teachers may initially display a resistance to integrating cloud computing when planning instruction. In terms of implementing technology within classroom instruction, the rate of cloud computing is increasing. In a

study, three special education high school teachers used a cloud-based office suite with their students (Denton, 2012). They used an Internet-based spreadsheet to track behavior points of students. Students from other school districts were also given the capabilities to edit and add information to the shared document. Teachers were creating ways in which students could work collaboratively on projects—including written narratives and a variety of activities that enhance learning (Denton, 2012).

A research study of how English teachers revise online lesson plan was conducted in 2012. It tested a concept known as "Design-Based Research (DBR)," which describes how planning adapts in real-time as it is executed (Thein, Barbas, Carnevali, Fox, Mahoney, & Vensel, 2012, pp. 122-123). Research was conducted testing teacher pragmatism via a series of interviews with middle and high school teachers. It was discovered that administrative rigidity had no place in implementation; teachers needed freedom to change their own plans. To that end, the study's findings suggested, "When teachers are engaged in thinking about their practice in ways that position them as intellectuals who have agency and autonomy, they are both driven to approach required curricula with reflection and creativity, and proactive in engaging students in new and innovative texts and activities" (Thein et al., 2012, p. 133). It is possible that the efficiency of cloud-based tools empowers iterative lesson design.

Methodology

Understanding the motivation leading to the revision of lesson plans by teachers required triangulation to validate findings. The scale developed for this survey was designed to collect data in a way that would provide insight on the same data point (or variable), using different tools and perspectives. The scales collected several sets of self-

reported data: one set from the researchers prescribed pre-determined listing, and another set from the open-ended option of "other." Finally, a third set of data collected by the scale focused exclusively on collecting the report of a behavior in a binary "True/False" context. To qualify as a mixed-method design, the scale required both closed-ended measures and open-ended observations (Creswell, 2014).

This type of scale design catered to a phenomenological inquiry, whereby the experiences of the researchers facilitated the interpretations of reported experiences by the participants. However, as a pilot study, the inquiry was limited to only one survey distribution using convenience sampling. The goal of this inquiry was not so much as to ascertain an understanding of the behavior, as much as it was to assess the reliability of the scale developed and designed by the researchers.

The combination of the three types of self-reporting measures embedded in the scale allowed for a cross-examination and determination of scale reliability. The use of statistical analysis or reliance on previously validated scales was not included. As a triangulated form of self-reporting, the participant's responses were subject to reporting bias.

Using a mixed methods approach, the researchers used the scale to examine the following two research questions:

1. To what extent does the use of cloud-based, lesson planning technology affect lesson plan iterations?
2. To what extend does the feedback source influence lesson planning iterations?

Instrumentation

Fassinger and Morrow emphasized the importance of cultural awareness and role of the researcher(s) when conducting social-science research (2013). Speaking to the role of researcher competence in the field, this pilot study had several iterations of the research plan, questions, scale structures, as well as the actual research questions. The process of scale design involved the collaboration of three types of researchers/instructors: a teacher, a library specialist, and a former instructional designer. All three had different experiences—and consequential knowledge sets—of the behavior studied: the adoption of an Internet-based technology by teachers for lesson planning. From the perspective of the team dynamic, issues of seniority or status did not affect the neutral space of collaboration. Therefore, the development of the scale was not subject to proprietary agendas of the researchers from the perspective of development. This speaks to the issues of power in a research team, as discussed by Fassinger and Morrow (2013).

The principle experience of the first researcher, an in-group member of the pilot's target demographic, provided an insight into the process of long-term lesson planning for a middle-school class. Additionally, the researchers experience in the function of a teacher, as the facilitator of knowledge to the students, collaborator with colleagues and parents, and a member of a teaching department led to an explication of the perspective of the teacher. Further, this researcher's experience contributed to the development and relationship between mediated communication with students, parents, and administration.

The second researcher, a media literacy specialist, provided a slightly different perspective then the teacher/co-researcher. Whereas the teacher is experienced in lesson plan iterations targeting the same set of students over the course of a school year—fine-

tuning the teaching approach to each student, the media literacy specialist refined her lesson plan on a much larger scale—often targeting entire grades of students. The experience and knowledge provided by the media literacy specialist provided insight into the asynchronous and collaborative functionality Internet-based lesson planning. Further, as an ancillary lesson provider, she was able to contribute to perspective of building a context for ubiquitous user collaboration.

Finally, the third researcher, formerly an instructional designer currently operating as a junior administrator in a community college, brought in the perspective of an operational lens—including funding, data-collection, and systems administration. The perspective of the third researcher provided a meta perspective, moving the scale beyond the granular details of delivery methodology and daily lesson plan objectives, to bring into consideration school-wide significance of data-driven decision making, and its implications for Internet-based lesson planning adoption by teachers. Further, from experience as an instructional designer, the third researcher was able to bring to the scale design an understanding of technology adoption by teachers in the classroom. The behavioral variables may serve as deterrents for the adoption of the technology.

Collectively, the guiding paradigm of lesson plan iterations for the researchers was that motivation for revision was intrinsic—driven by the needs and learning styles of the students—with the end benefit being the student. This perspective would fall under Creswell's constructivist worldview, where the results of the post-pilot inquiry would contribute the development of an understanding relating to the motivation for lesson plan iterative behavior, and the significance of "top-down" (implemented by the administration) technology adoption for this practice (2014).

Procedure

Researchers accessed existing professional networks to distribute the research scale. The scale was sent electronically via an internal list-serve to respective sets of participants. The scale was distributed to a group of suburban teachers, who had been using the cloud-based lesson planning solution for four years, as well as a group of urban teachers, who had only started using the same brand lesson planning solution as recently as last year.

Prior to the distribution of the scale, the researchers did not compare details pertaining to the administrative directives or institutional policies of use in regards to the lesson planning software. The researchers also did not compare active functionalities for the software. It is recognized that although the software brand is the same, the software solution in each environment may be specifically tailored to the needs, policies, and capabilities of each individual school. As the purpose of the scale was to reflect attitudes and behaviors of teachers relating to the software, the researchers did not address available functionality accessible to teachers. Additionally, the researchers made the decision to account for the different administrative procedural uses of the software by focusing specifically on the behavior of lesson plan revision as a response to user feedback, rather than as a response to institutional requirements.

The scale was distributed using a cloud-based survey software tool. The collection was anonymous, without readily available markers of participant's identity, location, or any other general demographic. As the scale was distributed to in-network participants, validation of participant identity and meeting of participant criterion as an educator using the cloud-based software were assumed. The researchers utilized

SurveyMonkey to design the online version of the questionnaire, as well as to aggregate and analyze the quantitative and qualitative data. Because the survey was part of a pilot study, Institutional Review Board (IRB) approval was not sought. A copy of the survey is at the end of this study, in Appendix B.

This pilot study was conducted during early October, weeks before state-mandated Student Growth Objectives (SGOs) were due to building administrators. As a result, the researchers attempted to create as brief a survey as possible. The researchers also decided to not include questions that required answers in order for the participant to submit the survey. It was reasoned that answer requirements might discourage subsequent non-required answers due to survey-fatigue. Because the survey was sent to participant's work emails, a letter was attached to the survey. The letter (Appendix A) ensured that teachers knew their respective administrators had no involvement in the study and that all respondents would participate anonymously; the goal was for teachers to feel safe to respond honestly.

Bias was inherent in the survey. The participants had no immediate or vested interest in the results. For example, a school-based survey on professional development needs could eventually come to fruition; this pilot study would have no immediate consequence for the participants. Also, there existed the possibility of participant fatigue from teachers who were inundated with online surveys.

Self-reporting was yet another inherent bias. Participants could seek the "right" answer to questions. The design of the questions may have also affected the results. Because of concerns over a low rate participant response, there were more closed-ended questions than open-ended. It was also decided to not include required responses. It was

the researcher's opinion that mandating replies might affect validity in subsequent questions. The team did not want to frustrate the survey volunteers.

Errors and biases in self-reported data date back to research reported in a 1972 University of Kansas study. In it, researchers created an experimental setting in which children reported on cleaning their rooms. A copy of the self-report was given to the child's peer. The two reports, one self-reported and the other peer-reported, were found to be inconsistent. The findings found that relying on the participants' ability to be honest in recording data on their own actions may be inherently flawed (Fixsen, Phillips, & Wolf, 1972).

The researchers recognized that data collected via self-reporting is inherently flawed. Therefore, in the future it is recommended that the developed survey be administered with observation of the participants.

Participants

The study was conducted in two New Jersey public schools. Two of the three researchers shared the same online lesson planning tool in their place of work. The schools in which each researcher worked had a different demographic: one was a small suburban school, while the other larger and in an urban population center. Valleyview Middle School is located in Denville Township. It is in a suburban setting. Located in northwest Morris County, it has 622 students, from grades 6 through 8. The town has approximately 16,000 residents. Approximately 89% of Denville is Caucasian; the remaining 11% is Asian, Hispanic, and/or African American (American FactFinder, 2010). The median income is $75,000 annually (American FactFinder, 2010).

Grove Street Elementary School is located in Irvington, New Jersey. The school consists of preschool through grade 5. There are approximately 460 students who attend the school. The population of Irvington is estimated to have 54,305 residents. Irvington consists of multiple races and cultures. People are of Haitian, Jamaican, Puerto Rican, African, and Chinese descent. The aforementioned cultures, along with the African American community, cover approximately 98.8% of the population (American Factfinder, 2010). There are approximately 7.9% Caucasian people who reside in Irvington. The median income is $50,000 annually (American Factfinder, 2010).

Because the tenets of design thinking are not common in a teacher's vernacular, the researchers opted to describe the process in the wording of the survey instrument. For example, "update" took the place of "iterate." Also the phrases "cloud computing" and "Internet-based" were substituted with "online" and "Web-based," respectively—both more common parlances. Also, the word "audience," which typically describes whom the design was intended, was written to be more specific (e.g., student, colleague). The questions were constructed in a first person point-of-view. The questionnaire itself was shortened to fit one page on a computer; 10 questions were asked. The researchers themselves tested the survey to assess clarity and time required for completion. It was found that the survey took less than five minutes to complete.

The researchers launched the questionnaire the morning of October 20, 2014. 70 teachers were asked to participate in the study. 36 were from Valleyview and 34 were from Grove Street. The teachers at each school knew one of the three researchers as a professional colleague. 37 responses were ultimately collected when the survey concluded, at October 24, 2014, at 2:30 PM. The final response rate was 52.8%.

Findings and Analysis

Researchers utilized SurveyMonkey to design the online version of the questionnaire, as well as to aggregate and analyze the quantitative and qualitative data. Because the survey was part of a pilot study, Institutional Review Board (IRB) approval was not sought. Teacher attitudes toward iterating cloud-based lesson plans for were analyzed. A mixed-methods research methodology was conducted in order to attain a more complete picture of iterative design in instructional delivery. Qualitative data was coded frequencies of responses were recorded. Quantitative results were similarly compared. The researchers combined the results, analyzed statistical trends, and compared the variables.

Ten of the survey questions were mapped to two research questions. As some of the survey questions offered opportunity for open-ended commenting from the participants, the researchers were able to collect dynamic qualitative data, from personal reflections from each participant. The mapping of the data is demonstrated in Appendix C. Responses to Research Question 1 were available in the prescriptive and open-ended format.

The analysis of Research Question 1 provided two elements to insight into the behavior of lesson plan revision, as well as into the validity of the pilot study. Survey questions mapped to Research Question 1 provide a baseline of a trend pertaining to the reporting of motivation and action by participants. Research Question 2 was assessed using Research Question 1 as the point of reference.

Research Question 1 looked into the affects of the availability of cloud-based planning on iterative design. Participants were asked to select from a set of prescriptive

responses. Results from the first survey question are shown in Figure 1. It assessed the primary target audience when teachers update their lesson plans. The prescriptive responses identified four different audiences: the receiver of the lesson (the student), the potential collaborator for the lesson (the co-teacher), the administrative leadership, and the self. The researchers recognized that not all teachers surveyed have access to a co-teacher and not all teachers surveyed had the same reporting process to an administrator. Therefore, to accommodate this handicap of the survey it was decided to add the "other" option. This survey question was developed to assess the current process of the teachers' lesson plan, the purpose of which was to develop a baseline for motivation for iterative behavior.

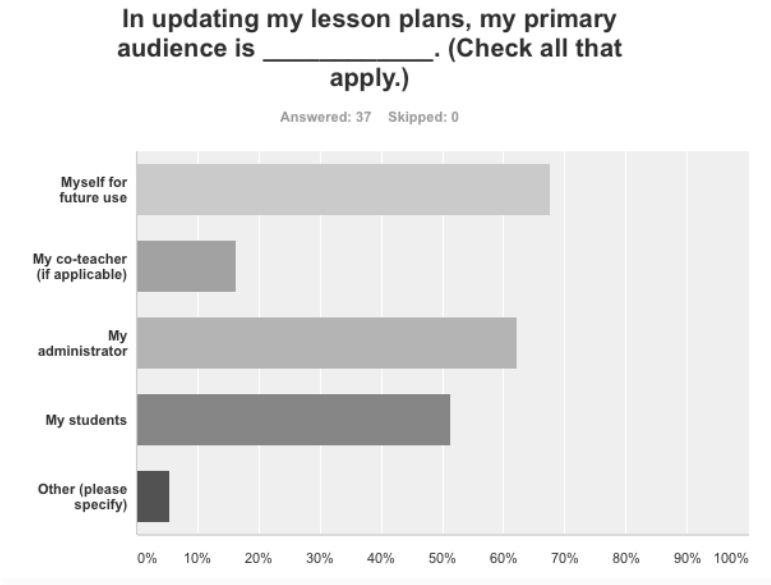

Figure 1. Survey Question 1 results.

Data from Survey Question 1 showed teachers were revisiting lesson plans primarily for themselves in future use. This finding indicates intrinsic motivation to revise lesson plans, followed closely by an extrinsic incentive—where lesson plans revisions targeted the administration as an audience. The sentiment of iterative lesson

planning motivation, and its roots in extrinsic rewards, is echoed in a statement from one comment, in which the participant stated:

> Doing lesson plans online is not a format that works for my thinking process. In doing them online my audience is my administrator. I keep a notebook where I visually think through my lessons. I wish I had more time to do this… the option of a different format that inspires my reflection.

The third, most salient audience motivator identified by teachers was the student. This survey question provided a strong baseline, with fundamental audience-motivators for lesson plan changes. The wording of the questions could have been revised to be more specific about the timing of the revision and the relation of the timing to the audience. Additionally, the survey question failed to measure "formative assessment" as an audience (more on this issue will be discussed in Research Question 2). In its current form, the survey question required participants to generalize the audience for the lesson plan update. Survey Question 2 (illustrated in Figure 2) expanded on the audience motivator for lesson plan changes. As in the first question, the participants focused on assessing the motivation for the intention for changes. The second survey question expanded on the baseline. It focused on feedback from recipients as a source for change.

Figure 2: Survey Question 2 response summary.

In the aspect of active feedback, student engagement and student assessment were identified as the most relevant motivators for lesson plan changes. The question included a prescriptive response of "myself (self-motivation)." This response speaks to the level of internal review and motivation guiding lesson plan revision. Although it is a relevant measure, and most certainly speaks to a significant self-monitoring process, it may need some revision in wording to better flow with the context of the question. What was not included, but should be in a follow up study, is the option of peer-review. This revision was brought up from the open responses, in which one person indicated that they receive some level of summative feedback from the co-teacher.

Understanding behavior relating to intention, and feedback on delivery demonstrates the participants' position as a mediator of the lessons. By providing the dimension of the feedback, the researchers imply that teaching is a communication cycle that closely follows Schramm's 1955 interactive model of communication, in which the teacher delivers a lesson, the students decode the lesson, the teacher then assess the success of the lesson through the interpretation of student feedback, and finally acts on the lesson by altering the lesson plan. Figure 3 shows audience motivation for lesson plan revision. The behavior of updating lesson plans before and after delivery was compared. The graph demonstrates that generally, revisions of lesson plans prior to delivery were developed the administrators as primary audience, and updates after the lesson delivery were primarily motivated by student feedback.

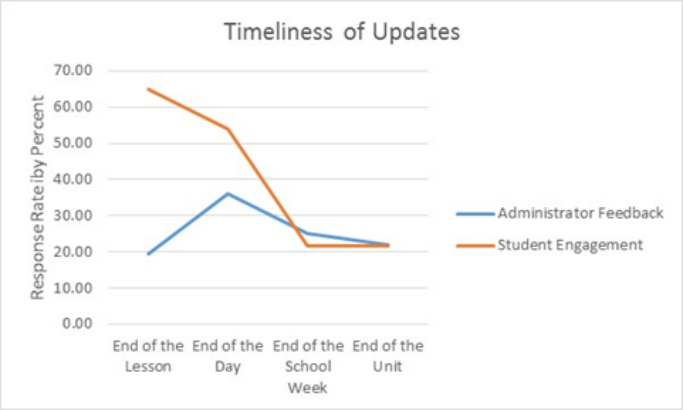

Figure 3: Motivation for lesson plan updates.

Survey Questions 7 and 9—both formatted to have only binary prescriptive responses—contribute to the understanding how the Internet-based software is accessed and how lesson plans may be modified. These findings speak to the behavioral aspect of Research Question 1, a facet that moves beyond teacher motivation into actual teacher action. Findings from Survey Questions 7 and 9, respectively, indicate a moderate difference in the number of devices used to access the software, with a relatively substantial difference in the modification of available content to students. These actions contribute to the baseline established by Survey Questions 1 and 2, wherein participants indicated intrinsic and extrinsic motivation for action juxtaposed against minor content augmentation. The cause in the gap between motivation and action is further explained by Survey Question 8, in which teachers identify the primary access to the Internet-based software from home and school, where access to multiple devices is limited. Further, Survey Question 8 provided for a repository of responses. For example, one participant indicated that they access the software from a friend or relative's house. This may indicate a need—the teacher may not have access at home, eliminating a significant opportunity for facilitating the design thinking process by limiting it only to the

classroom. Survey Question 8 acted as a point of triangulation for Survey Questions 7 and 9, as well as access to significant qualitative data. In that capacity, it was effective.

Survey Question 10, the final question associated with Research Question 1, was designed to be completely open-ended. The question associated with the survey space serves both as a closing prompt for the survey, as well as an opportunity for the participant to express final thoughts relating to the subject of the survey as a whole. Survey Question 10 resulted in 22 unique, open-ended responses. The responses represent the perspectives of nearly 60% of participants surveyed. The survey question prompted participants to describe how they use the lesson planning software through the day. An assumption is made that the participants use the lesson planning tool.

Many participants interpreted the question to mean all Internet-based tools—not necessarily the institutional lesson planning platform specifically assessed in this survey. The question may have been too vague for some. The results of the survey indicated several different behaviors, adding to Research Question 1. Points of perspective that can assess the behavior include both motivation and action. The open-ended format for Survey Question 10 allowed freedom of expression associated with anonymity, leading many participants to openly state their negative or neutral attitudes towards the software. For example, one respondent identified the software as a function of control exerted from administration—rather than as tool to aide in teaching. Interestingly, this particular participant indicated limited iteration behavior. The response given for Survey Question 2 was, “I don't change the [*sic.*], I just copy and paste old ones from 5 years ago.” Another response from this individual included, “Although I do lesson plans, I rarely follow them because they are a waste of time.” This particular participant also identified

"end of unit" as the time to modify lesson plans regardless of feedback from the student, administrator or assessments. This type of response suggests that motivation to change lesson plans maybe beyond the classroom and beyond the process of teaching.

The survey question used to measure Research Question 1 successfully facilitated a valid inquiry into the prevalence of lesson plan revision via Internet-based lesson planning tools. The data collection mapped for Research Question 2 (Appendix C) provides an insight into motivation, feedback sources, and attitude towards revision using Internet-based lesson planning. Although some survey questions would need to be adjusted slightly, the findings from Research Question 1 yield a baseline for motivation and behavior relating to Internet-based lesson planning use. This baseline facilitates Research Questions 2, which move to further elaborate on motivation and action relating to lesson plan iterations.

Research Question 2 focused on the determining the most influential source for lesson plan iterations. Analysis for Research Question 1 indicated the teacher was the most important audience for lesson plan updates, with a close second and third to students and administrators, respectively. Survey Questions 3 through 6 were mapped as points of data for this research question. The questions elaborated on Survey Question 2, breaking down each prescriptive response from Survey Question 2 to be an individual survey question.

Survey Question 3 and 4 focused on the timeliness of lesson plan update based on input from the administrator and student respectively. A set of the same prescriptive responses was provided, indicating four intervals for updates. These questions also had an open-ended response. For administrators, nine participants responded, some indicated

that administrators do not provide lesson plan feedback, and others indicated that changes to delivery or lesson plan are made immediately. There was only one open-ended response for Survey Question 4, stating that lesson plan revisions from student feedback are completed during the lesson delivery.

Both survey questions were found to be salient, as they elaborated on the original base-line question of Survey Question 2. Figure 4 demonstrates the distribution of responses compared to reported motivation for lesson plan updates based on feedback. Note that lesson plan updates based on student feedback were addressed quicker than lesson plan updates based on administrators' feedback, matching the baseline motivation trend for iteration based on feedback identified in Survey Question 2 – Figure 3.

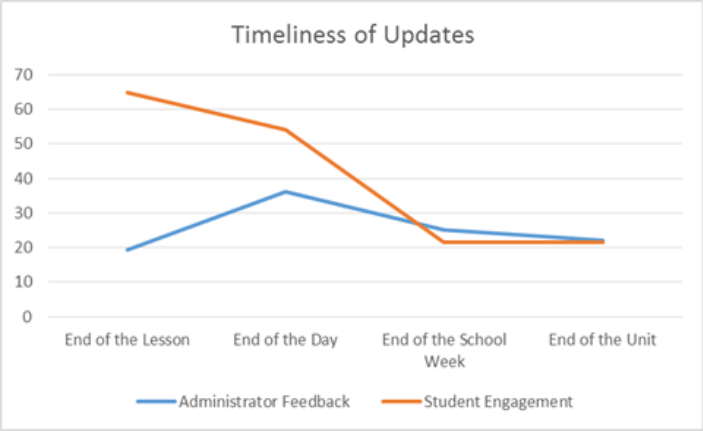

Figure 4: Response rate to feedback, manifested through reported action on lesson plan updates.

Survey Questions 5 and 6 focused on feedback from formative student feedback as well as feedback from colleagues, respectively. Formative student feedback (Survey Question 5) was not included in the original baseline question set; this was an oversight, and not a function of design. Therefore, in future iterations of the study, Survey Question 1 must be adjusted to include "formative assessment" as an audience for whom the lesson

plan is updated. This is a logical step, considering lesson plans are mapped to state standards and subsequent state tests.

As for Survey Question 6, it has been recognized that communities of practice are valuable to the development of strong institutional resources. Unfortunately, the responses from the participants indicate that communities of practice are not formally part of schools just yet, and at this time, measuring collegiate feedback will not yield a significant enough finding.

Overall, the surveying tool developed by the researchers was successful in collecting and triangulating participants intended audience and feedback source for lesson plan iterations. Although the original design of the measure incorporated variables such as access, and feedback from communities of practice, it fell short of meeting this goal. However, it is a valid tool that brings into perspective the communication processes associated with teacher feedback and cloud-based lesson planning, providing insight into future cloud-based learning functionality design and institutional implementation.

Recommendations

With proper guidance, a teacher can use cloud-based tools to plan lesson activities for their students. In order for a teacher to prepare lessons using cloud-based technologies, they must be provided with professional development training. The training should inform the teachers of all the features and how to use them effectively to eliminate and ease their fears.

The teacher's lessons should coincide with the curriculum and be user-friendly—anyone reading them should understand how to construct the activities. Lessons should be modified to account for individualized learning. If a student is more advanced, the

teacher must address activities for those who work independently. For the less proficient student, the teacher must be knowledgeable in providing lessons suitable to meet individualized needs.

Cloud-based lesson plans programs can offer tools for collaboration, facilitating teachers the opportunity to share with their colleagues and co-teachers. Some teachers reported that they did not adapt well to change. If a school district is mandating the use of the software, it is the responsibility of school district to also supply professional development on technology and make it user friendly as possible. The administrator's duties encompass assisting teachers to assure the lesson plans are aligned with the federal and state core curriculum standards. Their role is to assure the teachers are equipped with the tools to meet their instructional goals.

In terms of the response received from participants, it was clear that the administration has a role in the feedback process, professional development may be necessary for some teachers, access to technology from home maybe an issue as well. Most importantly, the glaring lack of communities of practice is a significant gap for some of the participants.

The survey developed in this pilot must be revamped and retested. Throughout the narrative, alterations to survey questions were recommended. Most critical of the recommendations is the addition of "formative assessment" as a prescriptive option for Survey Question 1. It is the hope of the researchers that this study will provide insight into a process, which can act as a guide for administrative initiatives.

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Appendix A: Letter to Teaching Staff Members

Hello,

I would appreciate if you could take a few minutes to complete this brief 10 question online survey as part of my graduate course assignments. We are doctoral candidates enrolled in the Educational Technology Leadership Program at New Jersey City University. This is a pilot study and your name will not be needed. Please complete by end of school day (2:30 PM) on Friday, October 24, 2014. Thank you in advance for your cooperation. Here is the link: https://www.surveymonkey.com/s/TNMJV5L

Sincerely,

The Research Team of

Yelena Lyudmilova, Matthew Farber, and October Hudley

Appendix B: Survey Questions

Updating Lesson Plans

1. In updating my lesson plans, my primary audience is _____. (Check all that apply.)

__ myself for future use
__ my co-teacher
__ my administrator
__ my students
__ other (please specify)

2. My lesson plans are updated based on feedback from _____. (Check all that apply.)

__ an administrator
__ results from student assessments.
__ results from student engagement
__ myself (self motivation)
__ other (please specify)

3. I modify my lesson plans based on administrator feedback at the _____. (Check all that apply).

__ end of lesson
__ end of the day (after school hours)
__ end of the school week
__ end of the unit
__ other/does not apply (please specify)

4. I modify my lesson plans based on student engagement at the _____. (Check all that apply).

__ end of lesson
__ end of the day (after school hours)
__ end of the school week
__ end of the unit
__ other/does not apply (please specify)

5. I modify my lesson plans based on formative student assessments at the _____. (Check all that apply).

__ end of lesson
__ end of the day (after school hours)
__ end of the school week
__ end of the unit
__ other/does not apply (please specify)

6. I modify my lesson plans based on other teachers input and recommendations at the _____. (Check all that apply).

__ end of lesson
__ end of the day (after school hours)
__ end of the school week
__ end of the unit
__ not regularly
__ other/does not apply (please specify)

7. I access my lesson plans using multiple devices.

__ Yes.
__ No.

8. I update my lesson plans _____. (Check all that apply.)

__ from home
__ in school
__ at a public establishment (e.g., coffee shop, public library)
__ using a loaned device (e.g., computer at a friend's home)
__ other (please specify)

9. I have added components (e.g., documents, materials, links) to the provided online (Web-based) lesson plan template.

__ Yes.
__ No.

10. Describe ways that you use online (Web-based) lesson planning throughout the day.

Appendix C: Mapped Questions

Survey Question	Research Question 1		Research Question 2	
Q1	1	2		
Q2	1	2		
Q3			1	2
Q4			1	2
Q5			1	2
Q6			1	2
Q7	1			
Q8	1	2		
Q9	1			
Q10		2		
Total Count	5	4	4	4

1 - Response provided by Survey
2 - Response open-ended