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Adapting the Kolb Model for Authentic Instructional Design Projects: The 4-C Framework

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ADAPTING THE KOLB MODEL FOR AUTHENTIC INSTRUCTIONAL DESIGN PROJECTS: THE 4-C FRAMEWORK

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ABSTRACT

Authentic, real-world projects are the key to providing opportunities for instructional design graduate students to increase the skills they will need once they enter the job market. While experiential learning experiences can enhance skill transfer and allow students to network and create artifacts that can be added to a design portfolio, working with student design teams requires additional communication and support on the part of the client. Building on the Kolb Model of Experiential Learning and the Stout-Rostron model, a 4-C Framework was developed to help create more effective experiential learning experiences for instructional design students. Case studies are presented that illustrate some of the challenges and successes of working with student instructional design teams on real-world projects.

Keywords: experiential learning, instructional design, Kolb Model, authentic projects

INTRODUCTION

Research has indicated the need for real-world, authentic projects that prepare instructional designers to go into the workplace or organization of their choosing (Larson & Lockee, 2009; Sharif & Cho, 2015). As instructional designers enter the workplace, "there seems to be a consensus among professionals in this field that there is a discrepancy between the way instructional design is taught and is practiced in real-world situations." While much training of instructional designers prepares them to be technically competent with educational or instructional technologies, they are not often prepared for leading change within organizations

or the community through the lens of instructional design (Sharif & Cho, 2015, p. 80). Since there are a small number of undergraduate-level instructional design programs, it is the graduate-level instructional design programs that are implementing authentic projects for students in courses on advanced instructional design or evaluation, as the need for more direct instructional design experience is required to link theory to practice. Real-world projects both promote the transfer of theories to concrete skills and they prepare the student to enter the workplace or organization of their choice, both of which require practice outside the context of the classroom environment (Larson & Lockee, 2009). While connecting students to clients and finding authentic projects may not be a challenge, supporting students through the process of completing a real-world project can be (Dabbagh & Williams Blijd, 2010). From both a faculty and client perspective, a framework needs to be in place to support students as they encounter culture, personality, budget, participation, or administrative challenges that are frequently seen in workplace projects.

Literature Review

Instructional design programs prepare learners to enter the world of curriculum and training design from multiple entry points. As future trainers, performance improvement specialists, evaluators, faculty developers, instructional technologists, curriculum designers, and instructional designers, instructional design students (with a graduate degree) are expected to enter the workplace with hands-on, practical experience in the field. Often, many of these instructional designers are career changers, individuals who have an undergraduate degree in a field unrelated to instructional design, but who have completed a graduate degree in instructional design or educational technology and who consequently have only two years' worth of training in the field (Villachica & Conley, 2015). In order to develop instructional design skills in a compressed amount of time, program faculty approach this gap by embedding authentic learning experiences into the instructional design curriculum. From service-learning projects (Stefaniak, 2015) or reflexive practice (Shambaugh & Magliaro, 2001) to apprenticeships (Ertmer & Cennamo, 1995) or action learning (Bannan-Ritland, 2001), assignments and assessments that reflect the skills and knowledge instructional designers will need and practice in the workplace are embedded in the curriculum. Although there is little research supporting one method over another, the common thread in all of these approaches is the hands-on nature of the projects in the courses. Instructional design students under each of these methods put their skills into practice in either a real-life scenario or a scenario designed to look as close to real as possible. It is the experiences of completing the tasks, solving the problems, or designing the intervention that hone the skills of the fledgling instructional designer and provide them with a glimpse into the field prior to entering the workplace.

Research suggests that many instructional products are created by inexperienced instructional designers or instructional design students and

that novice designers can be presented with complex or advanced design problems as long as there is an appropriately designed structure or framework to continually support the learning process as they proceed through the project (Verstegen, Barnard, & Pilot, 2008). Additional studies have indicated that there is a disconnect between what instructional design students learn in the academic classroom and what they are required to implement in the workplace (Larson & Lockee, 2009; Thompson-Sellers & Calandra, 2012; Villachica, Marker, & Taylor, 2010). Much of the literature surrounding the preparation of instructional designers would seem to indicate that their practice and application of theory is developed largely through the experience of real projects once they are out in the field as a full-time employee (Larson, 2005; Thompson-Sellers & Calandra, 2012; Tracey & Boling, 2013; Villachica, Marker, & Taylor, 2010).

Although little research exists into the formalized training and education of instructional designers, there are learning theories that fit what instructional design program faculty are already practicing in their classes. The theory of Experiential Learning, as explained by Kolb (1984), "is the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). In this four-stage model, learners progress through a learning cycle that moves them from the concrete to the abstract (see Figure 1). By working on authentic projects, service-learning or otherwise, instructional design students create knowledge from their hands-on experiences working with a client as they would outside the classroom.

Using the Kolb Model to support authentic projects for instructional designers is not a novel concept. Dunlap, Dobrovolny, and Young (2008) implemented a real-world web-design project in their *Developing Educational Websites* course using the Kolb Model to structure and sequence the learning activities of the class. From the use of this model to implement experiential learning, they experienced higher levels of online student engagement and satisfaction than in previous courses. Their satisfaction with the ability of the Kolb Model to provide a structure for online learning in instructional design courses led them to implement the same model into subsequent courses using real-world projects.

To support this model of learning in instructional design programs, connections must be made
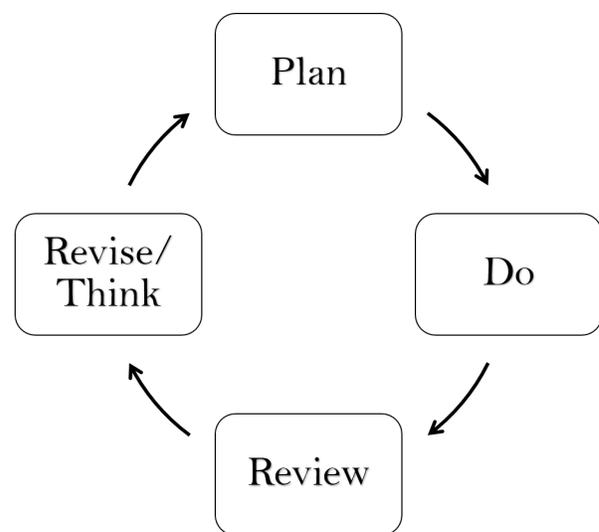

FIGURE 1 The Kolb Model of Experiential Learning.

between client and designer. While faculty are in place to support the students through experiential learning projects, structured support can be given on the part of the client as well, to make the learning experience more meaningful. Although this may remove some of the authenticity of the project, we believe that this better prepares the learners to review and reflect on their work and connect it to program content. Connecting the Kolb Model to coaching and mentoring, Stout-Rostron (2014) defines the Kolb Model steps in the following way:

> Plan = Action/Experiment – What can we change or do?
>
> Do = Concrete Experience – Something happens, and we experience it.
>
> Review = Review/Reflection – What happened and why?
>
> Revise/Think = Conclude/Conceptualize – What did it mean? (p. 151)

Implementing the Kolb Experiential Model in combination with a model of coaching and mentoring can enhance the learning process for instructional design students. Without a mentoring framework to guide them, students and clients alike may find themselves in situations for which they are unprepared. Allowing the client to serve as both client and mentor will support the students in their authentic experience without sacrificing the learning goals of the supervising faculty. As examples of how vital the coaching and mentoring piece is to the Experiential Model in authentic instructional design projects, the authors submit four case studies illustrating how challenges can appear when working with student instructional design teams and how those challenges can be turned into learning experiences. We will also provide a framework for instructional design faculty, students, and "clients" that can be used when implementing authentic projects outside the classroom for maximum learning benefits.

Authentic Projects

SMARTboard evaluation team

In the Fall 2015 semester, an instructional designer at a medium-sized comprehensive university in the Midwest was approached and asked to propose a series of potential evaluation projects for an online graduate course in instructional design and evaluation at a metropolitan research university in the Northwest. A Request for Proposal was presented to the graduate class and one team of four submitted a proposal to evaluate the SMARTboard training and usage on the campus of the midwestern school (Appendix A).

The instructional designer was both the point-of-contact and the subject matter expert in this evaluation project. In addition, the instructional designer served as Principal Investigator for the Institutional Review Board at the midwestern university. Proper approvals were granted, and the instructional designer guided the student team through the evaluation project in collaboration with the course instructor.

The student team designed the evaluation instruments using the theory of Brinkerhoff's (2006)

Success Case Method, which included online anonymous surveys for faculty and students, a series of phone interview protocols for training staff and for faculty, and a set of rubrics used to analyze the qualitative data using a theory-driven approach. Brinkerhoff's Success Case Method was chosen specifically because the goal was to evaluate the value of the target service. Evaluation rubrics were designed to analyze the qualitative data based on four evaluative dimensions that the team identified from conversations with the instructional designer (Alignment, Usage, Preparation and Delivery, Student Engagement).

Challenges arose for the evaluation team when it came to collecting qualitative interview data. The team, perhaps because they were from outside the university, were unable to connect with faculty members to gather clarifying data about survey responses. Although faculty initially indicated that they were willing to participate in follow-up interviews, many missed meetings with the student team or did not contact them back to set up appointments. The remaining data were collected without problem. In addition, the data collection window was very short (one week) due to the compressed time-frame of the course and may have impacted the amount of surveys collected.

The interview portion presented a challenge to both the student team and instructional designer. As part of the course assignment, the student team was required to collect at least three data points to triangulate responses. Real qualitative data collection is often fraught with challenges in terms of actually connecting with potential participants

and conducting interviews, something that an actual evaluation team would possibly encounter and compensate for. However, in a semi-authentic situation such as a student-run project that determines a course grade, the data collection is a requirement of the course assignment. In this particular case, the difficulty of collecting the data from faculty put the team and the instructional designer in a difficult position because the team's overall course grade was in jeopardy. The collaborating faculty member was not flexible in this requirement and the instructional designer leveraged collegial connections and scheduled the interviews, acting as administrative support to ensure that the needed data were received.

Once all data were gathered, the student evaluation team presented the instructional designer with a full report of the results and the student team was able to publish a full write-up of their results in an online repository (Scheufler, O'Neal, Nicholson, & Hargett, 2015). The authors of this case study are not able to present their specific quantitative results as the student team has published them under their own intellectual property.

D2L training team

Working with the same collaborating faculty member from the evaluation project, in the Spring 2016 semester, the instructional designer submitted a new Request for Proposal (RFP) for a series of potential instructional design projects that student teams could complete for the midwestern university (Appendix B). One student team chose the RFP for training surrounding the midwestern

university's learning management system, Brightspace by D2L (D2L). This training would focus on preparing new faculty to use D2L to teach online, blended, or face-to-face courses.

This project was a challenge for the student team because their home university utilized a different learning management system and they had to put together a framework while familiarizing themselves with a new system. Guest accounts were created in the learning management system for the student team and a test course was set up for them to use for the purposes of the project. The student team was put into contact with the D2L administrator and the training support personnel for the tool. The team was also given access to the current training materials and models for a comparative analysis.

In ten weeks, the student team completed a gap analysis, task analysis, and a learner analysis. The team developed a complex framework for an asynchronous training class for new faculty on D2L. The instructional plan for this intervention included rationales for the mode of delivery and a sequence of instruction for each module. The final instructional plan document outlined coaching strategy recommendations and plans for formative and summative evaluation.

The instructional designer acted as both subject matter expert and client in this student learning experience. Because the student design team did not have to rely mainly on participant data collection in order to build their final deliverable, this project met all deadlines and ran smoothly. The final deliverable was well-received by the client

and the D2L administrator as a potential plan for a future training framework.

D2L evaluation team

In the Fall 2016 semester, one member of the D2L Training Team contacted the instructional designer and asked for an RFP for potential evaluation projects as part of a graduate-level course in instructional design evaluation. The instructional designer submitted an RFP for an evaluation of the current learning management system training and support available at the midwestern university. The RFP was accepted and a team of four students met with the instructional designer and the course instructor to submit a plan for evaluation (Appendix C).

Survey and interview instruments were submitted to the institutional review board (IRB) at the midwestern university but permission to conduct the study was denied citing the need for IRB approval at the northwestern school. Due to the compressed time frame of the course, second rounds of IRB approvals were not possible to obtain within the remaining four weeks of the 10-week course. In discussion with the faculty member and the student team, the client decided to forgo participant surveys and interviews and to focus more on document and data analysis in order to comply with the IRB requirements.

The student team analyzed quantitative data from training reports and from documents outlining the type of trainings conducted and the number of participants. Two evaluative dimensions were selected for analysis of the data (Quality of Services and Resources, Faculty Satisfaction Rate). A

four-point rubric (Poor to Excellent) was development to determine at what level each of the dimensions were met. While the team did not have qualitative data to support the quantitative findings, the study did provide the client with insights into the current state of D2L support and training at the midwestern university, which opened up avenues of future research for the instructional design team.

The result of the delay in having to redesign the study based on the IRB feedback was the need for the student team to receive an incomplete in the course while the evaluation report was completed. The team turned in their final evaluation report one week after the end of the course. It was later discovered by a member of the student evaluation team that the northwestern university had a standing approval for evaluation projects from their IRB.

IT professional development training

In the Summer 2016 semester, an instructional designer and a knowledge systems architect were struggling to develop additional content for a gamified training to help employees acclimate to the Information and Technology (IT) environment at the midwestern university. The development team reached out to a faculty member and Chair of the Psychology Department at the midwestern university in hopes of engaging an aspiring class of Industrial/Organizational (I/O) Psychology Masters students for aid as part of their preparation for corporate training. The conversation evolved into an engagement with the curriculum of two courses within this program.

The instructional designer and knowledge system architect, who acted as project leads, presented the goals of the IT organization to the class, emphasizing the exhausted knowledge of the leads of this project. During the Fall 2016 semester, it was determined, in accordance with the curriculum of the I/O course, that an outside gap analysis of what specific position actualities were versus what training was available for said positions. The Web Development, Security, and Service Desk functional units were targeted for this gap analysis.

The I/O Psychology students contacted the IT personnel who had been designated as subject matter experts by the project leads in order to better understand what their position descriptions were, what their actual job entailed, and what training was available. It was quickly discovered that while all individuals identified were made aware of their subject matter expert role prior to the project leads speaking with the students, priority was not properly allocated by their managers, and the students found it difficult to maintain continuous (if any) communication with the subject matter experts. This lack of communication was not portrayed to the project leads until the end of the semester, when the gap analysis was due for grading by the professor.

The gap analysis was evaluated by the professor and given to the project leads to provide additional feedback. The project leads evaluated the content, giving specific recommendations for future projects (see Appendix D). Both the I/O students and the project leads learned much from this project, including how to provide better facilitation

of communication between both parties, how to keep communication channels open throughout the project, and how to include additional details in technical reports.

In the Spring 2017 semester, the project leads once again engaged with the Psychology Chair to continue a working relationship and integrate real world projects into the curriculum of an I/O course. The curriculum of this course was specifically geared towards building training. An introduction to the project was provided by both project leads, as well as the Chief Information Officer.

To address difficulties identified in the previous semester, the Knowledge System Architect volunteered to facilitate communication between IT and the I/O class. Target training areas included but were not limited to specific functional areas: Service Desk, Web Development, and Academic Technology. Professional development areas were also included: listening skills, how to run an effective meeting, and presentation skills. Once again, subject matter experts were vetted and contacted prior to project kickoff. This time, however, supervisors were also made aware of the time commitment, and requested to prioritize time for the subject matter experts to help in providing content, in hopes of aiding the students in success.

Once again, the I/O students quickly contacted the subject matter experts. If there was a communication deficiency, the students contacted the development team members to help facilitate conversations. The semester seemed to be getting underway quite smoothly.

After the I/O students felt that they had enough information to build and gamify the training, they submitted their work to their professor who later provided it to the project leads. The results were hit-and-miss. Some groups provided excellent content, while others lacked quite a bit of information, even providing borderline detrimental comments. This led to an instructional technologist combing through the information, working with the instructional designer to restructure our training program, and provide additional resources based on the content provided.

In a debriefing session with the Chair of the Psychology Department, it was determined that the overall experience was a good one, with some small challenges to be addressed in the future. It was identified that some of the students had worked on the gap analysis the previous semester and had become discouraged because of the communication challenges that occurred during that project. It was also identified that some of the students enrolled in this class were first-year students who struggled to keep up with the workload. The IT department and the I/O Psychology students both benefited from having an outside client give insight into a confusing training program and had the opportunity to learn from each other.

Discussion

All of the case studies involving student teams working with real "clients" were successful to some degree. Although the important features of these types of projects is for students to both learn and

gain hands-on experience, there also needs to be a clear benefit to the client as well. Working with student teams requires extra time, patience, communication, and effort on the part of the client because it is an important learning experience. Student teams will encounter challenges and roadblocks, as they would with any real project. In order to facilitate the maximum amount of authentic learning while garnering the maximum benefit for the client, the authors propose the following framework for serving as a client for student instructional design teams. The 4-C framework for "clients" of student instructional designers enrich the experience and support optimal learning outcomes based on the Kolb Model and the Stout-Rostron revision (see Figure 2).

Communication in this framework is a vital component to the planning and execution of any student-led project. Client expectations should be clearly stated, and the parameters of the project should be laid out before proposals are accepted. A designated client representative should be indicated for all project communication with the student team to facilitate both gathering of resources and meeting of deadlines.

Cooperation is both a show of good faith on the part of the client and a necessary piece of the learning process. Students must have access to the information they need to complete the project and there must be understanding on the part of the client that these are student instructional designers who may require extra communication, extra resources, and
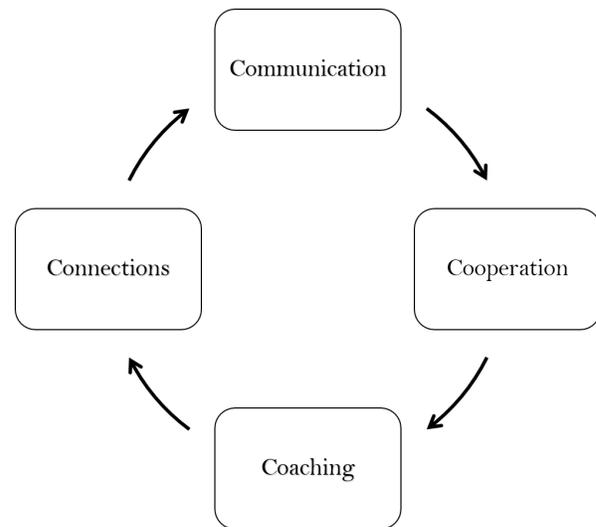

FIGURE 2 The 4-C framework for instructional design clients.

extra time over traditional contract instructional designers.

Coaching is an essential piece of the experiential learning process. Although the faculty member traditionally fills this role, the authors submit that a more successful authentic learning project includes a mentoring and/or coaching element from a representative of the client. All case studies described in this work benefited by mentoring and coaching from the "clients". The instructional designers spent a lot of time with each student team, helping develop instruments, coordinating data collection, and providing moral support during challenges.

Connections are both an important part of a successful project and a unique element of an authentic learning project. The students must have the connections to the client organization to complete

the design project or evaluation. To complete analyses, they must have a way to both communicate with resources and to collect data. Additionally, as part of the authentic project, the students are essentially connecting with industry in a way that can help further their careers. Assisting students in networking is an authentic piece of the experiential process.

Conclusion

The case studies throughout this manuscript have provided one insight of a midwestern university and their challenges and successes in guiding today's students in order to provide them with real-world training and instructional design experience that deepens the surface knowledge of future instructional designers above and beyond the two years of graduate course work (Villachica & Conley, 2015). Rather than a quantitative research study, with these qualitative cases, our intent was to build a model based on the experiences of the students and clients in a series of authentic instructional design projects. In a 21st century working environment, it is expected that students graduate ready to instantly dive into the profession of their choosing. For those students who have compressed time frames to learn career skills, authentic experiential projects can help them practice needed skills. Using a framework to structure these authentic learning experiences, such as the Kolb Model, can shape these experiences for maximum learning gains. The projects described here organically follow the Kolb Model as revised by Stout-Rostron (2014). The student teams planned, completed, reviewed, and revised based on their interactions with the stakeholders, their instructors, and the data. Connecting students immersed in these action learning projects with professionals in the field allow for coaching and mentoring to occur outside the classroom environment (Bannan-Ritland, 2001). Through the implementation of the 4-C Framework, these experiences can be deepened and made more meaningful.

It is by no means quick or easy to engage future instructional designers in real-world projects and then to expect flawless work from student teams, however, it is the authors' opinions that the means justify the end when it comes to authentic learning projects. The 4-C Framework based on the Kolb and Stout-Rostron models provides essential project elements for both faculty and industry professionals to engage with students by providing guidance to succeeding in the 21st century working environment.

Future areas of research include the application of the 4-C Framework to authentic graduate student projects with the intent to collect data and determine the effectiveness of the framework in the field. Additional research could be conducted with authentic projects like those described here and intentional data could be collected regarding the student experience and the actual outcomes of the work performed under the project. The limitations of the case studies as described here include the lack of quantitative data collected during the projects.

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Appendix A

Proposal for evaluation of SMARTboard usage
Background. About 5 years ago MNSU had a big push to integrate technology into the classrooms. One of the ways MNSU integrated technology was by installing SMARTboards in all the classrooms. The goal was to use the SMARTboards as a learning tool to increase student engagement and encourage active learning. Even though professors have access to these SMARTboards and have received training on how to use them, the general perception is that they are not being used. The evaluation I propose would evaluate whether professors are actually using the SMARTboards in their classrooms.

Purpose. The purpose of the evaluation would be to find out "what is" (i.e. Are the professors actually using the SMARTboards?) and find out whether there are ways to improve usage. The client plans to share the results of the evaluation with her superiors so they can decide if they should continue using the SMARTboards, improve the SMARTboard training program, or consider other options.

Stakeholders. Upstream stakeholders (The people who worked on the design, implementation, and management of the SMARTboard training program): The instructional technologist and the instructional designer responsible for training and ID. Immediate recipient (The people who use the SMARTboards): The professors and teaching assistants using the SMARTboards. Downstream impactees (Those affected by the SMARTboard training program): The students at MNSU.

Appendix B

RFP for ID projects:
1. Overview
2. Project Descriptions

Project 1 – New faculty course setup. MNSU currently has little to no getting-started guides for new faculty, adjuncts, or teaching assistants. A how-to guide, elearning module, or other series of job aids are needed to walk new instructors through basic course set up, both in the LMS and at the university in general. The scope of this project does not include HR info, only course setup. Other universities offer modules or checklists for incoming instructors and could serve as models for this project.

Project 2 – Gamification of training. Internal Information & Technology Services (ITS) department is currently revising their internal training to a gamification system. There is a need to have a structure for badging, gamification, and overall framework built that various gamification themes could be dropped into.

Project 3 – Professional development certificate building. A needs analysis can be conducted based on the current professional development offerings by the Center for Excellence in Teaching and Learning. Recommendations for additional certificates should be made and pilot certificate modules should be created, and beta tested.

Appendix C

Proposal for evaluation of D2L training
Business goal. The ID team will need to contact the client to flesh this out.

Performance gap. Currently, less than 40% of university faculty use our learning management system, Desire2Learn (D2L) Brightspace. Of that percentage, less than 20% use it "fully", meaning to use the majority of the tool's features. Students have suggested that they would like faculty to use D2L more consistently both at this university and within the state system at large.

Should this project move forward, the ID team would need to work with the client to determine the best solution for training a diverse faculty population on the learning management system.

Other information. The client is willing to support an all-virtual student ID team; the ID team will need to work with the client to establish a viable scope of work.

Why the potential project is a good candidate for a training program. The ID team will need to flesh this out.

Appendix D

Recommendations to I/O psychology professor from KSA and ID project leads
1. Did the students understand the problem?
   a. I believe that each group articulated that they understood the overall goal and problems for each area. Most of them I was aware of, but having out-

side consultation is very beneficial to speaking with management. There were definitely some communication difficulties that were encountered.

    b. The availability of staff members within IT caused some difficulties in obtaining accurate information.

2. Are there reasonable products from this project?

    a. Each group identified actionable products to be obtained.

    b. I was a little disappointed in some of these products as many of them outlined almost exactly what we had described from our initial meeting, that further training and shadowing was needed.

    c. Some of the items recommended are already in place, such as shadowing, but employees and management aren't always following procedures.

3. Are these appropriate tasks/KSAOs/position descriptions from which to develop training programs next semester?

    a. Security

        i. In my opinion, this team did the best job in regards to identifying these items.

        ii. The presentation could have used additional preparation, but the technical documentation was very thorough and impressive.

    b. Web Development

        i. Both the presentation and the documentation appeared to reiterate what we already knew and outlined with the path that we suggested.

        ii. They utilized statistical analysis which is good, but didn't have a legend or appendix for definitions, which provided much confusion towards outcomes. Looking at the analysis is very confusing.

    c. Solutions Center

        i. The recommendations for this report were based off conjecture from interviews which were all this team could gain (fault on IT, not the team), but were accurate.

        ii. No statistical analysis (due to lack of participation from IT).

Overall, each team did a fantastic job in what they provided. I was a little disappointed in the team that worked with our web development team, but also understand that they had difficulties with getting together with that team. The KSAO's were very relevant and accurate for each team. There were some minor issues such as identifying our organization as the IT Solutions Center when all of IT is considered just IT Solutions, and that I was indirectly described as a manager when I am not.

Recommendations:

- Understand how the organization identifies itself and use that terminology.
- Provide appendices towards possible communication differences.
- Identify on the same page definitions and outcomes for statistical analysis.
- Continued communication especially with regard to communication difficulties with the project manager (in this case me) to ensure success.
- Overall inclusion of the project manager with regards to

	TARGET POPULATION	PERFORMANCE	STANDARD
DESIRED PERFORMANCE	What we want our instructors to be (faculty, adjunct, graduate teaching assistants).	Use D2L Brightspace in a consistent and competent manner for both online and blended courses.	(The ID team will need to determine the desired standards.)
ACTUAL PERFORMANCE	What our instructors are.	Doing now may be one or more of the following: • participating in optional "drop-in" LMS technical support before and during the semester • participating in optional "D2L Brightspace How-to" Special Interest Group webinars • scheduling optional one-on-one training with instructional designers or D2L coordinator • accessing information from university or LMS website or YouTube • accessing D2L Brightspace "Getting Started" course from Lynda.com	(The ID team will need to determine the existing standards.)

communication. I had to internally ask if these meetings were happening and request that I be included.

- When you don't know what something means, ask. I often found myself stopping the conversations because, especially in IT, we use acronyms and terminology that non-IT people don't understand. For these conversations I attempted to stop for explanations when I knew the students wouldn't understand. For instance, "My job deals directly with ITIL processes in which I have to administer our CRM which is an ITSM tool to build these processes. I am also in charge of Knowledge Management in which I have to ensure our system can handle our KCS processes and am now looking to incorporate these processes into our CMS". As an IT professional that deals with each of these acronyms, I understand them, but as a consulting group, others may not. When I was going through undergrad, I had these same difficulties. I went to an OS (operating systems) course that talked about IO (input output devices) and then directly to an IO Psych course where the same acronym stood for something completely different.