

## CONFESSIONS OF NOVICE DESIGNERS AND THEIR INSTRUCTOR

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These three condensed design cases provide a glimpse of the decisions undertaken by novice designers in a graduate-level message design course. The course helps students examine the role of communication theory, cognitive psychology, cultural influence, and design skills within the context of instructional messages both in theory and through practical application. Practical application in the course includes smaller design projects to gain experience with best practices and recommendations, and the course culminates with a service learning project that pairs students with a community partner. The community partner provides basic specifications for a specific need, and the students then design artifacts to meet these requirements. The assignment is evaluated based on how well students followed client specifications, design considerations for each medium, content and grammar mechanics, copyright guidelines, and general design principles. However, the students also compete in the sense that the client selects which artifacts to implement from among those submitted. Embedded within each design case are instructor reflection comments that address particular or repetitive themes that emerged from each designer. Combined, these cases help identify course design weaknesses and bring clarity to concerns regarding how to help novice designers progress in competency.

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## INTRODUCTION

The following nested design case represents individual voices and perspectives from three students in a message design course intended to introduce theoretical frameworks and skills necessary to evaluate and create visual representations of information. This format lends itself to presenting a course design case with student design cases embedded throughout.

The message design course is required of all students enrolled in an online learning, design, and technology graduate program at the University of Wyoming. In 2013, Tonia was asked to redesign the course to address former student feedback regarding a lack of practical application and administrative concerns with course content. In addition to renaming the course from *Visual Literacy* to *Message Design* to reflect a more holistic curriculum, she took into consideration the institution's academic strategic plan, which called for implementing more service learning opportunities. Course content also was updated to reflect a variety of theoretical frameworks to include cognitive psychology, marketing, design, and other related fields. The end result of this redesign included a combination service-learning/final project in which students could refine applications of message design theories. The client(s) for the service learning project change every term, depending upon need and availability of community partners.

In 2015, students enrolled in the course developed visuals to inform, promote, and market services and resources available from the university library and received client specifications to design and develop artifacts for social media and print dissemination. The client provided a list of 21 available topics

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and students self-selected three topics, on a first come, first serve basis, to which they applied the design knowledge and skills learned during the course. From an instructional standpoint, the designs were evaluated on:

- The basis of how well students followed client specifications
- Design considerations for each medium, content
- Grammar and mechanics
- Copyright guidelines
- General design principles

These criteria align with the following course learning outcomes:

- Apply the psychology of learning to message design
- Create visual and multimedia compositions, applying theoretical frameworks and cultural norms

By way of formative evaluation, students were encouraged to share with the instructor and/or peers any draft designs either privately or in the course discussion forum. More often than not, the public discussions rarely include draft designs but rather questions regarding interpretation of client specifications or applying course content (e.g., “How do we cite a picture on the actual flyer or FB post so that it’s unobtrusive?”). These types of questions and discussions help revisit specific course content and work through lingering questions or clarify misunderstandings, such as copyright and design. As the instructor, I received private requests for feedback from approximately one third of enrolled students. In these evaluations, I asked critiquing questions of the artifact(s) that the students themselves use during peer evaluations of earlier coursework. For example, “what’s the first thing I notice and why?” or “what design principles weren’t applied but could enhance the layout or flow?” Summative evaluation occurred during my final grading of the artifacts. After grading, submissions were also evaluated by the client who then selected specific designs of each topic to implement the following academic year. At the conclusion of the project, the client stated, “If this opportunity is available in the future, I would love to participate again...pairing of the FB Posts with the Print Flyer set some of the students apart from others and was a good idea” (N. Marlatt, personal communication, May 22, 2015).

The following design cases were written by three students in the course; the first two by doctoral students and the third by a master’s student. All three students had designs selected for implementation by the client. Figures containing their designs are embedded within each case and notes indicate whether or not the design was selected by the client. Together, with my embedded reflections, these cases explore the students’ journeys learning design while meeting client requirements and needs.

## CONTEXT & GUIDELINES

Classic or traditional roles for instructional design often delineated between specific tasks and different members of the development team, but these roles have shifted over time. As a former instructional designer for a state extension agency, our teams usually included an instructional designer and a subject matter expert. This meant that I, as the instructional designer, had to create or identify all visuals necessary for our instructional manuals. However, over time, we were given access to centralized media services in the agency, including audio, video, and images for both print and web-based instructional materials. Subsequent conversations with former colleagues at the agency revealed that these services have been reduced or eliminated in the wake of funding challenges. Additionally, I spent four years transitioning from industry to higher education and wondered what expectations my students might face today as they seek to change or advance careers in instructional design. Reviewing academic and professional literature and talking with industry leaders confirmed that my students will face a variety of scenarios and contexts. Traditionally, team members often assumed specific roles, including project manager, programmer, graphic artist, videographer, and permission specialists (Liu, Jones, & Hemstreet, 1998). This clear defining of roles and responsibilities often meant that the instructional designer only needed be aware of team member capabilities and limitations (Liu et al., 2002). Times have changed, however, and contexts vary. The line between instructional designer and multimedia developer has blurred and media design often appears as a required skill for entry-level instructional designer positions (ATD Research, 2015). As a result of a constantly shifting industry, some instructional design degree programs, including ours, now incorporate applied design coursework to help students gain relevant skills.

The message design course used as the context for these design cases has been delivered in its current form for two years. Offered every spring semester in an online, asynchronous format, I updated the course to reflect the role of communication theory, cognitive psychology, cultural influence, and design skills within the context of instructional messages. The update included consulting with other institutions that offer similar courses to review their course syllabi, resources, and assignments. Topics covered in the course include:

- The creative process
- Copyright and Creative Commons
- Foundations of communication
- Constructive feedback
- Visual communication skills
- Psychology of learning
- Visual literacy

- Design principles
- Image fidelity
- Visual metaphors & graphical deception
- Presenting information with visuals
- Applied design for a client

I should note that the final client application topic is separate from the others because it represents a refinement to practice. Students are challenged to apply the theories and principles covered each week through targeted instructional strategies such as deconstructing visual messages in their personal context, critiquing specific designs, or redesigning existing materials to better apply a theory and/or principle. For example, in the first week of the course, students are presented with a discussion prompt that asks:

*“Find an example of graphic design that you believe communicates well. (1) Explain how the design captures your attention. What part of the design do you look at first? What draws your eye to look there first? (2) Explain how the design controls the eye’s flow through its layout. In what order does your eye move from one thing to the next across the space of the layout? Make a numbered list of the order in which your eye travels around the layout (3) What kind of information does the design convey? Identify 1-2 messages and describe how the design conveys this information. (4) What, if any, emotion is evoked by the design? How? Why?”*

Just a few weeks later, students are asked to:

*“Find a website, advertisement, or flyer that appeals to you. Use a tool of your choice to deconstruct the layout. Identify and label the parts that align and differ from the ‘works-every-time layout.’ Post your deconstruction and explain why you chose the example. If it’s a non-example, do you think that the layout is successful or detracts from the overall message?”*

In week 5, I ask students to:

*“Find two examples of logos that demonstrate the four Gestalt laws—proximity, similarity, continuity, and closure. Explain how your examples utilize each.”*

In week 7, students must:

*“Visit the candy aisle of your grocery store and look for packages of the following types of candy: (1) Chewing gum (2) Chocolate bar (inexpensive; Hershey’s) (3) Chocolate bar (expensive; i.e., Chua’s Ravishing Rocky Road Bar) (4) Other candy (Starburst, Skittles, etc.). Look at the font choices on each package. What categories of fonts do the different packages exhibit? Do you think the fonts appeal and/or are appropriate for a specific target audience?”*

The discussion prompts are meant to engage students with design all around us and target specific concepts or

elements of design each week. Graded assignments for the course include designing a personal logo, delivering an asynchronous media presentation on a theory related to visual communication, designing an instructional visual (this assignment varies from term to term, but requires students to create an infographic during the current offering), build a design portfolio that connects to or is embedded within their graduate program portfolio, and the final client project. I begin referencing the client project immediately following the midterm break (usually Spring Break) through regularly planned weekly overview videos, which gives students approximately six weeks in which to draft and revise designs before the assignment is due.

While applied design for a client certainly addresses the other topics of the course, it also introduces the idea of designing for others. In other words, it requires students to synthesize all course content and reconcile differences between what they have learned and what a client requests. The applied design component of the course reflects an institutional commitment to infusing service learning across curriculum for the purpose of preparing students for a global workforce (University of Wyoming, 2015). Instructors are not required to implement any of the strategic plan recommendations. However, advice received from campus mentors revealed an institutional practice in rewarding faculty, by approving special funding requests or course change proposals, who demonstrate active alignment with institutional goals and strategies. Additionally, my prior experience working in industry, as both a designer and hiring manager, created a personal bias towards service-learning strategies. I often served as an external reviewer for Management Information Systems (MIS) graduate courses at Texas A&M University where students were engaged in service learning projects. I also appreciated working with or found more value in professionals who could demonstrate having worked for a client, regardless of whether it was prior work experience or a class project. These team members already possessed a general appreciation for the challenge of designing to others’ specifications and meeting external demands. However, implementing service learning opportunities is not without challenges. Primarily, there are few resources available on campus to help create relationships with community members. I spend two to four weeks each year talking with people working in campus offices and local organizations to identify needs and request participation. To help with this issue, program faculty have created an internal program list wherein we provide details about past and current clients, including contact information, dates, and project descriptions. This list helps ensure that we do not inundate the same clients repeatedly but also helps identify potential future clients for a course. If an office or organization expresses interest in repeating the experience, we indicate this in the list. Additionally, if an office declines our invitation, we verify if they are open to possible collaboration in the future. Clients designated for the course change

each term based upon this list, which only included five confirmed partners at the time of this offering. Setting up the community partner relationship includes confirming the need, finalizing the expected artifact(s) with relevant specifications, and establishing the selection process. To this end, the service learning arrangement always involves multiple students working on the same projects due to low need and still includes building a contact list. Thus, the client selects which artifact(s) to implement from among those submitted, adding an originally unintentional competition component to the activity. A secondary challenge involves the asynchronous online delivery of the course. Very few enrolled students live within an hour of campus. Furthermore, most of our students are enrolled-part time, working full time, and many live in different time zones, further complicating synchronous communication with me or potential clients.

As previously mentioned, the university libraries responded to the client request in 2015, and referred me to the public relations coordinator who then provided more detail. The request consisted of an email to the past community partners and a forward to contacts in student services on campus. After working with the client through email, the PR coordinator asked that students create both a table-top tent flyer and a [social media] post to help promote library policies and available resources. Specifications from the client are summarized in Table 1.

Other design specifications, provided by the client with my consultation, included making sure that designs considered a header or title with optional subtitle, “why message” to explain the importance and/or value of the resource or policy, “take action” details to explain how to access the resource, and appropriate images or graphics. Some of these recommendations originated in recommendations from the course text, *White space is not your enemy* (Hagen & Golombisky, 2013). Additionally, the client cautioned that table-top tent flyers would be placed on counters and tables throughout the library, campus dining facilities, and campus student center. Therefore, visibility was gauged as low with a heavy dependence on clear, concise, and eye-catching design. She then provided the following topics list from which the students each selected three to develop:

- Reserve a study room
- Prospector
- Request It
- iPads
- Naxos video library
- Current Affairs in Video
- The Grand Tour
- Vogue archive
- Birds of North America
- Mango Languages
- Meiji Japan
- American Museum of Natural History
- Everyday Life & Women in America c.1800-1920
- LGBT Thought and Culture
- Counseling and Therapy in Video
- American West
- China: Culture and Society
- Breeds of Livestock
- AP Images
- London Low Life

Students were encouraged to visit existing library resources on their respective topics in order to generate design ideas and/or identify content for use in their designs.

I give clients the choice of how they’d like to receive questions from students. To date, all clients have requested that I serve as the primary point of contact to collect, forward, and disseminate questions and answers on behalf of the class. I typically have 15-24 students enrolled in the course each term, and have explored a variety of mechanisms through which a more authentic relationship could be mimicked or different ways to facilitate client-designer communication. Unfortunately, campus policies do not allow for a way to add clients to the learning management system for the course. In addition, recommending messaging tools like Slack or Skype have been met with extreme resistance from both clients and students.

The client also provided samples that students could use as an example (or non-example). These samples are depicted in Figures 1 and 2.

MEDIUM	DIMENSIONS RESOLUTION	FILE TYPE	AUDIENCE
Table-top tent flyer	5.25"x8.25" 300+ DPI	PDF, JPG, TIFF	university students library patrons campus visitors
Social media post	4"x4" 72-150 DPI	JPG	university students library patrons library donors

**TABLE 1.** Client specifications.





FIGURE 1. Sample flyer design.

The materials represent examples of what they've distributed in the past as a way to illustrate that there is no required branding to follow and that they are open to all kinds of designs. The materials the libraries usually produce are generated internally by untrained student employees, but the client did not express any concern about quality or improvement. Unintentionally, student discussion in the course forum included critiquing the existing materials by pointing out "design sins" such as trapped space and media selection or questioning color pallet choices. These conversations provided an accidental reinforcement of course content.

## APPROACHING THE DESIGN CASE

As both a mechanism for self-reflection in developing designers and my own reflection on how to better teach message design, I approached all students about writing individual design cases with the intent to submit for publication. Admittedly, the concept was as much selfish as it was meant to mentor. The process of crafting this nested design case has revealed far more in terms of a course evaluation than any formal, summative evaluation conducted by the institution. Revelations from working with each author as we collaboratively gave voice to the final project process have truly helped me reconsider and change processes like better scaffolding design steps. The offer was presented at the conclusion of the semester, after final grades were submitted to the university. The timing of the request was selected to reduce potential ethical conflicts with collaborative authorship. While I included a sample design case and referenced Boling's (2010) call for design cases to be published, the majority of student replies asked for more information. Approximately half of the class responded with two declining to participate and the other six asking a



FIGURE 2. Sample social media designs.

variety of questions, turning the discussion into a mentoring opportunity. Questions included:

- What's the target journal?
- What is the time commitment involved?
- Why should I bother getting published, I'm just a master's student?
- What happens if it's not accepted?

In responding to the students, I highlighted the benefit of gaining a different kind of writing experience as design cases are different from traditional empirical articles. For our master's students, I highlighted the value of a publication as relevant to each individual's employment context as well as a collective push for doctoral study possibilities. All of the students expressed concern with responding to reviewer feedback in relation to ongoing coursework or assuming new responsibilities at work. To help reduce this anxiety, I offered to manage all changes and responses, sharing the process with them along the way. The course enrollment during this term totaled 15, and six students originally expressed interest. Four students accepted and agreed to write a personal design case but only three of the students ultimately completed the task.

When working to prepare the students for writing a design case, I thought it best to guide the process with leading questions. Initially, I began drafting questions and classifying each in terms of relationship to design. I quickly realized that the questions were very specific and detailed, like asking the designer why they selected a particular color scheme or image(s) to depict the resource. While these questions might help explain minute design decisions, I felt they would not completely capture the design process. In looking at published design cases, I realized that questions recommend by Smith (2010, p. 14) in writing a design case would help the students craft a more comprehensive response. These questions included:

- What key decisions were made?
- At what points in the design process did these decisions arise?
- Who was involved in the making of these decisions?
- What was the rationale or reasoning behind these decisions?
- How were key design decisions judged to be useful or not?
- What key changes were made during the design process?
- Why was the proposed design solution believed to be the best?

These design cases represent individual perspectives from Jennifer LaVanchy (JL), Trina Kilty (TK), and Dillon Stone (DS). Each student wrote his or her own case, and Tonia's

instructor reflections (IR) appear embedded within each case.

## JENNIFER LAVANCHY

I am a doctoral student in the instructional technology program. This design class was the first I had ever taken and only the second course of my doctoral program. I have never considered myself to be particularly artistic in any fashion, although I do strongly appreciate visual components in classes and advertising. My interest in this field is primarily curriculum design and support, and I honestly never saw myself designing any sort of visuals with technology. As you will probably see in my designs, I am a huge history lover and tend to imagine things in a vintage fashion. If given a choice between modern and old-fashioned I will almost assuredly choose the latter, hence my choices for the topic and images in my flyers and posts. Unfortunately, I do not have any of my draft designs. I deleted them once I selected what I wanted I wanted to submit.

**IR:** JL chose to design materials for the following topics: *Everyday Life & Women in America c.1800-1920*, *American West*, and *China: Culture and Society*. Her flyers are depicted in Figure 3, and social media posts in Figure 4. The client selected her *China: Culture and Society* social media post for implementation. No flyer was selected for the topic.

## Planning

My first important decision was choosing the three topics for the project. I decided to design for three online historical resource collections. I opted to choose areas that interested me personally and with which I was familiar either via study or personal experience. This helped me to form a stronger concept of what I wanted to portray in the flyers and posts. However, the familiarity with each topic worked against me in that I had to try to move past my personal conceptions and include what other students and faculty might imagine and seek in the collections. To overcome this bias, I first asked other students what they look for in a collection and former instructors what they would choose to highlight as advantages. This helped me decide the focus of each flyer and post.

Second, I explored some layout and color choices to begin formulating different drafts of the assignment. For example, with the topic of women in history, I opted for more muted colors of brown and grey to simulate a vintage feel of a ladies' catalogue from that time period. This decision was based entirely on how I imagined a catalogue would look. Since the majority of the images I chose were from the past, and in black and white, I felt that the colors would best suit



FIGURE 3. JI's flyer designs for (left to right) *Everyday Life & Women in America c.1800-1920*, *American West*, and *China: Culture and Society*.

this theme. Finally, I made a list of information that would be relevant and interesting to include on the flyers and posts based on my previous inquiries. This included the kinds of resources available, why the collection was unique and useful, and potential benefits of using these kinds of primary sources that included images, links, and documents. The assignment instructions indicated that we focus on visuals, presumably to catch the eye of a passerby so I decided from the beginning not to overload the viewer on information. Once I had compiled a list of potential images and information that I might include I began creating several drafts.

**IR:** I often use personal interest as an instructional strategy to reduce anxiety and increase positive emotional experience, but have not previously given consideration to how this approach impacts design decisions. On one hand, familiarity with a topic may aid with brainstorming or verify information accuracy. However, JI's issue regarding bias raises an interesting challenge. Should I randomly assign students to designs instead?

I continue to allow students to self-select designs after extended reflection on the subject. Biases are not inherently negative or detracting and represent a potential benefit in design, especially when creating materials to promote or market.

## Drafting

When creating the brochures, I initially used Microsoft Word to help me with layout. However, I had trouble setting the specifications and saving as a .pdf or .png file; so, I opted to use <http://canva.com>, as suggested by our instructor. Because I found Word easier to manipulate, I drafted several designs using the WET layout (Hagen & Golombisky, 2013) we had learned in class and completed the final designs in Canva. The WET layout encourages use of white space, minimizes the amount of information to only the most pertinent points and eliminates novice errors such as centering all text or overloading with visuals. I would have preferred to work with Word since it shows measurements and spacing, but Canva enabled me to obtain the desired size specifications.

Since we needed to submit a Facebook post and a flyer, I made the designs similar in color but with different images. I played around with some color formats and fonts that matched the topic I had chosen and based these decisions on class lessons and discussions on colors and fonts, focusing on which colors I thought would match each topic. Although we discussed many ideas in class, I also chose to informally poll some colleagues and students asking them what colors and images came to mind when they heard each topic. I then looked at previous submissions for this type of project to get a feel for what the client would choose. One comment in particular from an art teacher gave me the idea of a women's catalogue since she had suggested the idea of a stacked paper doll layout. I already had begun thinking of possible color schemes, but the feedback enabled me to make a clearer decision on the fonts and colors





**FIGURE 4.** JL's social media designs for (left to right) *Everyday Life & Women in America c.1800-1920*, *American West*, and *China: Culture and Society*.

to choose. Ideally, I would have been able to submit some ideas for feedback and then move from there, but due to the number of topics and time frame this was not possible.

Once I had a few draft layouts, I went to a colleague of mine who is an art teacher. I showed the drafts to her and to her students for feedback on the visuals because I do not have a strong background in design. One of their suggestions was to implement a three-dimensional element, for example a paper doll motif for the women in history. Unfortunately, the client's specifications prevented me from using this idea for the flyer. I instead tried to simulate the idea of one woman in multiple outfits and professions, but this design produced too many images and divided attention. Since I had to make a choice, I opted to go with client's request first. If I had more experience with design and layout I might have been able to find a way to better balance improved materials and project constraints. As a beginner, I chose to defer to the client's specifications more often and, unfortunately, to forego some creativity. For future projects, I plan to investigate other programs or apps to help simulate or achieve three-dimensional depth in a two-dimensional medium while maintaining continuity. Once I had chosen the drafts to use, I used Canva to produce .png files for submission.

**IR:** JL's attempt to seek design input from others illustrates an analytical approach often exhibited in the first three stages of skill acquisition (Dreyfus & Dreyfus, 1980). Specifically, the novice requires monitoring and feedback when practicing a skill in order to develop the behavior and conform to the rules of the behavior. Given the importance of analysis in general instructional design, perhaps I should recommend all students seek feedback outside of the course before finalizing designs. It had not occurred to me to encourage students to find their own reviewers of

designs. By contrast, I do regularly encourage students to submit manuscript assignments to seek peer review prior to submission. Interestingly, students do tend to express more concern over sharing a visually creative artifact with colleagues or friends than sharing a written paper. While both efforts are creative in nature, I see this behavior as a form of "creative anxiety." If I want to encourage design thinking and help students learn the rules, it might be worthwhile to assemble a panel of expert design reviewers to whom students could submit drafts for feedback.

As an intermediate step towards introducing an expert reviewing panel, I now ask students to share drafts and final designs in a discussion forum to solicit peer feedback. Interestingly enough, many students now leave positive comments on the course evaluation or contact me directly regarding the emphasis on peer critiques in the course. If a student needs to submit an assignment late, they often ask if doing so will prevent their design from being included in the formalized peer critique process.

## Revisions

Moving from Word to creating in a web-based app produced some difficulties. I created at least two different files for each flyer and social media post as I explored different visual components and the possibilities of incorporating QR codes. This then led to having to decide which drafts I preferred and wanted to complete. The biggest changes I made at this stage were to remove certain elements to reduce clutter and preserve white space or to change font size. I also opted to remove the color background in some cases, as this can be expensive to print. In hindsight, I would have submitted multiple drafts with and without color background to offer more choices. Some of the online course discussions about the



project included questions about printing costs and visibility of colors from a distance for the table-top flyers. These were likely the basis of my decision making here.

**IR:** Early in the semester, the creative process unit explores using mindmapping and sketchnoting as a means of generating ideas. JL's reflection on revisions illustrates a need to expand the unit to include storyboarding and sketching. However, in their study about teaching secondary art, Welch, Barlex, and Lim (2000) found that novice designers do not use sketching to plan an artifact even when taught to do so. Would helping students better visualize the design process through sketching be used? Looking at other design literature to better understand the problem, I found that Dym (1994) noted a distinct lack of inductive tool practice, like sketching, in American design curriculum. Given the timing difference between the two studies, and different contexts, I'm more curious about sketching and planning as a design development activity. This investigation led me to Roberts, Headleand, and Ritsos (2016), whose work in computer application development encouraged sketching as a means of planning and considering alternatives of a design through lo-fidelity, or paper-based, means. More specifically, the scholars noted a distinct lack of creative facilitation through digital planning or wireframing, making sketches a more useful endeavor. Thus, I must now consider if the aforementioned unit needs to include the role of sketching and planning as a foundation for development as a designer, much the way outlining serves as a foundation for writers.

Modifications to this unit now include a heavier emphasis on sketchnoting as an alternative to note taking and/or planning. Not only is the idea introduced in the unit, but I create a sketchnote on the week's discussion as a way to close out the unit and activity. For two consecutive years, I've seen an increase in students incorporating sketchnoting into design planning as well as a rise in hand-drawn sketches for designs. When first introduced, a majority of students in the class noted they were not familiar with the idea, but found it interesting. Now, approximately one-third of students say that they've heard of the concept, and roughly the same number of students use sketchnoting or hand-drawn sketches in some form.

## Reflection

Given that this was my first design experience, I learned a lot that will influence my future design efforts. First, I would want more direct contact with the client so that I could include them throughout the process. It is virtually impossible to know what a client favors, and how to implement this

without consistent communication. I was quite surprised by the designs that were chosen; they were not my favorites or very unique, which points to the importance of client feedback. Going forward I would also become more familiar with design tools as I felt somewhat behind compared to other students who perhaps used different applications or programs to design their flyers and posts. It was encouraging to be chosen, and that certainly contributes to my confidence in designing future projects.

**IR:** JL's comment regarding more direct contact presented a somewhat alarming revelation. By no means was the intent to separate the designers from the client, as this relationship is essential and the admission represents a significant limitation. In class, students are asked to direct all questions to me, and I post the question and response in an open discussion forum so that all students can benefit. As previously noted, other attempts to coordinate communication have been considered. However, this comment truly highlights the need to directly address this challenge rather than let the process stand. Moving forward, I need to consider how best to facilitate and encourage interaction. Consequently, one of the best ways to help includes identifying two or three clients each semester to create a smaller student designer to client ratio.

I specifically attempted to address this issue in the most recent iteration of the course. Rather than instruct students to send me questions, which often resulted in receiving the same question from different students within a short period, I created a discussion forum dedicated to the project. Students post their question(s) openly in the class, and I review the thread daily to forward relevant questions to the client. When the client responds, I copy and paste the response into a reply on the thread. In some cases, not all questions need to be forward to the client. For example, sometimes the answer appears within a resource provided by the client and another student recalls seeing this information. Thus, he or she replies, often before I do, with the answer. I do verify the answer and either redirect it, if necessary, or thank the peer for answering the question.

Other ideas, currently in development for future implementation, include seeking guest access for the client to be able to log in to the discussion board (only) and respond to questions personally or using an external project management tool, such as Basecamp or Zoho, to allow clients and students to work together in a simulated collaboration environment.



**FIGURE 5.** TK's flyer designs for (left to right) *Prospector*, *American Museum of Natural History*, and *Breeds of Livestock*.

## TRINA KILTY

I am a doctoral student in Instructional Technology. Prior to starting my degree, I worked six years as an Instructional Designer. While working, my primary focus was assisting faculty with the learning management system and other instructional technology, and I rarely had a chance to design visual components. My interest was high and I eagerly looked for professional development opportunities in design, such as designing better PowerPoint lectures—not exactly graphic design, but as close as I could get. I enjoyed the Message Design course and the chance to explore visual literacy. One of my research interests is the visual representation of data. I approached the final project with a sense of fun and enjoyment. Designing graphics seemed to exercise a different part of my brain than writing the typical research paper, and the competition aspect increased my motivation to design something that might stand out from the crowd in a positive way.

**IR:** TK chose to design materials for the following topics: *Prospector*, *American Museum of Natural History*, and *Breeds of Livestock*. Her flyers are depicted in Figure 5, social media posts in Figure 6, and draft designs in Figure 7. The client selected her *Prospector* and *Breeds of Livestock* social media posts for implementation. No flyer was selected for the topics.

My primary decision for all topics involved choosing one visual for each artifact and using this image for continuity

across media. I found it useful to start with a white blank space and carefully decide what to add, rather than adding everything and then deciding what to remove. This strategy fit with my goal of simplicity for maximum visual impact and reduced cognitive load. My design process began by looking at websites for each topic I had selected to find the desired visual. First, I perused the respective databases to determine prominent themes. Once I chose the visual, the next step was to place it on the blank slate of my design tool. Then I added text and chose the font and color.

To generate ideas, I spent time carefully considering each database and which visual I personally liked or what came to my mind while exploring the database. I considered what visual information might attract me to investigate the database further. A survey or audience analysis would have helped me to determine which pages saw the most traffic, but I did not have access to that data nor did I have time to administer a survey. Instead, I speculated what might compel people to visit the database.

I discarded the ideas about web traffic and surveys to generate audience analysis not only due to time but also because I did not have access to that data. I assumed that getting access would be a long and perhaps unsuccessful quest based upon my past experience with websites—generally only a few people have access to analytics—and decided it was probably fruitless to ask to gain access. I did not talk to the client or other individuals because that was the first semester after I had become an on-campus student. I think I was still in the mindset of working at a distance. This

perception of remoteness extended to secondary research, for example checking out a book through the *Prospector* service. Although I had moved to the local community, I did not have an assistantship. My courses were online that year, so I still felt that accessing some resources was not feasible for me. To my recollection, we did not discuss techniques for gathering data in class. This was my own idea based on my prior experience as an instructional designer: placing a high value on learner analysis and learner-centered design.

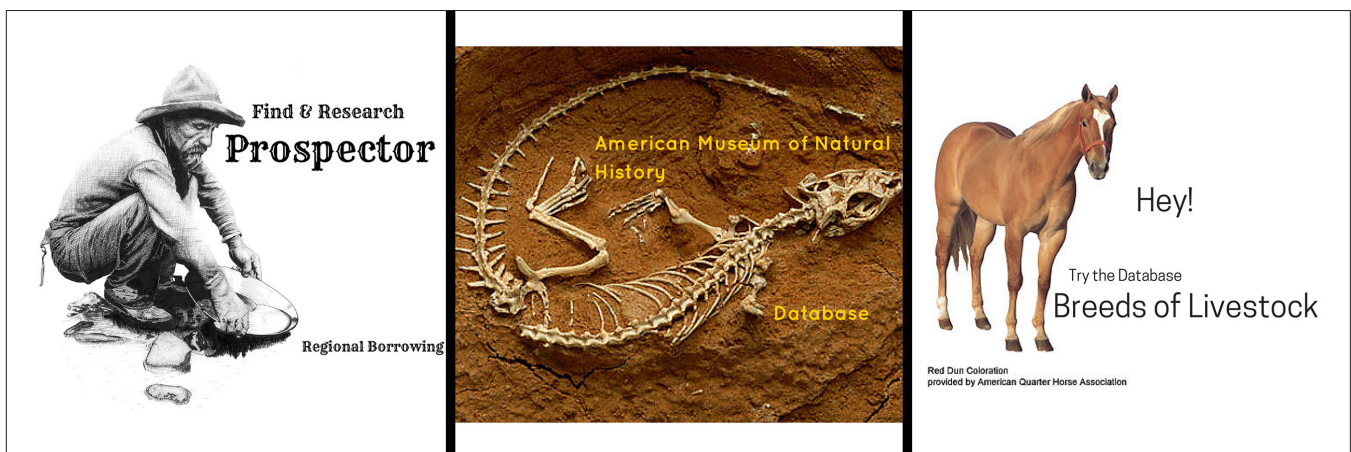
I made all of the decisions myself, asking one individual for his opinion once I considered the design complete. Because this person had no formal graphic design training, I asked only for his impression, considering him to be typical of the audience who would view the completed artifacts. This approach allowed me to concentrate on creating an interesting design that was simple and memorable. My purpose was to attract attention and create a memory that the audience might recall later if the need to access the database arose.

**IR:** TK's design case mentions the role of analysis in a slightly different way than JL. Her personal experience as an instructional designer is apparent in the desire to access analytics and reports related to the different databases. She wants to utilize usage and search data to build a visual based upon a corresponding image, much like how she might identify a skill or knowledge gap to target based upon observed or recorded learner data. On one hand, this appears to be a type of task transfer, wherein she's attempting to apply a task necessary for one skill as a task necessary for a new skill. Does this prior experience help or hinder competency progression? Certainly, the graphic designer must also consider his or her audience just as the instructional designer must consider the learner. This form of stakeholder analysis works in both skills. Perhaps then, there's value in giving voice to this

analogy to help with task transfer, and ultimately skill acquisition.

Perhaps not overtly verbalized in the instruction or feedback, but illustrated here is the idea of user-centered design (UCD). While the context here focuses on visual design to aid in the transfer of information, the concept stemming from the idea of interface interaction (Abrams, Maloney-Krichmar, & Preece, 2004). When we think about visuals as a form of informational interface, the UCD application fits perfectly. The client specifications for including a "why message" and "take action" details take a distinctly user-centric approach in terms of creating an interface that guides easy decision making and natural visual mapping, essential themes to UCD as conceptualized by Norman and Draper (1986). If we extend TK's idea to use data analytics as a means of stakeholder analysis, an unintentional but welcome added emphasis on UCD becomes visible.

TK's point with this reflection motivated me to work more closely with clients and determine if we might somehow include an analysis component in designs. The client in the 2017 course happily provided focus group data related to their organization that students have used in crafting their messages. Going forward, this question will always be asked of clients. However, lack of access to this type of information will not preclude a client from working with the class. Rather, this missing information potentially represents a collaboration with related courses in the program such as Introduction to Instructional Design, where students conduct an analysis for a client. Given the timeline of the two courses, it is possible for this analysis to be completed in time for Message Design students to benefit from the data gathering.



**FIGURE 6.** TK's social media designs for (left to right) *Prospector*, *American Museum of Natural History*, and *Breeds of Livestock*



For the Prospector website, I used an image of a man panning for gold. The 19th century gold prospector is iconic and easily recognizable. It is also nonspecific, like the website, which is intended to help patrons search for materials at regional libraries. People are looking for something valuable and hoping to find it, just as gold panning is looking for gold without a guarantee of success. I placed a line of text near the man's head to suggest thinking, and placed another line of text to appear as if he was pouring the words out of the gold pan. I used a serif font because I thought it invoked an old-fashioned feel to the database and matched the 19th century prospector image.

**IR:** TK's design case reveals a strong decision to use analogy as a means of communication. While the explanation illustrates a thoughtful design decision, there is no consideration to cultural relevance. I have to wonder if library patrons from other regions of the United States or other countries would understand the analogy. Should I reevaluate cultural design considerations in the course content?

Whenever possible, I use the weekly overviews of the course: a sequence of videos that summarizes the previous week's discussion, introduces the current week's topic, and summarizes the week's expectations that all include relevant cultural issues. For example, during the "mini art school" unit, where the students

explore color theory and layout, I provide resources that explore how different colors are viewed in different countries or by different cultures. By the time students reach the client project assignment, they've been asked in weekly discussions to consider how messages might be interpreted by different viewers. This practice of awareness works well in conjunction with providing a stakeholder analysis.

**IR:** I should note here that only the final materials were submitted as part of the assignment. The draft was provided as part of crafting this design case. TK's draft and final designs do not look terribly different. Her focus on reordering the bulleted content demonstrates a fixation on details rather than the design as a whole. Perhaps this poses the opportunity to have students submit draft designs for feedback much like the process seen in writing courses. Having drafts or sketches certainly helps to create a more comprehensive design case for later evaluation. However, it also would create another opportunity for feedback as the designers continue to learn and practice the rules of acquiring design as a skill.

When addressing some of the ideas for course revisions that emerged from this design case, the idea of draft submissions resonates highly, but has been



FIGURE 7. TK's draft flyer designs.

set for a later implementation. In 2018, the client project will be introduced earlier in the semester to allow for drafts to be submitted approximately two weeks prior to the final due date. The intent is to add this draft into the peer critique structure of the course, providing student designers with feedback from peers and the instructor.

For the American Natural History Museum database, I chose a fossil. This is an interesting artifact to analyze because the client did not choose it. Because I like fossils, I thought a fossil would draw people to the database. However, as the fossil is not easily recognizable as a specific creature, this design decision may lessen general appeal to others. To compensate for this effect, I placed the text in the social media image to appear as if the text was an extension of the appendages. I used sans serif, yellow text, which may have lessened its appeal further. I think using yellow may have been a bad idea because there was a lack of contrast. The image stood out more so than the text. Using a contrasting color would have called out to people. Rather, the yellow faded into the background, leading people to make an extra effort to read through the text and increasing the chance they simply would skip over the information and move on.

For the Breeds of Livestock database, I chose a horse because I personally like horses. I also considered the audience: generally, most people seem to have a basic knowledge of horse breeds. People have written books and made movies about horses. I chose a horse that was facing the reader in order to indicate friendliness, and added the greeting, "Hey!" to attract attention and as a subtly humorous play on the word.

**IR:** The personal interest and knowledge factor again plays a role in making design decisions. I find her assumption that "generally, most people seem to have a basic knowledge of horse breeds" quite interesting. If the assumption were contradicted by data, would it matter? How does her earlier thought on user analytics data sit in direct contrast to this assumption? Would having an image of another breed of horse change anything about the message? Or does the combination of a generic horse and corresponding homophone usage play a larger role in catching attention? In looking at her draft design in comparison to the final flyer along with the other flyers, TK again demonstrates a fixation or focus on using design elements from recently seen examples (Finke, 1996). While the client-provided samples did not follow a picture/title and bulleted list, some of these elements appear as individual best practices in the Hagen and Golombisky (2013) text.

I do not introduce the concept of fixation. Thus, these observations reveal an interesting interaction between knowing about fixation as a design problem, teaching design, and watching novice designers develop. In continuing the reflective rhetoric, I see potential value in further exploring the creative process early in the course curriculum to include how we address challenges like fixation. In particular, following the guidance from Hatchuel, Le Masson, and Weil, (2011) helps the designer to become aware of the fixation in order to overcome the limitation.

Similar to the draft review idea, the concept of fixation and creativity development will be fully implemented in 2018. Students continue to exhibit self-concern with being creative and often conflate creativity with aesthetic design. Slight changes were made to the course in 2016 and 2017 to address this issue, primarily by way of verbal instruction and reinforcement during the weekly overviews. There has been relatively little change in student performance or comment related to creativity and fixation. Thus, there is clearly a need to revise the course to directly address this issue.

I tried to avoid color in the flyer designs, because the client specified these would go to print and I wanted to save costs. Black and white has high contrast, which I hoped would make the visual memorable. In hindsight, I should have used color, perhaps red, as a means of emphasizing some component of the flyer and help the artifact stand out. I consulted the Hagen and Golombisky (2013) text as a guide for most design decisions, including following the rule of thirds, using sans serif fonts, limiting use of color, and avoiding filling up blank space and making the design look busy. The Prospector design does not follow all of these design considerations, but the other two images follow these guidelines closely. I made a few key changes by increasing the size of the visuals in order to fill up the space while still keeping to the specified margins. This decision contributes to visual impact, a specific concern of the client. I believe the final designs were my best because they are simple and clean in appearance, leaving ample white space while still delivering pertinent information.

I have no previous formal training in design principles and concepts. However, several members of my family do, so I think I learned from their modeling what "looks right" or has pleasing color combinations. I consulted the textbook to compare suggested principles and concepts with my intuition to make sure I was designing something appealing to an audience, not just to myself. I followed the rule of thirds deterministically to get the image to "look right" and placed text according to suggested guidelines. However, I disregarded the principles in at least one instance: for the *Prospector*

design, I used a serif font rather than recommended sans serif. In this case, my intuition won over the standard rule. Overall, my goal was to convey the message as cleanly and simply as possible. I kept thinking about the desired take-away message for the audience. I felt like the image may be what people would remember, and the text should serve to reinforce the message. At times, I obsessed over reducing text as much as possible to just deliver absolutely essential information. I imagined that people, upon looking at the graphic, would not immediately try to access the service. So, detailed step-by-step information was unnecessary. I viewed the graphic more as an advertisement to lodge the idea of the service in people's minds so that they could return to it as needed. In that sense, the selection of the image was my primary concern—the fossil symbolizing natural history; the prospector for regional (Western US) borrowing; the horse for livestock breeds. My next concern was to maximize the white space so that the primary image did not compete with anything else and would hopefully become more memorable. I feel like this train of thought was guided by my own intuition but informed by the design principles and concepts from the textbook.

**IR:** TK's rationale for design decisions specifically address white space and simplicity, and I think that these considerations alone might make her designs unique among others. Regardless of design trends, her artifacts appear antithesis in a social media feed filled with bright colors, animations, and cluttered memes or among tables and bulletin boards littered with similarly designed flyers.

### Overall Value

Overall, I found the additional assignment aspect of competing to work with a client very useful. The other assignments in Message Design were assessed by the instructor using a detailed rubric. I carefully examined the rubric to make sure I addressed each part, knowing I would be assessed by an expert. The contest presented more of an evaluation than an assessment. The client may or may not be an expert in message design, and probably would not deconstruct the image to assess each component. The client would most likely make a decision based on a holistic assessment; how the image and text came together to present a message. With this assumption, I designed the image by applying the principles I had learned in class and synthesizing these together to create an image that hopefully just worked. I appreciate how both assessments were used in the course regardless of the fact that only the instructor's assessment determined my grade. Preparing the image for assessment and preparing the same image for a client to view forced me to carefully examine each part but also to critically examine the overall impact. Doing so helped me move

from designing for a good grade to designing to please the client. I feel this activity is an authentic way to help students transition from coursework to career work.

### DILLON STONE

I am a high school Spanish teacher/football & wrestling coach, and I have been in education since 2007. I also recently earned my Master of Science degree in Instructional Technology and have spent the past three years on a district curriculum development team for World Languages. I have no design experience beyond this recent work. The course, and specifically the final project, were all new concepts and experiences for me. This was my first foray into the visual aspect of design, and I found the material fascinating and challenging. There are certain basic rules to quality design work, but the ability to break the rules and knowing when this is okay was, and still is, a difficult line to understand. The subjectivity of message design is maddeningly fun.

**IR:** DS chose to design materials for the following topics: LGBT Thought and Culture (flyer depicted in Figure 8; social media image depicted in Figure 9), Naxos video library (flyer depicted in Figure 8; social media image depicted in Figure 9), and Vogue archive (flyer depicted in Figure 8; social media image depicted in Figure 9). The client selected the Vogue image in Figure 8 and all images in Figure 9 for implementation. No flyer was selected for the LGBT Thought and Culture topic. Another student's flyer and social media image were also selected for the Naxos video library topic.

This was the second semester in my study of instructional design, but my first class and experience with visual design principles and message design. The final project was the first chance I had to create a visual graphic meant to disseminate a message to prospective clients. I was personally intrigued by the opportunity to branch out from the structures we learned and rubrics we used in class of "good" design, and possibly break the rules like a professional.

Unlike the normal academic pressure associated with receiving a grade for a project, I now felt the pressure of client satisfaction. Expert designers accumulate "a huge range of precedent which is stored as having affordances that might come in useful at some point in design projects" (Lawson, 2004, p. 456), and "design students are expected to develop this capability via their growing appreciation of the designed world and the specific designs they experience directly or via representation" (Boling, 2010, p. 2). I had limited experience with designing before I had spent the semester learning basic design principles and rules, of which, I now had had the opportunity to break! I thought it might be enjoyable to branch out from the structures we learned and rubrics we used in class in order to possibly break the rules





**FIGURE 8.** DS's flyer designs for (left to right) *Naxos Video Library*, *LGBT Thought and Culture*, and *Vogue* magazine.

like a professional. Formal education often requires us to stay within particular boundaries, and rubrics sometimes confine or restrain creativity. In this case, though, the rubric allowed for flexibility, and I felt empowered. I had the freedom to decide whether or not a particular practice or principle should be used. Working for a client just felt different from working for my instructor.

The first decision I had to make was the technological platform in which I would complete my designs. Canva was a suggested resource in the project specifications and I completed all the artifacts using Canva. I was able to create blank platforms to match the specified size of 5.25" x 8.25" for the tabletop flyers and 4" x 4" for the Facebook posts, and Canva also allowed the designs to be in .pdf or .jpg formats.

**IR:** Since DS is the second student to mention design tools and Canva, I want to address this aspect of course instruction. Design tools are more plentiful than ever with everything from mobile apps, web-based apps, and traditional applications crowding the market. I've taught courses for other institutions that stipulated a specific tool, usually Adobe Illustrator or Photoshop, to use in design. However, the balance between teaching design and teaching a specific tool poses quite the challenge. To reduce students' anxiety with learning a new tool, I've elected to remain agnostic and allow students to use any tool. This course design decision poses other problems, however.

Namely, students sometimes feel overwhelmed at the prospect of choosing a tool themselves. A partial compromise involves referencing different tools, resources, and techniques throughout the semester. Watching industry demands for designers with experience using a specific tool further complicates the decision. Conversations with students include expressing a desire to use financial aid funds to pay for software subscriptions like Adobe CC. However, our campus bookstore and information technology department have not been able to provide a mechanism for such an accommodation. A different media development course in our program does require and teach Adobe Photoshop in tandem with TechSmith Camtasia. Students enrolled in both courses concurrently sometimes take advantage of having access to Adobe CC to complete assignments for this course. After receiving numerous messages of concern from students in this particular semester, I opted to recommend one of the easier web-based tools I personally use: Canva.

As of the 2017 iteration of this course, the course page that introduces the client project also includes a list of recommended tools and applications for design. This practice began as a course announcement in 2016, and students expressed gratitude for this resource as well as made recommendations for other tools.



**FIGURE 9.** DS's social media designs for (left to right) *Naxos Video Library*, *LGBT Thought and Culture*, and *Vogue* magazine.

Thus, future plans include amending this list for every delivery to help students select tools with which they feel most comfortable and/or explore new tools.

Blank templates and technological issues aside, the real design issues were next; what do I use to fill in the templates? The designs needed to be simple and effective; the spaces were extremely limited to get the message across to the consumer. I conducted basic research for important characteristics I wanted to represent. The *Naxos video library* was the easiest database to design because visual representations for ballet, concerts, and operas were found through a Creative Commons image search through Google. The biggest decisions for *Naxos* involved what elements to place in a basic column layout and the resizing issues for images.

**IR:** As referenced previously, copyright and Creative Commons comprise one of the instructional units, and the issue of copyright arises throughout the course. Every course assignment includes a rubric criterion addressing copyright and relevant attribution. My primary purpose for emphasizing copyright rests in ethical design and practice. Just as media literacy has become a centerpiece of PK12 instruction, I feel strongly about infusing these principles into post-secondary education.

A few students who have taken the course in the past two years have inquired about purchasing images from paid databases such as Shutterstock or iStock. As a result, I have informally addressed this practice individually while also providing links to university available databases, such as Getty Images. The course unit on copyright will be formally updated to include paid databases and types of image usage;

e.g., editorial vs. commercial, to better address this shift in student perceptions and need.

*Vogue Magazine* and *LGBT Thought and Culture* databases were more difficult. I wanted *Vogue Magazine* to have a design that reflected the elegance and glamour the magazine is known for, in addition to expressing the longevity of the publication. I found in my research the ability to download the covers from every issue in the database and thought they would express both ideas quite well. For the tabletop flyer, I literally followed the golden ratio: beginning with the first cover issue in 1892 in the bottom right corner, flowing up into the top right corner, and finishing with the latest issue available. The first and last issues were enlarged to stand out from the others in the ratio. Basic textual information about *Vogue Magazine* and where the patron could access the database were balanced around the covers. The *Vogue Magazine* social media image was smaller, and thus I placed the covers in the shape of the letter "V" for *Vogue*. I used a similar font and red color as *Vogue* does on their cover pages for the attention-grabbing title and each template used a bland background color to allow the covers and title to stand out.

**IR:** DS's draft design appears much more simple and clean. The stark contrasts to the final design demonstrate a dichotomy or struggle with layout. I may want to take an opportunity to examine balance in content given the heavy reliance and usage of text in final designs across all of the novice designers.

Some of the aforementioned changes to course curriculum and/or peer feedback has helped reduce the reliance of text on designs submitted by students. The informal peer reviews of drafts seem to be the most influential at this point.





FIGURE 10. DS's draft designs.

However, the planned expert review panel and/or draft submission for formal peer feedback will likely further address this issue and strengthen the course design.

LGBT Thought and Culture was the most difficult to design of the three databases. I struggled with simplifying an entire culture down to a 4"x4" space. The biggest decision I made was not to use my voice, as I did not feel I had the right to

represent LGBT culture. Instead, I chose different versions of the international symbol of LGBT culture—the rainbow flag—to implement into each of the designs with minimal textual information to accompany the flag. I wanted the simplicity and beauty of the flag to speak in each design.

I feel the proposed designs for the databases were my best because I used the specific characteristics of each database in the design process. The Naxos designs were logical and organized, much like the professional ballets, operas, and classical concerts the database contains. The Vogue Magazine designs used original magazine covers to represent the glamour and timelessness in the same manner as the magazine does for beauty and fashion. There is no other symbol that can more easily and clearly represent the LGBT Thought and Culture database than the symbol of the rainbow flag. These designs needed to be highly visual and simple, and the patrons can understand the purpose of each design through the visual channel; textual information is supplementary.

### Final Thoughts

This was a fun, stressful, exciting, and challenging experience, quite unlike any other I have had in the program. The opportunity to create work for a real client was an amazing opportunity and I learned a lot about myself: my limitations thus far as a multimedia instructional tool creator and some of my creative limitations. At the same time, I feel proud that four of my six designs were selected by the client. Yet, I want to know why two of my designs were rejected. I wish that in this assignment we could experience

the feedback cycle for rejected work and the client reasons for rejection. The joy of finding out that my work was up to par (my Vogue work was awesome!) was (and still is) slightly overshadowed by rejection. This is something I will have to learn how to deal with professionally. The client will disagree with work I produce, and I need to be able to understand their reasons and their perspective while distancing my personal feelings for the quality of my work or else I will find myself out of work. I can't wait to do this again, and I look forward to new challenges as a professional.



## CONCLUSIONS

All of the students participating in this design case self-identified as novice designers, working towards improving expertise in visual layout and aesthetic design. Each of the design cases reveals that the students closely align with what Eraut (1994) referred to as advanced beginners. In other words, the students exercised limited situational perception, straying from strict adherence to design rules covered in class and exercising some discretionary judgement. The experience of working on a product for a client provided a way for each student designer to improve on a specific perceived weakness in design ability and refine his or her overall design skill. All three students referenced design decisions that were heavily influenced by personal memories and experiences—a common behavior of novice designers (Ahmed, Wallace, & Blessing, 2003). The cases also illustrate growth as a designer in unanticipated ways, such as UCD. This natural gravitation towards a particular decision pattern represents both a milestone or benchmark for evaluating design skill acquisition as well as potential consideration to share with design students.

As a design educator, I view the service learning activity as a means of assisting students' progression into the competency stage as described by Dreyfus and Dreyfus (1980). Having a situational context provides experience outside of a classroom with authenticity and meaning. We require the students to maintain a portfolio, and this message design course both helps with designing the portfolio and creating artifacts to use in the portfolio. Students then have the option to use the portfolio professionally as a showcase of skills acquired and/or refined in the degree program. However, the competition element of the service learning activity adds a separate dimension to skill development. While competition traditionally increases extrinsic motivation, it can also decrease intrinsic motivation (Deci, Koestner, & Ryan, 2001). Given that the competition does not directly impact students' grades, the influence on motivation likely does not influence performance. Instead, the competition serves as more of an afterthought or bonus.

The design decisions made by students include common themes that provide insight into the novice designer. The personal experience, interest, and preference drawn upon by the students aligns with Krause's (2004) recommendation that individuals treat the creative process as a deeply personal endeavor. In thinking back to how I learned graphic and visual design more than 20 years ago, I realize that my own instructors encouraged using personal interest as the central theme or source of content. Being able to express the connection between theory and practice helps support my own course design decisions.

All of the students grappled with selecting appropriate visuals. Every designer approaches the process differently, but even expert designers experience the challenge of

identifying and selecting visuals. Perhaps more purposefully addressing and recommending UCD might help mitigate this challenge. Additionally, two of the students referenced the design tool that they used and the particular challenges faced therein. Recommending, and potentially teaching, a specific tool poses an ongoing challenge to design educators, and I must continue to wonder if a tool-agnostic approach is best when introducing design. As freer and/or more web-based tools become available, perhaps a solution lies in supporting 2–3 specific tools.

Lastly, specific references to the course text and guiding principles, whether followed or violated, learned in the course represent a reliance on individual design elements, parts versus the whole, and carefully analyzing rather than intuitively selecting options. "Observation, study, practice, and play are all essential elements of creative growth" (Krause, 2004, p. 323), and the students exhibited all four of these elements in their respective design cases. While my instructor reflections provide insight into possibly adding or changing the structure of units in the course to address what I view as design deficiencies, I should remember that these developing designers must experience this process in their own way, which develops and evolves over time. Service learning projects such as the one described herein provide an excellent way in which student designers might acquire such experience.

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