

**Re-focusing the Creative Process:
Blending Problem-Based Studio Practice and Online Reflection**

Ben Cunningham *

ABSTRACT

To promote the development of greater creativity in my students' design work, I created an online tool—called Reflective Inquiry (RI)—that accompanies all of my open-ended assignments and that I require students to submit with each project. The RI is composed of a series of prompts that students must respond to, almost daily, to explain and illustrate their thinking processes and decisions. I ask students to think critically about questions such as “what don't you understand about this assignment?” “what materials are you exploring?” and “why these materials?” In addressing a series of questions about basic ideas, historical research, materials, production, and future application of concepts, students articulate their thinking, acknowledge their confusions, identify creative concepts, and observe their own artistic development. Being digital, RI can house student audio and video examples of their work in progress as well as serve as a dynamic platform for critiquing and classroom sharing.

INTRODUCTION

I teach an Introduction to Design Foundations course that is a pre-requisite for all other courses offered in the art and design department. My classroom consists of students in different departments as well as art and design majors. In an attempt to teach design to this diverse student body I have implemented a problem-based learning pedagogy and created a methodology for teaching introductory design courses—using an online tool I call Reflective

* Ben Cunningham, Associate Professor, Millersville University, Millersville, PA, USA
Email: bcunningham@millersville.edu

Inquiry (RI)—that has broadened my instructional capability, deepened my students' classroom learning, and expanded their creative experience.

The Reflective Inquiry documents my students' gained knowledge, skills, and 'time on task' to investigate and respond to authentic, engaging and complex questions, problems, or challenges my assignments present by requiring students to digitally document their entire thinking, research, and production. The RI, a series of specific prompts, is integrated into the Learning Management System (LMS), leading students through sections that are revealed individually as they work their way through each project. Each unit contains questions that correlate with the stages I have identified as crucial to the creative process.

Combining face-to-face classes with online prompts creates more opportunities for communication and feedback than are possible in a traditional classroom. Placing the RI online provides a private space for student exploration and individualized instruction as well as a public platform for classroom dialogue to occur. RI documents my students' educational experience for assessment purposes as well as so that students better understand their capacity for creativity and imagination.

CONTEXT AND AIMS: DEVELOPING SELF REFLECTION

Developing the ability to reflect on a project is essential to students learning how to explore ideas, navigate mistakes and failure, and make meaningful artwork. Through RI I can validate not only the end results of an assignment but also the discarded attempts, disqualified ideas, and unproductive accidents encountered along the way. Inspired by and based on the premise that one learns more from failure than success, RI broadens my assessment to include documentation of a student's understanding of the art elements and principles of organization by way of self-reflection, critical analysis, and problem solving.

The RI is a list of questions discussed daily during each stage of students' assignments. Students work on their project as well as their RI simultaneously. Both are reviewed at the end of a project and are given equal weight in their project's final grade. Research shows that, without guidance, structure, and support, learners may be overwhelmed by the complexity and struggle to make the most of their learning experience. Reflection supports learners to make sense and meaning from their experience and at its most critical level, contributes to transformative learning..... Supporting learners to develop their capacity for reflection and structuring opportunities for reflection before, during, and after the experience will enable learners to navigate the inherent complexities of learning through experience (Coulson & Harvey, 2013, p. 403).

Much has been written about the need to have students think about their learning and reflect on their experience, and the means of encouraging such reflection is usually through journal writing of some kind (Hoffman, 1983; Commander & Smith, 1996; Cantrell, 1997; Walden, 1988). This form of writing during and after activities generally gets no further, though, than asking students what they expect to get out of an activity, what their behavior was during the assignment, and what they feel they learned from doing it. Walden carries the notion further, by fashioning specific questions based on classroom discussion and readings, but doesn't scaffold the development of student thinking in a specific discipline. In art education, Walker (2004) has students write about their projects without giving specific guidance as to how to do this, and Stout (1993) emphasizes the need for students to keep what she calls a "dialogic journal," which is a loose "synthesis of a diary, classnotes, and the fieldnotes of a naturalist.... It is a place for their emerging voices, where ideas about creation and response are uncensored and as speculative, unique, and as wild as they wish" (p. 40). As to how to help students do this effectively, Stout suggests letting them study other artists' journals. And even in the most comprehensive discussion of using journals to guide reflection, Moon (1999) summarizes structured forms in a page, suggesting that questions "might ensure that appropriate areas of material are covered" (p. 195).

The more systematic approach of RI is intended to mirror the thinking processes students need to internalize as working artists and is a form of the 'reflective practicum' "aimed at helping students acquire the kinds of artistry essential to competence in the indeterminate zones of practice" advocated by Donald Schön (1987) in *Educating the Reflective Practitioner*. RI helps students understand what kinds of questions they need to ask themselves to keep moving ahead; it is a form of self-coaching in which the questions serve as the framework for the student to learn from ineffective thoughts or unproductive actions and turn them into experiential knowledge. Working independently through RI, students are able to address and resolve more questions than can be explored daily with an instructor in the classroom. Completing the RI prior to a critique facilitates the student / professor dialogue, provides a springboard to deeper learning, expedites the critiquing process, and ensures an overall higher level of communication and exchange of ideas.

DIGITAL FROM START TO FINISH

Delivering RI's through an LMS facilitates several different modern educational strategies such as self-directed learning, collaborative learning, experiential-based learning, and active learning. The digital format allows my students access to this educational space from any location and device capable of connecting to the Internet. My students can insert photos or videos of their projects and housing digital files within the students' RI's written prompts helps me to use them as teaching tools. The dialogues I have with my students are facilitated because the students' responses are readily accessible, organized, and sequential.

Making the RI digital allows my students to directly hyperlink to websites of influential artists and artworks. Students are able to build a digital sketchbook for their ideas. Once a student places a file into the RI, I can post comments, critiques, and grades. The site is secure and each student only has access to his or her own area as well as an open forum for group and class sharing. Assessing student performance is easier and faster because everything (such as cited websites, thoughts, and images) is in one location.

The RI consists of over a hundred prompts and is divided into eight sections: brainstorming, historical research, final idea, dialogue with materials, production, post production reflection, knowledge, and future accomplishments.

The following is a brief example of how a former student (I'll call him "James") worked through his Reflective Inquiry to complete the assignment previously mentioned. Confronted with an open-ended assignment James used the RI to work through each stage of the problem and document his thinking.

BRAINSTORMING

The first question of the RI asks students if they understand the assignment and requires students to brainstorm and generate as many ideas as possible. Upon completion of this section, students will have well developed, focused, and clarified ideas to discuss in class as well as a better understanding of what a successfully completed project entails. In order to brainstorm, James brought several images to class and we discussed how he might reproduce the artworks using Photoshop or collage as media, reformatting the images as magazine cover pages or advertisements, re-contextualizing the artworks as Facebook or Twitter postings, or replacing kings and queens in compositions with new tabloid or pop culture personalities. James chose "Composition II" completed in 1930 by Piet Mondrian and wrote that he was originally introduced to the image in his art history class; he immediately responded to Mondrian's use of formal visual language such as repeated simple geometric forms, color, variety, and grids created by the linear quality of the intersecting black lines.

HISTORICAL RESEARCH

Creating a visual library through their research, students can see how previous artists have resolved design problems, as well as apply what they learn to ideas or issues they wish to employ. Identifying concepts and attempting to resolve complexities can lead to creative breakthroughs, since, as Sawyer (2012) notes, "Creativity involves a combination of two or more thoughts or concepts that have never been combined together before by that individual" (p. 7).

In his RI James wrote that Mondrian favored pure red, yellow, and blue as well as black and white colors separated by thick black lines. Over time his artwork became cleaner and simpler until finally culminating in strong fields of color without the use of black lines to separate them. James reflected on the importance of Mondrian's color field series and its reliance on formal design, and explored a variety of media (tissue paper, construction paper, newsprint, and acetate) to contemporize Mondrian's design concept, which he documented in his RI with examples.

FINAL IDEA

Encouraging my students to work through the RI prior to class helps to edit many of their ideas down to a few manageable ones we can discuss. For James, the big question was: "How do I contemporize Mondrian?" Answer: Duct Tape!! James reflected on how Duct tape was perfect for making straight lines, could be cut and applied to create desired squares and rectangles, and is manufactured in a selection of colors other than silver. He discussed how painters often lay down tape to create straight lines, so the connection to Mondrian had multiple associations.

Dialogue with Materials

The Dialogue with Materials section requires students to think about which materials and how materials could be used to execute their artwork. As Sawyer (2012) notes, "Creativity takes place over time, and most of the creativity occurs while doing the work. The medium is an essential part of the creative process, and creators often get ideas while working with their materials" (p. 89). This section helps students develop a broader and often unique understanding of how to use the materials. Through their research most students have compiled some thoughts on materials previously used and often have already watched informational videos on how to work with various materials, the tools required, and suppliers.

James possesses a lot of technical skills; initially he thought the process of applying Duct tape was going to be quick and easy. Several hours later, a pile of tape adhered to itself, ripped poster board surfaces, and created irregular lines and overlapped seams; James realized the Duct tape demanded more respect than originally given to it. Also, creating an original design that referenced Mondrian's artwork by applying the "Golden mean" (a concept he recently learned in class) took a lot more time to resolve than he originally thought it would. James used colored pencil to resolve his final design on paper because he had wasted a lot of tape underestimating its adhering quality (especially onto itself), the difficulty of laying it in a straight line without getting air bubbles or creases on its surface, and that although scissors were easier to use than a straight blade they proved harder to control, resulting in uneven edges of tape. Solution? Overlapping the tape. Next problem—how to sequence the application of tape. As James worked through the various problems he confronted, he used the RI to resolve the issues that arose, taking photos to document his process, failures, and results.

PRODUCTION

Since I have chosen to focus my instruction on developing an idea and finding the best materials to support this idea, more of the production component of projects has fallen onto students. To address this and meet their needs I have focused more on instilling in my students the ability to be self-learners as they confront the availability and costs of materials, skills required, and project deadlines. Teaching my students to think through an assignment from start to finish, identify their project needs, and obtain resources are important skills they will need as they matriculate and start careers as professional artists.

Final production commenced after a short trip to the local hardware store to purchase tape and the local art store to purchase Bristol board. Executing the project went well because James spent many hours making test examples and resolving his design in his RI prior to starting his project.

POST PRODUCTION REFLECTION

In the RI Post Production Reflection section, students are asked to reflect back on how to improve the production component of their assignment. Their insights can be as simple as critiquing a new technical skill or as complex as improving their communication with others. Here the student is reviewing the appropriateness of and their facility with materials during production.

In reviewing his final project, James reflected that a thicker Bristol board would have remained flatter and been more durable; also, that making more accurate measurements and drawing lines to follow (in addition to the pencil marks) would have provided much needed guidelines and following them would have helped to keep the tape straight. Overlapping the tape caused an unintentional secondary line that needed to be straight as well. Using a mixing spatula to rub the tape blemished its surface. In his RI he noted that were he to remake the project he would wrap the spatula in a cloth to protect the tape's surface. Trying to place the tape's edges beside one another grew harder as the length of the tape increased. Uneven tape edges showed through even though the tape was layered. In his RI James noted all of these difficulties and proposed potential solutions were he to repeat this project; he also explored how these difficulties and solutions related to other design issues.

KNOWLEDGE

In their rush to finish a project students overlook the benefits and sequence of my assignments, which is not simply to just bring more objects into the world. I consider their projects a byproduct of my assignments. Quite often they are pretty wonderful byproducts, but my main focus in my foundations classroom is not to produce craftsmen as much as it is to help students

master domain knowledge so that they are prepared to be creative using that knowledge as designers and artists. As Sawyer notes, “A creative insight that generates good questions is more valuable than one that conclusively answers every known question but doesn’t suggest any further research” (p.138).

James listed many more insights than those I’ve mentioned here. I’ve separated them into a few major categories; he learned about: Mondrian the artist, Abstract art, the Modern art movement, the primary colors, the “golden mean” as a way to divide space, the proportional ratio of color fields in relationship to the thickness of tape (mathematical ratios and calculations), where to purchase Duct tape, calculating how much tape will be needed and how much to purchase, the history of Duct tape, how to best cut Duct tape, and sequential thinking.

FUTURE ACCOMPLISHMENTS

The questions in the Future Accomplishments section help students transfer knowledge to future projects. I agree with implications drawn from studies done by Mayer “that to assess for creative learning, students should be tested not only on retention of specific facts, but on the ability to transfer knowledge to new problems” (as cited in Sawyer, 2012, p. 401). My students are building a knowledge base having used the RI to successfully resolve actual or hypothetical design issues. These insights become recognized solutions and this is knowledge they apply to future projects.

James, whose major is painting, wrote in his RI that he could improve his craftsmanship by using pencil lines to follow and ensure they are straight. He also learned that by painting the edge of a piece of tape with clear paint first (before applying a color to an area and removing the tape) keeps paint from “bleeding” underneath tape. In larger conceptual terms, he broadened his experience with making art, better understands the history of art, and is learning what it takes to be a professional artist; as he stated, “I really like formal language and now understand modern art much more than before I took this class.”

RI AS AN ASSESSMENT TOOL

To document the artistic growth, skill development, thinking skills, and to validate the “total” learning that has occurred throughout the semester each assignment measures creativity in five distinct ways: (1) students complete a self-assessment questionnaire; (2) grade their own project and turn in a completed RI; (3) during the critique students issue a written grade for every artwork presented by their peers including their own (which I average for one ‘class grade’); (4) after the in-class critique I collect the student projects and create a verbal critique captured as a Quicktime file that is posted in the LMS; (5) finally, I developed a rubric to assess their RI. This rubric assesses the students’ attention to and engagement in the creative process by measuring my students’ understanding of the assignment, the quality of their historical

research, how they resolved their final idea, their material explorations and decisions, their post-production reflections, documentation of knowledge gained, and how this knowledge might potentially be used in the future.

I have compiled inter-rated reliability documentation from fifty-six assignments over the last three years to confirm the validity of RI as a tool for documenting the complete learning that occurs in a creative process. The relationship between the five aspects of assessment that occur with each assignment are consistent. This year I have solicited design professors to assess and compare the creativity of my students' first project of the semester (created without using the RI) to their final project of the semester (created using the RI) as an external measure to further validate the inter-rated reliability results and to further confirm the creative development of the students.

In regard to James's project, the results of these five methods of assessment provided a clear picture of the extent of the learning that occurred. The other students and I thought translating Mondrian's painted squares into Duct tape was a wonderful and creative way to contemporize a classic work of art. The fact that James suggested various improvements was more important to me than the craftsmanship of his final project. In the RI he demonstrated that much more learning occurred than could previously be assessed just from the final project. He illustrated his thinking process at every step, documenting his attempts and reasoning (often with photographs or videos) and explained his rationale for decision making even when the results were not completely successful. The RI documented the unfolding of the problem presented to James as he worked through each step required for a satisfactory solution to an assignment without an easy or defined answer.

CONCLUSION

The RI provides a structure for my students to independently reflect on and work through open-ended problem-based assignments, developing higher learning skills and becoming independent learners. In addition, it provides me with a means to assess the learning that occurs throughout the creative process. RI provides evidence that specific knowledge, skills, and techniques relevant to making art are being learned.

References

Cantrell, R.J. (1997). K-W-L Learning Journals: A Way to Encourage Reflection. *Journal of Adolescent & Adult Literacy*, 40(5), 392-393.

Commander, N. & Smith, B. (1996). Learning Logs: A Tool for Cognitive Monitoring. *Journal of Adolescent & Adult Literacy*, 39(6), 446-453.

Coulson, D. & Harvey, M. (2013). Scaffolding student reflection for experience-based learning—a framework. *Teaching in Higher Education*, 18(4), 401-413.

Hoffman, S. (1983). Using Student Journals to Teach Study Skills. *Journal of Reading*, 26(4), 344-347.

Moon, J. (1999). *Reflection in Learning & Professional Development: Theory and Practice*, London: Kogan Page.

Sawyer, R.K. (2012). *The Science of Human Innovation: Explaining Creativity* (2nd ed.). New York, NY: Oxford University Press.

Schön, D. (1987). *Educating the Reflective Practitioner*. San Francisco, CA: Jossey Bass.

Stout, C. (1993). The Dialogue Journal: A Forum for Critical Consideration. *Studies in Art Education*, 35(1), 34-44.

Walden, P. (1988). A Learning Journal as a Tool to Promote Lifelong Learning Skills. *Feminist Teacher*, 3(2), 14-17, 35.

Walker, S. (2004). Understanding the Artmaking Process Reflective Practice. *Art Education*, 57(3), 6-12.