Seeing Across Disciplines: An Experiment in Visual Literacy across Higher Education

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Abstract
Visual literacy touches all academic disciplines, yet integrating it into higher education across curricula is challenging, particularly because visual literacy is traditionally associated with specific disciplines such as art, education, and communications. We describe an interdisciplinary faculty-led effort to bring visual literacy into the entire curriculum at the University of Toledo in collaboration with the Toledo Museum of Art. Given the value of ACRL visual literacy student learning outcomes to students of all majors and the complexities of introducing new courses, we chose a flexible model of curriculum modules that faculty could adapt as needed. We supplemented curriculum modules with the visual literacy exercises developed by the TMA. We used multiple venues to make faculty aware of these resources, including presentations at faculty meetings, workshops, and open houses. The history, design, promotion, and success of this effort are discussed.

Keywords: visual literacy, higher education, institutional partnerships,

Introduction

Visual literacy provides compelling value to all academic disciplines because it fosters close observation, critical thinking, reflection, and communication of visual information (Kedra & Zakeviciute, 2019). Furthermore, the dominance of visual information in the digital age makes visual literacy imperative for 21st-century learners (Hattwig et al., 2013). The breadth of theory and approaches to visual literacy has driven a need for definitions and learning goals (Kedra, 2018). In Europe, the *Common European Framework of Reference for Visual Literacy* has provided these definitions and goals (Wagner & Schonau, 2016). In the US, the development of student learning objectives for visual literacy has provided a framework for bringing visual literacy into higher education (Thompson & Beene, 2020).

However, integrating visual literacy into the curricula across higher education is challenging outside of the disciplines in which it traditionally resides, such as art, education, and communications. Elsewhere, it plays a recognized but smaller supporting role or an unrecognized role altogether. For example, in the sciences, diagrams are used to explain complex relationships and processes, and charts and graphs depict quantitative results of experiments. In the health professions, patient observations are critical to diagnosis but rarely recognized as a skill that can be developed through visual literacy.

In some cases, the broad value of visual literacy to all majors has been recognized and embedded in the general education curriculum. Skidmore College leveraged external funding to revise its general education curriculum to great success (Benzon & Hauser, 2019). More commonly, others have scattered efforts across the curriculum (Blummer, 2015).

In a review of visual literacy initiatives in academic institutions, Blummer (2015) identified five categories of strategies: instructional scaffolds, individual faculty creation of activities and assignments, lectures and readings, programs and courses, and research initiatives.

We describe an interdisciplinary faculty-led effort to bring visual literacy into the whole curriculum at the University of Toledo (UToledo) in collaboration with the Toledo Museum of Art (TMA). Further, we detail the nature of this effort and what has and has not worked in five sections: 1) Setting the Stage: History of the Collaboration, 2) Building the Team, 3) Addressing Practicalities: Design of the Visual Literacy

Initiative, 4) Generating Interest: Strategies to Engage Faculty, and 5) Success: What Does It Look Like?

Setting the Stage: History of the Collaboration

The history of art museums is anchored in visual literacy. At their core, they engage visitors to understand imagery that has been produced throughout history, regardless of geography. In 2010, with the arrival of a new director, Dr. Brian Kennedy, the Toledo Museum of Art (TMA) renewed its commitment to teaching visual literacy by designing a curriculum that could have widespread application beyond the museum's walls. Grounded in art education and art history, TMA developed a foundational framework for a visual literacy curriculum. This framework includes a foundational vocabulary (the elements of art and principles of design), a thinking routine for exploring works (the Art of Seeing Art), and four distinct modes of visual interpretation (formalism, semiotics, ideology, and hermeneutics). The TMA then developed a series of exercises and lesson plans to enable participants to practice and apply visual literacy concepts directly in the museum's galleries.

As the curriculum began to mature in 2015, the TMA established its first partnership outside of the museum with the Campbell Institute of the National Safety Council to measure the impact of visual literacy on safety training programs within the field of environmental health and safety (EHS). Museum staff collaborated with EHS professionals from organizations such as Owens Corning, Cummins Engines, and DTE Energy to assess the impact and effectiveness of visual literacy skills integrated into existing safety training programs. This initial collaboration was proven so successful that in 2018 the museum created the Center for Visual Expertise (COVE).

Around the same time, the TMA began conversations with UToledo about a partnership anchored in visual literacy. The collective aim was to embed visual literacy across the curriculum, making the content and resources available for faculty, staff, and students across a broad range of disciplines. The museum has a longstanding relationship with UToledo, dating back to the early days of university art classes taught in the museum's classrooms. UToledo's Center for Visual Arts sits in a Frank Ghery building connected to the museum's east wing, where faculty and students alike have ready access to the galleries and collection (see Figure 1).

Figure 1

The University of Toledo main campus (top), the Toledo Museum of Art (middle), and the University of Toledo Department of Art on the museum campus (bottom). The main campus and museum campus are approximately 3 miles apart in Toledo, OH.

In 2017 a group of faculty and staff from UToledo and TMA, led by university president Dr. Sharon Gabor, and museum director Dr. Kennedy, convened to discuss ways this collaboration could unfold in the subsequent months.

Earlier that year, an elective in the UToledo College of Medicine and Life Sciences curriculum, "Art and Medicine: Using Visual Literacy to Improve Diagnostic Skills," had been launched in partnership with TMA (see Figure 2). Students' responses to the course confirmed the value of the course to them:

> *Visual Literacy is necessary to be an excellent physician, with observation and communication the keys to success. I am fortunate to have taken this course that gave me firsthand experience of enacting visual literacy techniques in practice for art and patient images. Observation is the most powerful tool of the physician; visual literacy and the implementation of objectivity only serve to enhance this instrument for the betterment of the physician's skills and the patient's care. (A. Beleny, personal communication, November 2019)*

Figure 2
Medical students in the UToledo College of Medicine and Life Sciences elective, "Art and Medicine: Using Visual Literacy to Improve Diagnostic Skills," in the Toledo Museum of Art galleries.

The two institutions co-developed and taught an Honors College seminar, "Visual Literacy," for the first time in fall 2018 (see Figure 3). The course integrates the hands-on visual literacy curriculum developed by the museum with the university's visual literacy theory and art history expertise. The three-credit course is designed for undergraduate students of all academic majors and meets once a week. In the course, we discuss visual literacy theory and application readings, practice visual literacy activities in TMA galleries, design a semester-long team project of visual literacy modules, and complete self-reflection and summative assessments. Students responded enthusiastically to the course:

> *I learned a series of skills focusing on how to interact with the world around me. More importantly, I learned how to draw meaning out of the world around me by looking. Looking by reading, viewing, trying, describing, analyzing, interpreting, and all other means of experiencing not just that which has been designated to be art by an institution, but at everything around me. (T. W. Glaza, personal communication, December 2019)*

Figure 3
Students and faculty in the honors college seminar "Visual Literacy" in the Toledo Museum of Art galleries.

The development of these courses provided early momentum and proof of concept. In 2018, a formal memorandum of understanding (MOU) was signed by UToledo and TMA to officially launch a partnership to advance visual literacy across the curriculum (see Figure 4).

Figure 4
The Visual Literacy Initiative logo and the signing of the MOU by Dr. Gaber and Dr. Kennedy.

Aside from the two courses listed above, the initial phase of the MOU was to bring together a group of faculty and museum staff to begin developing visual literacy modules that would be ready to use by spring 2019. At this time, we also proposed that our two organizations would co-host the annual conference of the International Visual Literacy Association (IVLA) at the end of the initial three-year MOU.

Building the Team

To form the Visual Literacy Initiative Team, we first identified the many informal collaborations existing across and within the institutions. The UToledo Department of Art taught Museum Practice and Museum Education courses and supported the Art in Medicine elective. Two previous UToledo presidents served on the Toledo Museum of Art's board of directors. In 2014, TMA began collaborating with the College of Education faculty on an early childhood research project. The Honors College took students to the museum as part of their first-year interdisciplinary humanities class, and the TMA was a frequent destination for their Learning Community. There were ongoing collaborations among the UToledo Department of Art and other units on campus, especially with the College of Engineering, which had also provided its faculty with COVE training.

TMA and UToledo faculty and staff engaged in these efforts, and new participants who answered a general call began meeting regularly. The group had a wide range of academic backgrounds, including the arts, humanities, and sciences. Individuals came and went as their interests and availabilities changed. All, however, were united in their view that visual literacy is not just about art appreciation; it's also about professional skills and student engagement for all majors.

This framing of the value of visual literacy in developing professional skills resonated on a campus with five STEM professional colleges - Engineering, Pharmacy, Nursing, Health & Human Services, Medicine & Life Sciences - in addition to the colleges of Arts & Letters, Natural Sciences & Mathematics, Business, and Education. The value of visual literacy in fostering student engagement resonated with an intensive campus focus on undergraduate student retention.

For a year, the group met monthly to share and develop their understanding of visual literacy (see Figure 5). These meetings were a mix of visual literacy activities and discussions. Because of the range of familiarity with visual literacy concepts and the variety of subject-specific language used to describe them, it was critical to provide time for free-ranging discussion. Additionally, we provided lunch, which facilitated

a more extended meeting time. The meetings were held in different locations, including the Department of Art, College of Engineering, and the TMA, to bring awareness to participants of the resources available across the two institutions.

Figure 5
Faculty and staff from the TMA and UToledo met regularly to learn from each other, brainstorm ideas, and develop visual literacy curriculum modules.

Addressing Practicalities: Design of the Visual Literacy Initiative

The next step for the group was to figure out how to integrate visual literacy into the curriculum of all majors. This work required addressing constraints posed by the traditional structure of public higher education: disciplinarity, limited flexibility in curriculums, and general education requirements met by undergraduates taking courses counting for university course credit before beginning their university experience.

Public universities in the US are structured around academic disciplines because accreditations,

certifications, and other similar educational needs depend on them. As a result, colleges and departments, majors and minors, and the distribution of physical, human, and fiscal resources are determined and maintained by disciplinary boundaries. Inherently interdisciplinary fields, cross-cutting programs, and informal interactions across disciplines are exceptions to this model, and UToledo is lucky to have many of each kind.

As a mid-sized, public research university with comprehensive programs, many undergraduate majors at UToledo have curricula permitting few electives. In addition, because of professional practice, internships, and/or clinical experiences required in the last two years of their degree programs, many students must complete all of their general education requirements by the end of their second year in the program.

Many undergraduates arrive with university course credit they acquire from taking advanced placement (AP), international baccalaureate (IB), and college courses as high school students. As a result, many undergraduates begin their university experience with some of their general education requirements already met and a semester or more of university credit.

With these realities in mind, the group concluded that mandating new course requirements was not an option for bringing visual literacy into the curriculum. Instead, they created an approach to provide faculty with ways to embed visual literacy in their courses.

We reviewed the existing ACRL visual literacy student learning outcomes (Association for College and Research Libraries [ACRL] 2011) and focused our discipline-wide effort on these ACRL visual literacy student learning outcomes (SLOs), reworded slightly.

> In an interdisciplinary, higher education environment, a visually literate student can:
> 1. Make a sustained observation of visual images
> 2. Interpret, analyze, and communicate the meanings of images and visual media
> 3. Use images and visual media effectively
> 4. Evaluate images and their sources
> 5. Determine the nature and extent of the visual materials needed for a project
> 6. Find and access required images and visual media effectively and efficiently
> 7. Understand major ethical, legal, social, and economic issues surrounding the use (and creation) of images and visual media
> 8. Access and use visual materials ethically
> 9. Design and create meaningful images and visual media

Given the broad value of these SLOs to students of all majors and the complexities of introducing new courses, we decided to develop a flexible model of curriculum modules that any faculty could adapt as they found useful. Modules were developed by interdisciplinary working groups of faculty and museum staff and vetted among the working groups.

The following modules were created, with their learning objectives in parentheses.

- What is Visual Literacy?
- Fair Use, Plagiarism, and Appropriation
- Image Search and Analyzing Context
- Finding and Evaluating Sources
- Anatomy of a Photograph
- Reading Social and Cultural Contexts
- Infographic Interpretation and Creation
- Visualizing Data

The curriculum modules were supplemented with visual literacy exercises developed by the TMA and

converted to PowerPoint presentations. These exercises focus on the first two learning objectives: 1) Make sustained observations of visual images, and 2) Interpret, analyze, and communicate the meanings of images and visual media. They can be implemented flexibly in the classroom, ranging from 15 minutes to an hour.

Assessment of student learning is always complicated, and for several reasons, it was even more so with our module approach. First, we were already asking faculty to find time and place in their syllabus to include visual literacy and were now asking them to assess modules in addition to the course-level assessment they are required to do. As a result, we had to rely on their goodwill and/or personal motivation to contribute to the assessment effort. Second, to facilitate the adoption of visual literacy modules, we encouraged faculty to use them flexibly and insert specific examples relevant to their courses. As a result, any assessment may not be assessing the same module. Despite these limitations, we pursued a plan of student self-reporting. We asked students to complete a pre-module self-assessment to estimate their competency on the SLOs and a post-module self-assessment of the change in their competency and to answer several open-ended questions on the SLOs. We gathered these results electronically in a web form. Completion was sporadic, except for one course that used the same module every semester with a faculty who encouraged student completion of the assessment. We also asked faculty to provide feedback on their use of the module. Still, participation was very low, probably because of confusion about responding when they had used only a portion of the module or had modified it.

We then redesigned the assessments using only a post-module format for students and sought IRB approval to publish the results. The post-module assessment had the same design for students as the original, in which students estimated their change in competency and answered open-ended questions on SLOs. As before, we asked faculty using the module for feedback on how they used it in their course. Currently, we are collecting data while encouraging participation in the study.

Generating Interest: Strategies to Engage Faculty

The faculty and staff involved in the visual literacy initiative were knowledgeable and enthusiastic about the potential of visual literacy to enhance student learning and success. To generate interest early on, we hosted a talk by Sunni Brown, the author of "The Doodle Revolution," and Wendi Pillars, author of "Visual Note-Taking for Educators." Both spoke about the power of visual thinking in learning. Additionally, we created a Visual Literacy Group on Blackboard, our course management system, and invited participants in our activities to join in disseminating modules and exercises. We wanted the site to serve as an introduction to visual literacy and a source of ideas for introducing visual literacy into syllabi. Currently, we have about 12% of UToledo faculty in the group.

Multiple venues were then used to make faculty aware of these resources, ranging from presentations at college and department faculty meetings to workshops and open houses. We visited college faculty meetings of all of the UToledo colleges to present the value of visual literacy to their students and highlight the available resources. The presentations were customized for each college to incorporate discipline-specific reasons and examples. We also provided presentations on visual literacy for new faculty during their orientation. In addition to visiting faculty members' classrooms, we collaborated with the UToledo University Teaching Center to offer faculty workshops and host visual literacy information on their website. Because of the benefits of visual literacy exercises and modules in developing engaged learners and a sense of classroom community, we also provided resources for faculty teaching First-Year Experience courses. Individual units also incorporated visual literacy more deeply into their curriculum. For example, the Department of Art developed a new course on Data Visualization, while the Honors College developed a First Look program based on a common first-year experience exemplified by First Read programs. This course provided students with opportunities to reflect on their ways of looking at the world. The Art Department and Honors College continued their successful collaboration with the Visual Literacy seminar, which became cross-listed with Art History.

The events of 2020 in the US, including George Floyd's death, civil unrest, and the Covid-19 pandemic, refocused our visual literacy efforts in two ways. First, we realized that we could facilitate student discussions of racism and social injustice through visual images, which was already a focus of one of the modules developed by one of the honors faculty and used extensively in their courses. Second, we

realized that we could support faculty with little experience teaching online when the pandemic-driven pivot occurred with skills in using visual images in their online teaching. At the suggestion of the art education faculty, we developed a workshop series to encourage faculty to take advantage of different kinds of visual resources to engage their students in a time of strong disengagement because of the pandemic (see Figure 6).

Figure 6
When the pandemic forced all instruction online, the Visual Literacy Initiative provided faculty with tools to enhance their online teaching.

Tools of Engagement: Visual Learning in the Online Environment

Brought to you by the Visual Literacy Initiative
https://www.utoledo.edu/honors/visual-literacy/

Visual Thinking in Online Classrooms
Jason Cox, Dept of Art Education

Improving Student Engagement with Pecha Kucha
Eric Pilcher, Dept of Teacher Education

Improv-ing Visual Literacy
Ashley Pryor, Honors College

Using Visual Literacy Modules as a Path to Student Engagement
Dan McInnis, Honors College

Unconscious Drawing as a Tool for Creativity
by Barbara Miner, Dept of Art

Finally, as a culmination of our Visual Literacy Initiative, our two institutions planned to host the 2020 International Visual Literacy Conference in Toledo. When the pandemic made an in-person conference impossible, we were able to host the 2021 conference instead, in the hope that it could be in-person. Although that wasn't possible, the planning of both events engaged and energized the faculty and staff and provided an opportunity to reflect on what we had accomplished in the last four years.

To summarize, we have used a wide range of approaches to disseminate an understanding of and appreciation for visual literacy across campus. The approaches included 1) three courses (Art in Medicine, Visual Literacy, Data Visualization), external speakers (Sunni Brown, Wendi Pillars), 3) curriculum modules & exercises, 4) resources for first-year experience courses, 5) faculty and staff workshops and open houses, 6) seminar series, 7) ongoing engagement of the TMA with early childhood education faculty and students, and 8) co-hosting of the 2021 IVLA conference. In terms of Blummer's categories of strategies (Blummer, 2015), we used four out of five: instructional scaffolds, individual faculty creation of activities and assignments, lectures and readings, and programs and courses.

Success: What Does It Look Like?

Our goal was to create a community of practitioners across academic disciplines to bring visual literacy skills into the curriculum of UToledo. We have been partly successful, as 14% (127) of UToledo faculty have opted into the Visual Literacy Group in our course management system. However, we don't yet fully understand how they are using and integrating the modules and exercises within the curriculum. This lack of understanding is likely a result of two factors. First, faculty adoption of visual literacy in the last two years has not been as rapid and widespread as it was initially, likely due to the pandemic. Second, the highly flexible approach may discourage faculty participation in assessment. The measures we established to track use have not adequately captured how faculty have adapted modules for their classes, as we

continue to receive feedback anecdotally. We are now rethinking assessment approaches that capture the flexible use of visual literacy approaches across campus.

As in any collaboration, there has been give and take in the roles of the two institutions, with one or the other taking the lead. In some cases, this was driven by the faculty's responsibility to develop curricula. We made this work by embedding TMA staff as active participants in module development teams, presenting to UToledo Education faculty, and co-teaching the Visual Literacy Honors Seminar. In other cases, the museum led with the provision and revision of visual literacy activities and exercises, which had long been a part of their museum curriculum.

We can identify at least four factors that have made this collaboration between UToledo and TMA successful. First, the leaders of both institutions shared a vision of the benefits to both institutions. Second, a co-leadership model for the Visual Literacy Initiative with a representative from each institution who explicitly focused on collaboration as part of their job responsibilities facilitated buy-in and accountability. Third, we were able to identify a core group of interested faculty and staff. Last, two consecutive donors' provision of seed money allowed us to support a part-time student assistant at UToledo and cover miscellaneous expenses like lunch for participating faculty, and staff. Together, these factors fostered this interdisciplinary, inter-institutional collaboration to the benefit of both.

Although the Visual Literacy MOU has officially expired, we are excited about future opportunities now that we have a foundation for deeper collaboration between the two institutions. Visual Literacy will remain at the core of TMA's practice and has become a component of the deeply engaged student learning that remains a priority for UToledo. A continued partnership supporting these foci will be integral to remaining relevant in the twenty-first century. As the general public and students have a growing list of competing demands and priorities, engaging them in more intuitive, interactive, thought-provoking, and practical ways will be critical to individual success and development as active members of a democratic society.

Acknowledgments

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