

prompt

a journal of academic
writing assignments

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Co-editors' Note

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Welcome to our second special issue focused on assignments from a single writing program. This time up, we are featuring the University of Arizona's Writing Across the Curriculum program, which offers articles from across the disciplines that underscore the program's emphasis on diversity and inclusion and real-world writing assignments. Guest edited by program directors Aimee Mapes and Emily Jo Schwaller, the articles in this issue span diverse disciplines, including environmental education, public health, the natural sciences, nursing, and cybersecurity. We are excited to feature such an eclectic array of prompts and impressed by the ways that this WAC program has brought writing studies principles to faculty who might not otherwise develop such engaging and sophisticated writing assignments. Given U of A's Hispanic-serving institutional mission and diverse socio-economic student body, we see the essays featured in this issue as exemplars for faculty committed to sustaining diversity, equity, and inclusion efforts in an era when such efforts are continuously under threat.

As the guest editors further explain, the first two articles by Leona Davis (environmental education) and Laura Gronewold, Alyssa Norris, and Sylvia Persin (public health) seek to validate students' home, ancestral, and community knowledges by helping them connect content with lived experiences. Incorporating writing-to-learn and reflection-based pedagogies, these authors invite students to explore their disciplines and themselves. Collaborating directly with students and highlighting examples from their written work, both contributions demonstrate how writing assignments can build classroom trust while expanding disciplinary understanding. We invite instructors across the disciplines to imagine how they might develop related assignments that value what students know and how they know it through explicit disciplinary lenses.

The remaining three articles in this issue by Theresa Crimmins and Kathleen Prudic (natural sciences), Lateefah Collingwood and Aimee Mapes (nursing and writing studies), and Ryan Straight (cybersecurity) demonstrate how real-world genres support learning transfer in general education and major-specific courses. These pieces examine innovative assignments in artificial intelligence, multimodal writing, and collaborative writing, and engage writers with concrete and discipline-situated rhetorical contexts (Bean & Melzer, 2021, p. 59-93). In part inspired by Michelle Eodice, Anne E. Geller, and Neal Lerner's corpus of scholarship devoted to the *Meaningful Writing Project* (e.g., Eodice, Geller, & Lerner 2016, 2019, 2025), we are again impressed by the ways U of A is engaging faculty from across the disciplines to embrace writing studies, helping them design assignments that connect to students' lives as they explore disciplinary content in meaningful ways.

But before you dive into these provocative articles, please don't miss out on Aimee Mapes and Emily Jo Schwaller's insightful scholarly introduction, which highlights how the assignments featured here make writing meaningful across the University of Arizona curriculum. Grounded in equitable, participatory pedagogy and the unique teaching realities of the Mexico-Arizona border, these prompts reflect the WAC program's mission to support inclusivity. In our view, the assembly of teacher-scholars featured in this special issue help students build resilience as

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writers through sustained engagement with diversity and, through the process, represent some of the best practices writing studies has to offer diverse disciplinary contexts.

Like this University of Arizona WAC special issue and the NYU Expository Writing program special issue before it, our next special issue will feature writing assignments from a single writing program, the University Writing Program at George Washington University. Guest edited by GWU faculty members Jessica McCaughey and Rachel Riedner, issue 12.1 is slated for early 2028, and the assignments it will showcase will be sure to please.

In housekeeping news, we are excited to announce that Jonathan Marine has moved into a Managing Editor role with *Prompt*; this move, alongside related efforts to update our reviewer list and revamp the role of our excellent Associate Editor team, should help us improve communication with authors and shorten the timeline to acceptance with the journal.

As a final note, we want to express our concern with NCTE's recent decision to de-charter the Conference on College Composition and Communication (NCTE, email to members, July 24, 2026). The editorial team of *Prompt* is deeply dismayed by NCTE's sudden announcement to dissolve the CCCC, a cornerstone of our discipline for 77 years. We stand in firm solidarity with CCCC's membership, its leadership, and the editorial teams of CCC and the SWR book series. The impacts of this decision will certainly reverberate across scholars, instructors, authors, editors, and readers who, like us, have seen CCCC as a valuable locus for disciplinary growth and change throughout our entire careers.

NCTE's shocking decision ignores the severe disruption this causes to CCCC's members and the broader academic ecosystem. De-chartering the field's largest conference and a flagship journal destabilizes related professional organizations, conferences, and journals. We especially empathize with the authors and editors whose labor and publication efforts will now be disrupted—and we are grateful to the WAC Clearinghouse, *Composition Studies*, *WPA Journal*, *CWPA*, and other journals and organizations who have indicated their commitment to carrying on the scholarly, pedagogical, theoretical, and political work of college composition and compositionists. The editors of *Prompt* pledge our full support to building a new future rooted in our discipline's shared values.

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Guest Editors' Introduction

Writing To/With the Real World in the Southwest

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Welcome to the special issue of *Prompt* focused on the University of Arizona Writing Across the Curriculum program. In this Editor's Note, co-editors Aimee and Emily Jo invite readers to imagine student writing at the University of Arizona (U of A) in Tucson, Arizona, where four mountain ranges encircle the city. While Tucson is known for marvelous sunsets, perhaps the most emblematic image of the region is the Saguaro cactus. Standing tall against the desert landscape, the bluish gray to pale green, ribbed Saguaro can live up to 200 years and grow to 40 feet tall, sprouting arms only after 75 years in the Sonoran Desert (Arizona Sonora Desert Museum, n.d.). Their prickly spines can be as long as three inches, offering protection from desert critters. For millennia, the O'odham have respected Saguaro as nourishers of the community (Indian Reservation, 2025; National Park Service, n.d.). Saguaro sustain the desert, feeding generations. Their flowers offer nectar for insects and bats. Birds, mammals, and people eat their fruit. Over time, the trunk serves as a nesting site. The Saguaro is a symbol of resilience in the desert from which we seek lessons as directors of Writing Across the Curriculum (WAC) at U of A, a Hispanic-Serving and land-grant institution founded on seized land of the O'odham and Yaqui peoples.

WAC at U of A was initially funded in January of 2020, just months before a once-in-a-century pandemic. When it is estimated that over half of WAC programs fail to persist (Thaiss & Porter, 2010, p. 558), how to sustain WAC programming was and remains an urgent need. Along with the rest of the world in spring 2020, U of A navigated tremendous stressors—work-from-home Zoom teaching, caring for children or elders, furloughs, and devastating labor loss. WAC needed to be resilient, like Saguaro in the desert. The vision was to sustain a vertically integrated Writing Across the Curriculum program that supports student writers to connect writing knowledge from first-year writing, general education (GE), and capstone writing experiences in their major (Cox, 2010; Melzer, 2014). Specifically, U of A students complete a first-year writing course, called Foundations, at least two GE courses approved as writing intensive pedagogy, and at least one writing emphasis course in their major. First in foundations writing, students begin their academic writing journey learning about genre, writing as a process, and reflection in the English writing program. Students continue this writing journey when they complete two GE writing intensive courses that integrate writing as a tool for learning and require a sustained writing project with a well-defined rhetorical situation that involves revision. Finally, capstone writing experiences typically happen in the last two semesters of a learner's journey where students write in authentic genres of their major in a writing emphasis course taught by faculty in their discipline. With a stronger vertically-integrated writing curriculum, U of A's WAC program persisted and received the 2022 Exemplary Emerging WAC Program from the Association of Writing Across the Curriculum (AWAC). This special issue celebrates several faculty who have contributed to the resilience of U of A's award-winning WAC program. We uplift the labor of faculty who work with university writers at various touchpoints across a developmental trajectory.

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U of A Context

Housed in the university's center for teaching and learning, U of A WAC embraces localized, coalitional practices of faculty development as pathways to sustain writing pedagogy committed to linguistic justice. Aligned with the goals of a Hispanic Serving Institution (HSI), we advocate for meaningful writing experiences across the curriculum. We lean on resonant scholarship in antiracist WAC pedagogy (Baker-Bell, 2020; Condon & Young, 2013; Inoue, 2021; Perryman-Clark, 2023; Young et al., 2014), culturally sustaining or asset-based pedagogy (Paris & Alim, 2017), multilingual writers (Shapiro et al., 2016; Zawacki & Cox, 2014; Zhang-Wu et al., 2023), and the Meaningful Writing Project (Eodice et al., 2016, 2025). All support commitments to servingness for Latina/o/x students, which calls for not simply enrolling Hispanic students but systematically serving them (Barajas, 2017; G. Garcia & Okhidoi, 2015; G. A. Garcia & Koren, 2020; González, 2024; Kareem, 2023; Tinoco, 2025; Venegas, 2017). Servingness amplifies the role of university education for students, according to Venegas and coauthors (2017), to “connect the content of the class to their *real world*, make the work of the class directly ‘useful’ and relevant to their day-to-day lived realities” (emphasis added). This commitment to curriculum that connects to the real world is also, as Eodice, Geller, and Lerner demonstrate, a frequent marker of meaningful writing, especially to support consequential connections for student writers. This special issue is a humble appreciation of these commitments to writing pedagogy in higher education and the value of real-world writing to and with diverse communities locally and disciplinarily.

U of A is located 100 miles southeast of Phoenix and 60 miles north of the US-Mexico border where the US city of Nogales is contiguous with the port of entry city of Nogales in northern Mexico, spanning the Sonoran Desert. Tucson boasts the Saguaro National Park and is designated an UNESCO City of Gastronomy (see [Visit Tuscon](#)). On campus, students and faculty often hear the loud boom of fighter jets leaving or returning to Davis-Monthan Air Force Base just south of campus. The top three employers in the greater Tucson area are Raytheon Missiles, Banner University Medical Center, and the University of Arizona. Substantial in size, over 5,000 faculty and staff at U of A serve 40,000 undergraduate and 10,000 graduate students. While more than half of the students are Arizona residents, U of A student demographics do not align exactly with the greater Tucson community. Approximately 43% of the city is Latino/a/x¹ while just 27% of U of A students are (Census Dots, n.d.). About a quarter of our students are over twenty-five years of age. Distinct for its status as an HSI, U of A is a flagship public R1 that was designated a land-grant institution in 1890, which was twenty-seven years before Arizona became a state (The University of Arizona, 2025a). Its top five majors include Psychology, Business Administration & Management, Legal Professions, Communication, and Nursing. With a desert sky, U of A boasts stellar degree programs in aerospace engineering and planetary science as well as animal sciences, biology, cybertechnology, dance, entomology, information sciences, and public health.

To serve students across disciplinary fields, WAC operates a program of tiered, contextualized training to instructional faculty. We promote the principle in writing studies that all writers have more to learn (Rose, 2015) and that students' diverse language and literacy practices are assets to integrate into the writing process. Our program embraces students as learners experiencing writing across contexts whose developmental trajectories support increased rhetorical dexterity (Gere, 2019). According to Dan Melzer (2014), this should be a hallmark of a university's “connected writing curriculum” (p. 83). For students, this means most have a common introduction to academic writing, and as they advance toward a degree, they navigate very different disciplinary writing, sometimes simultaneously.

Real-World Writing at U of A

The assignments in this issue represent the kinds of real-world writing that students experience during their journey through foundations writing, general education courses, and writing in the major (see The University of Arizona, 2025c). The featured prompts were designed by faculty who have participated in WAC professional development. They teach a variety of course modalities and calendars, such as asynchronous 7.5-week sessions and traditional, in-person 16-week semester courses. Some teach in large-enrolled, lecture-style courses of 50 to 150 students with the support of TAs, writing tutors, or undergraduate preceptors. Others teach smaller, writing-intensive classes with only 20 to 30 students. Their assignments align with WAC's mission (The University of Arizona, 2025b). Projects invite students to reflect on lived experiences, to understand real-world genres, and to practice real-world writing for their future careers. Some engage with Generative AI. Some emphasize writing as a tool for learning. Others assign writing for authentic contexts and audiences. As such, students write for diverse purposes that draw on personal experience, simulate real-world scenarios, navigate multimodal projects, learn professional genres, communicate real-world topics to communities, and write collaboratively. The special issue includes writing assignments that reflect writing across the curriculum at U of A. Each essay is written by faculty members whose courses serve students at different touchpoints across their undergraduate experience in general education and writing in the major.

Real-World Through Lived Experiences

The first two pieces illustrate the importance of students' home, ancestral, and community knowledges. By validating students' real-world, lived experiences, instructors offer students an opportunity to make connections between content knowledge and familial knowledge, supporting transfer and connections between the two. The authors highlight writing-to-learn and reflection as opportunities to invite students into their disciplines, and they argue that these writing experiences are particularly important for marginalized students who are often gatekept from academic spaces. The authors illustrate these points through their own instructional perspectives but also through rich collaboration and partnership with students and student examples, which further solidifies the meaningfulness of these writing opportunities for building trust and relationships in the classroom. Instructors across all disciplines can incorporate similar writing assignments that emphasize what students already know and acknowledge how they know as valuable and important for their learning.

In the first piece, "Rooted: Writing Counterstories in Environmental Education," by Leona Davis, she provides a decolonized writing-to-learn assignment, elevating the importance of ancestral and community knowledges to environmental studies. Through detailed undergraduate student examples and anecdotes with this assignment, she illustrates the importance of these opportunities for interpreting environmental issues and building trust within the classroom.

The next piece, "To Be Human is to Be Limited: Student Perspectives on Self Through Meaningful Reflective Writing," comes from Public Health and is co-authored by faculty member Laura Gronewold and undergraduate Teaching Assistants Alyssa G. Norris and Sylvia Persin: it emphasizes the effectiveness of the writing opportunities from multiple stakeholders in the classroom. The assignment and reflection emphasize the role of student choice and positionality, which provides a bridge between the funds of knowledge students bring with them into the classroom and the domain knowledge of the disciplines they are entering into.

Real-World Contexts and Genres

Three pieces in this issue illustrate the role of real-world genres in supporting students' transfer of learning in general education or in the major. They illustrate creative approaches for students to learn about artificial intelligence, multimodal writing, and collaborative writing. Common in the assignments is an awareness of genre, which, as a threshold concept in writing studies, is a challenging framework, but one that supports learning transfer and adaptability (Driscoll et al., 2020). By experiencing how genres help discourse communities achieve goals, reinforce shared values, and communicate to various audiences, students experience how and why writing works across contexts. The U of A program leans on genre awareness when training instructors from all disciplines to support students' transfer of writing across contexts, and these pieces illustrate tangible ways to begin these conversations. The writing assignments introduce and encourage students to enter their field via authentic scenarios and communities. As Eodice, Geller, & Lerner (2025) remind us, a main reason we should assign writing is to develop students' disciplinary and professional identities. The final pieces offer strategic ways in which instructors develop real-world assignments that enable students to engage authentically in contexts and to transfer writing knowledge into future writing situations. The prompts highlight the importance of both *content* and *genre* as elements for writing assignments with relevant disciplinary connections. Instructors across disciplines can benefit from learning about how to situate writing in their disciplines' values and practices.

In "Engaging Students in Implementing Generative Artificial Intelligence: Creating Simple Infographics to Reinforce Sustainable Living Concepts," Crimmins and Prudic showcase a writing project in a General Education course in the Natural Sciences approved as a writing intensive course. The project highlights a timely issue with which instructors are grappling, artificial intelligence, and how a multimodal genre that is authentic for students can support this pedagogical reckoning. Students at U of A from several courses to fulfill the requirement Natural Sciences. In this GE course, however, students consider how to write for the public about environmental issues. Ever the citizen scientists, Crimmins and Prudic share a project in which students learn about infographics and Generative AI.

In "Employing Different Writing Tasks to Support Genre Awareness in a Nursing Writing Emphasis Course," Lateefah Collingwood and Aimee Mapes reflect on changes made to a high-stakes literature review assignment in a required writing emphasis course in the Nursing major. The revised assignment shifts the focus from simply compliance with APA format by integrating sustained reflective writing. As a result, the multi-step assignment helps nursing majors to synthesize scholarly research through a culturally congruent patient care framework by adapting the findings of the literature review into a reflective infographic.

Finally, in "Grey Areas and Egress: Artifact-Based Collaborative Learning in Cybersecurity Ethics," Ryan Straight provides tangible, real-world examples for students to manipulate, play, and engage with. His assignment capably prepares future cybersecurity professionals to model authentic disciplinary genres while also learning to write collaboratively. Through several writing tasks, students respond to critical, case-based scenarios.

Real-World Writing Across the Curriculum

In this special issue, the assignments demonstrate strategies for making writing matter across the curriculum at U of A through participatory, equity-minded pedagogy. All represent the commitment to supporting student writers aligned with the goals of WAC at U of A to support inclusive writing instruction across all disciplines with broad student reach. Common across this special issue are realities of teaching writing in our institutional context in Tucson, Arizona. At U of A, WAC is a coalition of teacher-scholars committed to supporting writing in the real world

of southern Arizona. Like the Saguaro, our WAC program builds resilience through sustained engagement with diverse faculty and the community we serve.

We thank *Prompt* editors Kelly Kinney and Rick Fisher whose capable direction has contributed to this special issue's goal to affirm the scholarly contribution of real-world writing assignments. It's hard to capture in words our gratitude for their caring support and leadership. So, too, we want to thank Drs. Thir Bahadur Budhathoki, Emily Bouza, Amy Cicchino, Eric House, Brad Jacobson, Moira Ortiz, Scott Wilbur, and Jessa Wood for their thoughtful contributions as peer reviewers. Each provided invaluable feedback and insights into the pieces. Their engagement exemplified the importance of peer review to ensure justice, contextually relevant information, and promote dialogue across disciplines. They are essential to this work.

Notes

¹This statistic does not account for our worthy and essential undocumented and unhoused community members.

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Rooted

Writing Counterstories in Environmental Education

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Abstract

College educators have a unique opportunity to invite students to make connections between students' cultural identities and their relationship with the natural world through reflective writing. This essay presents a writing-to-learn assignment used in an undergraduate environmental leadership course. This low-stakes assignment asks students to share a story or cultural practice from their ancestors that connects to nature. Responses from this assignment reflect the environmental expertise students have gained through their lived experience and cultural knowledge, which are not often recognized in academic spaces. Sharing this knowledge allows students, especially those with marginalized identities, to create counterstories that affirm the validity of their lived expertise and cultural knowledge. By inviting and validating students' counterstories through course assignments and discussions, educators may contribute to broadening interest, participation, and leadership from diverse students in environmental fields.

Cultural Exclusion in Environmentalism

American environmentalism has been historically shaped by Western and colonial ideologies that frame the environment primarily through the lenses of conservation, recreation, and science (Taylor, 2016). This narrow conception marginalizes other ways of knowing and understanding the natural world, such as those rooted in spirituality, family traditions, food practices, medicine, oral histories, songs, and language (Huaman & Swentzell, 2021). As a result, students with culturally-based environmental knowledge are not often recognized as possessing legitimate environmental expertise in academic programs (Gondwe & Longnecker, 2015). Consequently, they may not identify as "environmentalists" or view their familial and cultural relationships with nature as relevant to academic learning. These factors may suppress interest and engagement with environmental courses and career paths (Jackson et al., 2016).

Cultural exclusion negatively impacts the participation of students with marginalized identities in environmental degree programs (Espinosa, 2011; McGee, 2016; Taylor, 2018), as well as environmental organizations' ability to recruit and retain talent (Johnson, 2019; Marin-Spiotta et al., 2023). Black, Indigenous and other people of color (BIPOC) are significantly underrepresented in U.S. environmental government agencies, nonprofits, and foundations (Green 2.0, 2025), indicating the overrepresentation of white, privileged perspectives in environmental decision-making. Meanwhile, the burdens of polluting industries, extreme weather events, and climate change are systematically placed on poor communities and communities of color (Bullard, 2018). Lived experience with the impacts of environmental injustice lends uniquely valuable knowledge to address continuing harm to nature and communities (Ceaser, 2015). Additionally, Indigenous communities carry ancestral knowledge related to living in reciprocal relationship with nature (Hosen et al., 2020). College instructors can invite and validate students' cultural knowledge and lived experiences as valuable qualifications for the roles of environmental learner and leader. This validation, in tandem with broader necessary cultural shifts in higher education and environmental workplaces, contributes to broadening perspectives for more informed environmental decision-making (e.g., Torregroza-Espinosa et al., 2025).

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Individuals of all cultural backgrounds have ancestors within several prior generations whose practices connected them to the natural world where they lived. Examples include nature-based stories, crafts, seasonal rituals, language, place names, clothing, food traditions, and health practices. Students have the opportunity to learn from their ancestral practices and knowledge and reflect on how ancestral wisdom can inform modern solutions. The assignment described in this essay invites students to use reflective writing to share environmental expertise in their cultural lineages. Ultimately, this assignment aims to achieve three goals: connecting students' existing cultural knowledge to the academic course context, validating cultural knowledge as professional expertise, and contributing to students' identity formation as environmental learners and leaders.

Theoretical Foundations

Gonzalez et al. (2005) define *funds of knowledge* as the skills, experiences, and knowledge students bring to the classroom from family or personal life experience. Employing a funds of knowledge framework in college courses validates the expertise and experience students bring to the classroom, and facilitates deeper meaning-making as students contextualize their experiences within course-based learning (Kiyama & Rios-Aguilar, 2017). Inviting students to contribute their funds of knowledge through assignments can improve the depth of course content, encourage students to value their individual and collective expertise, and motivate students to identify shared experiences, leading towards systems-level understanding (Denton & Borrego, 2021).

By reflecting on and sharing their funds of knowledge with others, students center their own ways of knowing and set a foundation for writing their own counterstories. Counterstories (Solórzano & Yosso, 2002) allow students with marginalized identities to define themselves and their families contrary to negative dominant narratives associated with their cultural group. In the context of widespread environmental destruction and climate change, counterstories also allow young adults to position themselves as effective changemakers in contrast to dominant narratives of environmental hopelessness (e.g., Stewart et al., 2024; Trott, 2025). Because identities are socially negotiated (Gee, 2000–2001), counterstories are most effective when they are shared and affirmed by others with both similar and different identities (Contrino, 2025).

Writing-to-learn (WTL) assignments use writing as a tool for processing, understanding, critically examining, reflecting, making connections, and playing (Bazerman et al., 2005; Kiefer et al., 2000–2021). Personal reflection is one type of WTL that asks students to reflect on prior experience and transfer learning between non-academic and academic contexts (Bunnell et al., 2023; Lew & Schmidt, 2011). Prior research suggests WTL activities support students to develop a sense of belonging and connect their cultural backgrounds to academic learning (Balgopal et al., 2018; Venegas et al., 2017, March 15–18). In the assignment discussed here, students use writing to reflect on and share elements of their environmental knowledge that may not have been previously recognized. In tandem with other scaffolded activities, this sharing and validation of knowledge also supports students' professional identity development (Adams et al., 2020; Tracey & Hutchinson, 2018).

Assignment Context

The Earth Grant program at University of Arizona supports and prepares diverse undergraduate students interested in pursuing careers in environmental and community resilience (Arizona Institute for Resilience, 2025). University of Arizona is a Hispanic-Serving Institution situated less than 100 miles from the Mexican border. The majority of students who participate in the Earth Grant program are students of color, with Latine/Hispanic students most represented.

This majority representation of BIPOC students contributes to an identity-affirming context for these students to revise damage-centered narratives (Tuck, 2009) about themselves, their families, or their places of origin.

Undergraduates of any year and major may apply to participate in Earth Grant. For one full academic year, student participants are individually matched with a paid internship in their area of career interest. Students also meet weekly as a cohort to participate in field trips, guest talks, and peer discussions. These meetings are structured as a series of two courses (fall and spring) for academic credit and include weekly out-of-class assignments. Authentic professional identity, cultural knowledge, and public storytelling are key leadership strategies introduced at the start of the program and practiced via multiple activities and assignments throughout the year (Davis et al., 2025). In this assignment, students are asked to write a discussion post about a cultural practice, family story, or story from their cultural lineage that connects to the Earth.

In the spirit of WTL, this is a low-stakes assignment with no right or wrong answers. As with all discussion posts in this course, it is submitted through the course's learning management platform and graded on a simple rubric: did not submit (0 points); incomplete submission of three sentences or less (1 point); or complete submission (2 points). Students are encouraged to read and comment on others' posts they connect with. Additionally, students have time to share and discuss responses in small groups at the following in-person class meeting. In this way, students not only develop their own counterstories but also a broader multicultural counterstory of knowledge and relationships with the natural world.

Student Responses and Common Themes

Students have shared an immense wealth of cultural knowledge, family and ancestral histories, and lived experiences through this assignment. Past student submissions include a recipe for their grandmother's *birria*, childhood experiences with grandparent-farmers in rural Asia, and a Mexican folktale featuring mountains as main characters.

One common theme in student responses are remedies or health practices rooted in ancestral lineages. In the excerpt below, a student shared practices from the Ecuadorian side of his family and reflects on the loss of these practices with his generation:

Tobacco smoke as mosquito repellent: With the tropical climate near the Equator (which the country is named after), there are a lot of mosquitos, so they often burned tobacco leaves in a fire pit and use the smoke to get rid of the mosquitos.

Poultice with cacao: When someone had a congested chest, my great grandmother made a poultice with cacao beans, heated with warm water and wrapped in a cloth to place on the chest, which alleviated the congestion.

Sickness remedy for flu: Whenever someone got the flu, they had to drink a warm beverage made from milk, garlic, and onions (it tastes awful, but it gets the job done!)

I find all of these interesting because I personally never grew up with them but my mother experienced them firsthand and it shows a way that immigration can lead to losing some of the connections between community and practices, especially in relation to place as a lot of these practices rely on resources that are not as easily accessible in the U.S. I'm glad I'm able to learn about these and somewhat reconnect with my cultural practices. -Sophomore, Spring 2023

The value of Indigenous ways of knowing and Traditional Ecological Knowledge are increasingly recognized by environmental educators (Burns, 2015; Nesterova, 2020), environmental management agencies (White House Office of Science and Technology Policy and White House

Council on Environmental Quality, 2022), and STEM fields generally (Gazing Wolf et al., 2024; Snively & Corsiglia, 2001). Sharing Indigenous practices allows for more expansive thinking and visioning about environmental solutions (Diamond, 2019). At the same time, contextualizing the loss of Indigenous knowledge within larger economic and political systems carries important lessons about the root causes of environmental problems (Crook et al., 2018; Nishime & Williams, 2018; Tuck et al., 2014).

Another common theme in student responses is personal experience with nature-based practices, often using descriptive or sensory language. This is illustrated in the following excerpt:

We have a small family ranch [in Mexico] where my grandparents have cattle. We sometimes farm and work the land, and the ranch is right on the edge of the lake so sometimes we fish when it's the season. So that's the practice that connects us with nature. We don't do anything large scale commercial or stuff where we have to bring big machines and take down trees to be able to farm or anything like that. It's smaller scale. My grandparents do use it for money, for example the cheese that we make from the milking cows or the fish that we sell as income for their livelihood, but it is mostly for our family, enjoyment, and to eat. Ever since I was about nine years old, I've been going down there every summer and spending one or two months out there at the ranch working with my grandfather, doing all sorts of farm stuff. I did that until the summer of my sophomore year when my grandfather passed away... I always remember how relaxed and comfortable I felt when I was out there, even though it was hard work most days. You're always feeling relaxed. It was a great experience, and I always try to look back and remember - especially now with college and all the stress, when it's just a little too much - to remember the feeling of being out there. -Senior, Spring 2022

This student contrasts the relaxed feeling of living with the land with their urban lifestyle while in college. Describing this past experience of wellbeing provides evidence and inspiration for designing structures and systems that support both people and nature. This reflection also touches on the student's sense of loss in no longer visiting this place and experiencing this feeling. Both excerpts shared above touch on the theme of loss of ancestral land and cultural knowledge. Many students have shared stories related to retaining cultural knowledge despite migration, such as a grandparent who continued successfully growing heirloom fruit trees from central Mexico after moving to the southwestern U.S. However, many students have also shared stories of their grandparents or great-grandparents having to leave their homelands and land-based practices due to economic or political factors, reflecting global trends of increasing land degradation and migration towards cities.

Sharing experiences of loss, where loss may be collectivized (Nairn, 2019), can promote healing, systemic understanding, and the ability to reclaim these experiences as counterstories (Gislason et al., 2018; González-Hidalgo et al., 2022). Mohawk seedkeeper Rowan White describes a widespread modern suffering due to displacement and disconnection from ancestral land and lifeways, stating, "This [cultural] insanity is born from an accumulation of people not being able to grieve their sense of disconnection from place and ancestry" (Hemphill, 2021). In addition to the assignment goals previously stated, exploring and sharing ancestral connections to the Earth provides a supportive space for students to both grieve this collective loss and disconnection, and to value where ancestral knowledge has been retained.

Implementing the Assignment

In the Earth Grant curriculum, this discussion post is one of several assignments that aim to build students' identities as environmental leaders and learners. In other assignments, students

develop and share a public “story of self” (Ganz et al., 2023) communicating an issue they care about and why, draft a story for future job interviews communicating how they demonstrated a professional competency, and develop their authentic professional identity with LinkedIn profiles. Although our curriculum does not build specifically from this discussion post after peer discussion, instructors could build subsequent related writing assignments into a course. For example, students could develop a reflective essay about personal environmental identity development, expanding on the ideas from the original discussion post.

This assignment is often preceded by sharing examples of other personal or family stories related to the environment. One of these is the introductory chapter of *Fresh Banana Leaves* (Hernandez, 2022), which tells a family story about the author’s father’s close relationship with banana trees. Another is Carolyn Finney’s personal story about growing up as a Black American in a family with strong environmental values and confronting racist real estate practices, which inspired her career in environmental justice (Finney, 2019). Both of these are examples of counterstories, where a difficult family experience has been reclaimed by the storyteller as a story of learning, connection, and growth. As the instructor, I have also offered an example of a story from my own family, related to my great grandparents’ immigration from France to the U.S., and my great grandmother’s famous *choucroute*, or cabbage sauerkraut, which she continued making in enormous barrels at their new home in rural Oklahoma and that I make at home now in a ceramic crock. This assignment is endlessly flexible, and any other materials describing examples of nature-based cultural practices may be offered as preparation.

This assignment works best after students have begun to build relationships and a basic level of trust with each other through prior interactions. Following the assignment, peer discussion may be structured in a variety of ways. For an online course, students could be assigned to respond to a certain number of peer posts, with the guidance to either describe something they learned or found interesting, or connect something from the post to their own cultural or ancestral knowledge. For an in-person course, peer discussion works best in smaller groups of two to four, with each student having space to share their story or knowledge and hear from others on what they are learning or connecting, using the same guiding questions as stated above. Students may self-select or be randomly assigned to groups, or the instructor may determine groups based on common themes in discussion posts. In my teaching experience, providing a comfortable setting can remove some of the difficulty of personal sharing. For example, if the weather allows, peer discussion groups are encouraged to take their conversations into our building’s tree-filled courtyard.

It can be expected that some students, for completely valid reasons, may not connect with this assignment or may reject the encouragement to explore their ancestral knowledge. Students who do not feel connected to their cultural lineage, or who may not have relationships with biological family, may find it harder to approach the prompt as originally framed. Building some flexibility into the assignment parameters can make the assignment accessible for students of all backgrounds. For example, the definition of family may be broadened to include anyone involved in a student’s upbringing, including caregivers, mentors, neighbors, or members of the community in which the student was raised. Alternatively, students may reflect on practices from their early experiences, such as seasonal foods or traditions, that connected them to the place where they lived.

This assignment is a valuable tool for environmental identity development in environment-related STEM courses. However, as these courses privilege Western scientific knowledge by nature of their discipline, it may be helpful to precede assignments like these with examples where Indigenous knowledge has informed Western science or modern environmental management (Jessen et al., 2022; Kimmerer, 2015; Orlove et al., 2002). Continuing to value cultural or

Indigenous knowledge through intentional selection of materials, authors, and assignments throughout the course can reinforce learning, sense of belonging, and identity development. Complementary instructor practices such as providing genuine validating feedback, creating space for supportive peer connections, and continuing to demonstrate respect for students' funds of knowledge throughout the course are critical to ensure students feel valued rather than tokenized for their contributions. The positive impact of this assignment relies on consistent inclusive and identity-affirming pedagogy throughout the course. Ample research has demonstrated the value of inclusive teaching practices, both to improve student outcomes (Dewsbury et al., 2022) and increase enrollment of students of color (Garibay & Vincent, 2018).

Beyond STEM classrooms, a growing number of scholars describe the value of integrating environmental and ethnic studies learning (Patterson, 2015; Pellow, 2020). This assignment is equally applicable in the fields of Mexican American Studies, Latin American Studies, African American Studies, and others. In these course contexts, students may recognize the connections between their cultural heritage and their ancestors' land and ecologies. Because migration, cultural knowledge loss, and displacement are commonly observed themes in student responses, this assignment may be applicable in curriculum related to these topics. In history and social sciences courses, this assignment could precede learning about American settler colonialism, with students likely being able to locate their family history within the broader migration histories of the U.S.

Conclusion

By inviting students to share ancestral practices and stories that connect them to nature, this writing assignment validates diverse forms of environmental knowledge, mitigates social and cultural exclusion in environmental education, and invites students to perceive the environmental expertise inherent in their family histories and cultures. In this way, students are writing to learn about the environment, their ancestral knowledge, and their professional identities, while discovering the inherent connections between all three. This allows students with marginalized identities to develop powerful counterstories, which they may use to overcome social and cultural barriers and authenticate themselves as environmental learners and leaders.

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ASSIGNMENT

Cultural Practice Discussion Post

This assignment is an invitation to connect with and share how connection with the Earth is part of your DNA. **Choose one** of these two options and respond in 1-2 paragraphs:

1. What is a practice of your ancestors (grandparents, great-grandparents, or further back) that connected them to the Earth, nature, or the land where they lived? (If you are able to talk to a living ancestor, you can ask them!) It could be related to food, language, music, spirituality, transportation, clothing, etc. How do you, or could you, continue that practice now, in a way that's appropriate for

- the place where you currently live?
2. What is a story from your ancestors (grandparents, great-grandparents, or further back) that connected them to the Earth, nature, or the land where they lived? This could be a true story from your family history, or a spiritual story or folktale from a cultural group you are a member of.

Supplementary Material

For supplementary material accompanying this paper, including a PDF facsimile of the assignment description formatted as the author(s) presented it to students, please visit <https://doi.org/10.31719/pjaw.v10i2.279>.

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To Be Human is To Be Limited

Student Perspectives on Self Through Meaningful Reflective Writing

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Abstract

This upper-division writing course in public health offers the opportunity for learners to engage with a variety of texts in multiple genres that cover wide-ranging topics. Reflective writing assignments in similar courses also align with scholarship on the value of reflective writing in the health sciences (and across all disciplines). When supportively scaffolded, reflections are even more empowering and important to students, because in-class and write-to-learn activities prepare students to engage with topics that arise from considering the end of life. When student choice informs the reflections, learners are encouraged to think empathetically and existentially about how their complex cultural identity informs their beliefs around well-being, end of life, grief, and loss, and to consider the choices they want to make to build healthy communities and live a meaningful life.

Health Promotion Sciences is the largest department in the Mel & Enid Zuckerman College of Public Health (MEZCOPH) at the University of Arizona, which offers a BS in Public Health and a BA in Wellness and Health Promotion Practice. Public Health Narratives (HPS 307) is the departmental offering that Laura created in Spring 2020, and it features wide-ranging narratives from across public health, which is interdisciplinary in nature and relies on strong writing and communication skills regardless of specialty. HPS 307 is an in-person, process-oriented writing course for upper-division undergraduates with an enrollment of 40; it fulfills the upper-division writing requirement.

Whereas many courses in MEZCOPH require writing assignments or qualify as writing-attribute courses (University of Arizona, n.d.), HPS 307 is unique because it centers public health stories and features an instructor who has trained in writing pedagogy and practices within Writing Across the Curriculum (WAC) and writing pedagogy education (WPE) communities. It also incorporates undergraduate TAs who have successfully completed the course.¹ Students read texts that illustrate public health issues through different genres and viewpoints. The course requires significant critical discourse around social location, cultural capital, community, systems, and belonging, and students investigate and unpack their own positionality and implicit biases (Santa Maria, 2024) with assignments that invite them to critically examine how their identities shape their engagement with the world. With a focus on impactful storytelling and effective rhetorical strategies in texts that elicit emotional responses, HPS 307 puts a face to the statistics that students learn about in other coursework.

“To Be Human is To Be Limited” is the third reflection essay assigned in HPS 307. Below, we contextualize the learning community for the reflection assignment, situate the assignment within relevant theoretical frameworks, detail the reflection essay’s role within the course, and integrate Alyssa’s and Sylvia’s perspectives as former students and former TAs. The essay draws on anecdotal evidence from students and student writing, and we close with suggestions for integrating reflection into a variety of courses.

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Learning Objectives for HPS 307

The course identifies public health writing outcomes, whose “core function is to inform, educate, and empower,” aligning with Boston University *Public Health Writing Guide* recommendations (Beard & Price, 2018, March 27, p. 3). The learning objectives also highlight self-awareness as a crucial component of all writing, especially reflective writing. Class discussions emphasize the importance of self-awareness, while regular large- and small-group activities (write-to-learn tasks, drafting, workshops) help learners practice rhetorical analysis, shared problem solving, and compassionate, layered responses to the complex issues that arise in public health. Learning objectives for HPS 307 include:

- Develop a sense of public health narratives and the skills necessary to craft a persuasive argument through critical thinking, reading, and writing
- Engage with a variety of public health narratives, including books, articles, podcasts, documentary films, and narrative television episodes
- Assess various writing techniques and rhetorical strategies to analyze their ability to present public health concerns to a broad audience
- Integrate reflective writing practices that empower public health professionals
- Identify, develop, and strengthen a unique and individual writing voice

During class discussions, we tackle the question of how to persuade people to care about issues that may not affect them personally. To do this, we examine readings that blend compelling storytelling with research and evidence-based conclusions as well as memorable images and language. Students share their emotional and intellectual reactions, and we engage together in detailed analysis to determine how language and style choices evoke feelings, change perspectives, and ultimately transform the world.

Theoretical Frames

The theoretical frames that inform HPS 307 build on affective science, social-emotional principles, theories of belonging, and evidence-based teaching practices (Adichie, 2009, July; Cavanagh, 2016; Collins, 1993; Denial, 2024; hooks, 1994; Lang, 2016). Asset-based class activities and prewriting prompts scaffold “To Be Human,” drawing on concepts like community cultural wealth (Yosso, 2005) and composting (Goldberg, 2016) to help students generate ideas and develop a writing process. For instance, Goldberg stresses that writing is a way for learners to understand their complex identities through time and reflection (p. 15). Adichie (2009, July) advocates an understanding that humans are never reducible to a single story, while Collins (1993) encourages an understanding of identity as a collection of all our experiences, a set of “both/and identities” (p. 27) that acknowledge our complexity as humans. Godbee and Diab (2025) similarly emphasize both/and identities in their work on accountability practices. Their framework informs this class and this assignment, and as a class we question “typical conditioned patterns, which can lead us to glance and go” (p. 397). Through multiple reflections, students build awareness of the rich funds of knowledge (Yosso, 2005) they bring to class and use in writing about public health interventions.

The value of reflective writing in higher education dates to Dewey (1910), whose pioneering work foregrounded the knowledge building that results from consistent, guided acts of metacognitive reflection. Scholars across disciplines have advanced reflective writing as an impactful way for students to make meaning of their education (e.g., Boud et al., 1985; Kolb, 1984; Schön, 1983; Yancey, 1998). Yancey’s (2016) scholarship emphasizes that “reflection contributes to self-efficacy precisely because it helps us understand that we have learned (even if not always

successfully); how we have learned; and how we might continue to learn (p. 8). Within the formal class setting, Alyssa observes that the reflection process can initially feel foreign and unnatural. However, within a classroom culture of trust, skilled facilitation, and consistent group processing and feedback, individual reflections allow students to more confidently tap into different forms of writing, thinking, and feeling. Many scholars have noted that reflective writing supports students in building critical thinking and developing metacognitive capacities that enhance their development as scholars, professionals, and individuals (Ramlal & Augustin, 2020; Yeh et al., 2023).

Scholarship within health sciences often focuses on the value of reflection in applied practice or in post-baccalaureate degrees (Jayatilleke & Mackie, 2013; Mann et al., 2009; Pham et al., 2023). In medicine, Ménard and Ratnapalan (2013) assert that reflection shouldn't be an abstraction, but that individuals and teams should utilize reflection to improve practical application of knowledge (p. 105). Mann, Gordon, and MacLeod's (2009) review of reflection in health professions underscores its recognized value in helping students form professional identities and learn self-regulation (p. 596). Jayatilleke and Mackie (2013) note that the goal of reflection for ongoing education should be "to improve practice and learn from relevant experiences ... moving beyond pure description" (p. 310). Pham, Cunningham, and Humphries (2023) likewise argue that reflection helps with "navigating the complex environment of public health practice, skill building, [and] critical self-reflection" (p. 1). Meanwhile, Beard and Price (2018, March 27) prioritize synthesizing individual experiences with funds of knowledge to help students in "making connections, clarifying concepts, examining successes and failures, and becoming more self-aware" (p. 49). Sylvia's experience additionally suggests that the skills students gain from reflection are tangible and can be applied to other situations, whether academic or professional. Through guided reflection, students not only understand themselves better through metacognitive practices, but they build critical thinking skills that the assignments enforce.

Sustained Reflection in HPS 307

"To Be Human" invites students to think holistically about how they make meaning in their lives, considering how they spend their (free) time and what activities make up a "good day." It supports them as they work toward bell hooks's (1994) definition of education as a practice of freedom, and it empowers learners to choose their own audience, not exclusively an academic audience. In class, Laura communicates the importance of reflection in building self-awareness, connecting with audiences, and bringing value to students' different kinds of languaging (Inoue, 2021, June 3). She works from the perspective that reflection assignments encourage learners to recognize and deconstruct their "default position" (Adichie, 2009, July)—the unexamined positionality we form based on the dominant cultural narratives we consumed growing up (Collins, 1993, p. 10). Inoue (2021, June 3) cautions that the default position in traditional writing classrooms "mimic[s] an elite, White, middle- or upper-class monolingual English language". Learning about default position does not press students to judge their past experiences or their current selves, but rather helps them understand their *starting point*. Starting with default position builds recognition so students can develop self-awareness about who they are and what they bring into different discourse communities.

The assignment and scaffolding occur during week 11 of the 16-week semester. By this point, students have written two earlier reflections that prepare them to practice metacognition as they explore and articulate their complex cultural identities and positions. Students benefit significantly from in-person sessions that feature small-group and whole class discussions, directed prewriting, peer-review workshops, and presentations from the teaching team.

The foundational text for the "To Be Human" essay is a podcast interview with physician,

researcher, and writer Atul Gawande (Tippett, 2024). Gawande's *Being Mortal: Medicine and What Matters in the End* is a moving and eloquent exploration of end-of-life care in the United States that urges readers to consider how we make meaning in our lives through our last days. Before class, students listen to the podcast and complete a discussion board, writing about grief and loss in American culture.² Laura opens the class session with a reading of the poem "What the Living Do" by Marie Howe (1997). Next, students create a cluster map at their tables (of 4 to 6 learners), focusing on ideas from the podcast. Student groups gravitate toward similar themes in their maps: quality of life, comfort and care, grief and loss. An open-ended whole-class discussion focuses on the stigma surrounding grief and loss in American culture. Students also share perspectives on a "good day" as it contributes to quality of life (vs. quantity as the only measure). We wrap up the discussion with a choice of prewriting prompts that zoom in on details as the building blocks for reflections.

The goal of "To Be Human" is for students to think about how their perspective has changed by considering concepts introduced in the podcast and discussion. Learners practice what Yancey (2016) deems "*constructive reflection*, the process of developing a cumulative, multi-selved, multi-voiced identity, which takes place between and among composing events" (p. 4; emphasis in original). Most students in HPS 307 are traditionally aged college students, so they situate their feelings within the life changes that accompany moving from high school narratives to the independence and novelty of college. Assignment prompts transfer successfully for non-traditional students as a call to ponder the life changes they have recently experienced as they balance their degree with other work, personal, and care-giving commitments. Successful responses feature specific details, demonstrate critical thinking, showcase growing self-awareness, and highlight original thinking expressed through a student's unique writing voice.

Student Responses to "To Be Human"

Laura first taught "To Be Human" in Spring 2020 as COVID forced her to radically reconfigure daily activities and reconsider the role of family and community. Even after five years, students still carry the scars of that time, particularly in their insecurity about speaking up in class and their generational anxieties about forming friendships and interacting face-to-face. Yet by week 11, students have built skills and stamina for reflective writing, and they are quite open and vulnerable with their writing. Many students have commented that "To Be Human" was their favorite writing project from the semester, and one student even revised a version of her reflection to read at her grandmother's funeral.³

When Alyssa looks back on her experience, she notes: Almost a year and a half after I submitted my draft, I still consider "To Be Human" one of the most impactful assignments of my undergraduate career. I have found that intentional acts of reflection require a level of intrinsic motivation and free time that I, and many students, do not have. Having reflection as a requirement gave me dedicated time and an incentive to process my complex identities, feelings of grief, goals for well-being, and experience living through unprecedented socio-political events. I was able to think about my individual beliefs of well-being and how they exist within a larger system. This line of existential thought could have led to spiraling ruminations over grief and loss, but the prompt's emphasis on "well-being" and "a good day" prevented this.

The prompt didn't inspire an unreasonable amount of optimism, but I was able to process toward a hopeful conclusion. My ability to tap into my emotions and share my stories was beneficial, and these are also crucial skills for any student. As we interrogate how our experiences and identities shape our core beliefs, we strengthen our empathy while gaining storytelling skills. We can practice how to best engage audiences, when to incorporate anecdotes, and when to integrate evidence. These technical storytelling skills can similarly be applied when

incorporating the stories of *others* into our writing. Reflection is as much of a technical exercise as it is an exercise of empathy.

For Sylvia, her growth began with her home life: My mother worked in geriatric care, so listening to Gawande discuss the importance of a “good day” affirmed my experience with end-of-life care. Yet as I was writing “To Be Human” (one of the most important pieces I’ve written academically or personally), I thought deeply about how *unrelatable* this might be to my peers. The goal of this essay was to open our eyes to an often-ignored section of public health and explore our connections with older adult care, grief and loss, and end-of-life in a way that most of us have never been able to, due to societal or cultural pressures. We were able to dig through the trench of grief and loss, while considering the positives of “a good day” and reframing end-of-life for patients and their community.

My tablemates and I came together once the reflection was submitted and discussed our experiences. We agreed that the whole assignment resonated, whether we were able to get something off our chests or just felt the cathartic release of finally being able to understand grief in a new way. We agreed that the American push for ignoring grief is unhealthy, and our own reflections helped us reframe what a better outlook looks like. Being strategically prompted to recognize that our struggles, and other’s struggles, are systemic offered us the opportunity to grow into more informed, analytical, and empathetic students.

Other student essays demonstrate how reflective writing encourages what Godbee and Diab (2025) name as accountability practices—prioritizing both/and thinking through “rehearsal (try-try again) and sustained critical reflection” (p. 401). This kind of writing changes students’ metacognitive approach to learning. As former HPS 307 student Cassandra Gordon (2025) wrote,⁴ “Repeated reflection ... helped me understand that writing itself is a space where thinking happens. Therefore, writing became less about arriving at clean conclusions and more about working through uncertainty in a productive way.” When students are invited to make meaning of their learning through reflection, it fosters an invitation to share, witness, and testify (Godbee & Diab, 2025, p. 399) to the experiences that build their funds of knowledge and prepare them to make change in the world.

Instructors in many disciplines could enhance their curriculum—and their relational connections with students—through reflective writing assignments that help students do this meaning-making in personal, vulnerable, sometimes quiet, and powerful ways. “To Be Human” elevates the stakes for students to build self-awareness and perspective in ways that really matter to them. HPS 307 student Quinten McCrillis (2025) frames this meaning-making as an issue of caring:

As someone who is trying to grow as a writer, I was able to take away the ability of trying to get someone to care. ... This was a very different switch as a writer because I had to use my personal experience ... to relate to my audience. ... [This] was the most important thing I took away in this class. Getting someone to care and connect with your writing is going to be so much more impactful than just writing up a boring story, even if it is really eye opening

So many students resist writing or feel afraid of it as a mode of learning, a potent and profound tool for knowledge and self-knowledge. This is even more pronounced with the ever-present shadow of AI looming over classrooms, providing a logical temptation for students to shortcut their academic learning and personal growth. But, as Quinten suggests, reflection taps into something “eye opening” for students; it transcends “just writing up a boring story.” And, as Yancey (2016) asserts, it “offers much more to writers and teachers of writers than has previously been assumed” (p. 11). The need for metacognitive reflection will only increase

as students inevitably utilize AI to supplement learning. With guided reflection like “To Be Human,” metacognitive skills are enhanced and learners emerge with a writing process that values individual perspective and unique writing voice.

Developing a new perspective and process has been possible in HPS 307 even for learners whose previous writing was less sophisticated and nuanced. Because the reflection occurs toward the end of the semester, students have built skills in analysis, evidence, self-awareness, and voice. Anecdotal evidence suggests that developing learners and less confident writers can still find access points to success through guided metacognitive reflection. Sylvia sums it up this way: Using real-life examples in reflections challenges students to reframe an actual experience with the tools Gawande (2014) proposes. Doing so allows learners to process feelings they may not have known they had, which is the inevitable nature of reflective writing, and why all the reflections in HPS 307 are so important. They mean something real to every writer.

Further Applications & Conclusion

This assignment is applicable to courses that touch on loss, mourning, or grief. More broadly, it works well alongside analytical writing assignments because students can transfer skills of analysis, close reading, and self-awareness. Assignments like “To Be Human” lay the groundwork for students who will become future professionals, from STEM to liberal arts. Alyssa and Sylvia valued that, for an undergraduate generation defined by AI writing, HPS 307 prioritized the skill of intentional reflection. Reflection is crucial not just for students' technical writing abilities and critical thinking skills, but also for their ability to exercise compassion more generously and to process their experiences. For Laura, reading these reflections deepens her connection to students and gives her hope. Reflective writing allows students to stay rooted in their humanity. This process in itself is a radical step in the right direction.

When we implement effective reflection assignments, students are compelled into higher level, subtle thinking, and they demonstrate sustained engagement with the “big questions” within their discipline (Bean & Melzer, 2021, p. 1). Students learn to use original detail to give their writing “believability and truthfulness” (Goldberg, 2016, p. 43), pushing beyond vagueness into a “knowledge-making activity” that is “critical in helping learners secure their learning” (Yancey, 2016, p. 8). For HPS 307 students, who will shape community dialogue and practice healthcare and health interventions in the future, honing their ability to metacognitively reflect will help them grow their intellect, skills, and humility.

“To Be Human” is a letting go for students: Rather than feeling bound to a sterile academic context, learners nurture their individual writing voice, choose their audience, and divest themselves of the “right” way to sound. By prompting students to reflect on life and death topics, they are gently urged outside their comfort zones and encouraged to write about topics that may have previously been considered off-limits. It allows students to bring some heart into their work. Ultimately, the process of completing “To Be Human” affirms the value of reflection as a tool for individual processing and an exercise to equip students to incorporate storytelling into their professional lives.

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ASSIGNMENT

Reflection 3: To Be Human is To Be Limited

The podcast interview, “On Mortality and Meaning,” with Atul Gawande (conducted by Krista Tippett, 2024, from the *On Being Project*) focuses on how physicians treat patients, particularly at the end of life. More broadly, Gawande is speaking to listeners of the podcast; thus, Gawande invites us to consider how we can think more holistically about the quality of our daily lives. After listening to “On Mortality and Meaning,” responding on our Discussion Board, and participating our class discussion, you will write a reflection that synthesizes ideas from this podcast with your own experiences.

1. Identify the audience you are writing for in this assignment.

You will choose a specific, narrow audience for this essay that will empower you to explore these topics with vulnerability and honesty. Choose an audience that will allow you to engage with the metacognitive process of thinking about how your thinking has changed after listening to and discussing this podcast.

2. Write your reflection.

The goal of this reflection is for you to think about how your perspective has changed by considering concepts introduced in the podcast. Consider if and/or how your thinking has changed over the past several years, especially considering the collective grief and loss we experienced through the pandemic. You may also want to consider feelings you may have experienced as you have moved from one phase of life to another with your college experience. How have these factors changed how you now think about well-being, end of life, grief, and/or loss?

Consider the following prompts and observations from the podcast. *You do not need to respond to all prompts specifically and/or answer all of them.* These are potential jumping off points.

- Your definition of well-being
- An exploration of what a good day looks like for you
- Contemplating the idea of “how we spend our days is how we spend our lives”
- Exploring the idea, “To be human is to be limited”

Format

- 700-800 words
- Use APA format for title page, running header & page #s
- Use APA-formatted in-text citations for all textual evidence
- Include an APA-formatted References list

Notes

¹Co-authors Alyssa G. Norris and Sylvia Persin served as undergraduate TAs during Spring 2025. Alyssa was an enrolled student in Spring 2024 and Sylvia was an enrolled student in Fall 2024.

²Students also connect the podcast to the gripping documentary about the early 1990s AIDS crisis in New York City, *How to Survive a Plague* (2012), directed by David France.

³The student writers featured in this essay are representative of the caliber of work, level of reflection, and vulnerability that learners have typically reached at this point in the semester. These voices also reflect the impact of the assignment from students who have selectively self-reported about its significance in final end-of-semester reflections.

⁴Fall 2025 Students Cassandra Gordon and Quinten McCrillis gave permission to be named and quoted in this article but did not participate in the research and writing as co-authors.

Supplementary Material

For supplementary material accompanying this paper, including a PDF facsimile of the assignment description formatted as the author(s) presented it to students, please visit <https://doi.org/10.31719/pjaw.v10i2.282>.

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Engaging Students in Implementing Generative Artificial Intelligence

Creating Simple Infographics to Reinforce Sustainable Living Concepts

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Abstract

The rapid integration of generative artificial intelligence (GenAI) into educational settings has created both opportunities and challenges for student learning. While GenAI adoption in education continues to grow, instructors remain divided about its educational value and appropriate usage. To further complicate matters, instructors are learning in real-time how this new and rapidly evolving tool works. Here, we describe an assignment developed for a large-enrollment, 100-level general education, environmental science course at the University of Arizona (RNR 150 - Sustainable Earth) that provides students with structured opportunities to experiment with and critically evaluate GenAI tools. The assignment requires students to create a public facing infographic about water conservation using Piktochart's GenAI platform and then to evaluate and edit the style, format, and content of the AI output. Students then complete reflective writing analyzing the strengths and limitations of AI-generated content. Students completing this assignment in spring 2025 generally responded positively to using GenAI as a tool to support their thinking and effort, recognizing the importance of GenAI now and in their future.

Introduction

Generative Artificial Intelligence Has Landed

The rise and infusion of generative artificial intelligence (GenAI) into nearly every facet of our lives has been swift and intense. GenAI is now embedded in healthcare, transportation, retail, and manufacturing, and GenAI was even recognized in two recent Nobel Prizes (Maslej et al., 2025). A representative of Accenture, an international company that offers strategy and consulting services in technology and operations, recently referred to GenAI as “the fastest-growing technology” he had seen in the history of the company (McKendrick, 2024).

The rapid adoption of GenAI is also occurring in educational settings, with mixed opinions and success. Pew Research Center reports that 26% of teens aged 14-22 admitted to using ChatGPT for schoolwork in 2024, up from 13% in 2023 (Blake, 2025). A meta summary of recent surveys of students and faculty in higher education revealed that over three quarters of students use GenAI in their studies in some way (Mulford, 2025). Support for the tools is varied, and students and faculty alike noted the potential for GenAI to enhance learning and offer time savings in some contexts. However, they also expressed concerns that a heavy reliance on GenAI will decrease critical thinking and verbal communication skills (Mulford, 2025). Arguing the downsides of GenAI in the classroom, professors of art history Drimmer and Nygren (2025) flatly discourage the incorporation of GenAI in the classroom.

The impacts of the rapid rise of GenAI are also being carefully considered by leaders in the field of writing instruction. In 2023, the Association for Writing Across the Curriculum (WAC) published a statement regarding artificial intelligence, stressing the importance of writing as

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a means to deep learning and cognitive development. In this statement, the authors stress that the cognitive and social development that emerges through the act of writing “cannot be replaced by AI language generators” (Association for Writing Across the Curriculum, 2023, p. 1). In the same year, the Modern Language Association and the Conference on College Composition & Communication (MLA-CCCC) Joint Task Force on Writing and AI Members argued that writing is a process as well as a product and warned of several risks, to students, teachers, and the profession, of relying on GenAI tools for generating written text (MLA-CCCC Joint Task Force on Writing and AI, 2023). Risks to students include missing out on thinking and writing practice, an undervaluing of the act of writing, and increased lingual injustice; risks to teachers include increased labor to keep up with quickly evolving technologies; and risks to the profession include a devaluation in writing and language by society. Yet, notably, both statements also acknowledged the potential benefits of incorporating the use of GenAI tools in writing and encouraged faculty to consider how such technologies may benefit students in their thinking and writing.

Even with these many risks, GenAI is very present in our lives and professions. We contend that providing students safe spaces to experiment with using GenAI and to critically evaluate the tool’s output and their experience using it can assist with learning about both the content of the assignment as well as good practices of how to work productively and authentically with GenAI. The integration of GenAI into university education in thoughtful, careful ways presents an opportunity to advance digital literacy, communication, and critical thinking skills among students and faculty. We designed this assignment with this intention, recognizing that we are just at the beginning of the GenAI revolution and knowing that our particular assignment will likely change quickly as students, faculty, and GenAI itself evolves through their collective experiences.

Our Student Audience and Learning Goals

Here, we present an assignment that introduces students in a 100-level general education environmental science course at the University of Arizona (RNR 150 - Sustainable Earth) to GenAI tools. RNR 150 is a freshman/sophomore level survey course on climate change and its global impacts on societies, both past and present. It serves all University of Arizona campuses and is offered in person and in an asynchronous online environment with an average of 105 students per term. The course is offered through both main and online campuses. The students are predominantly pre-health, pre-business, and communications majors, with lower representations from STEM fields. Students display a wide knowledge base in subject expertise, digital literacy, communication, and critical thinking, as expected in a university with incoming students with highly variable levels of college preparation and limited previous formal writing experience. The assignment has been taught twice previously at the University of Arizona in 7.5-week online, asynchronous sections of the course, but it is adaptable for incorporation into large, entry-level classes such as ours.

In this assignment, students are introduced to using GenAI through a relevant, real-world assignment with low-stakes writing. Specifically, students are prompted to create an infographic using the free online tool Piktochart, following structured guidelines. Piktochart is a free, online platform that leverages AI models to create infographics, presentations, posters, and social media graphics. The assignment first asks students to create an infographic depicting water use in Arizona in a sector of their choosing (dairy, golf, industry, or residential). Students are also offered choice in the temporal period evaluated (1970s, 1980s, 1990s, or recent present) and the location of focus for their product (Yuma, Tucson, Phoenix, or Bisbee). Next, students must adapt the infographic, changing incorrect information and adapting it to reflect their own

design choices. In the final aspect of the assignment, students are asked to provide a short, written reflection describing what the AI tool got correct, what they needed to change, and their thoughts regarding their experience using the tool. Students are graded on successful creation of the infographic using Piktochart, their changes to the AI-generated product, and their reflection (see the [Evaluation Rubric](#) included with the assignment in the Supplementary Material).

This assignment incorporates several Writing Across the Curriculum principles (International Network of WAC Programs, 2014). First, by providing opportunities for agency in their deliverable, this assignment embodies the principles of engaging students in meaning-making and authentic learning experiences in their writing. Students are encouraged to carefully consider what the GenAI tool created based on the prompt and what needs to be changed to be sensible and appropriate. As well, because the topic of the activity focuses on the locally relevant issue of water use, this activity engages students in research and synthesis in a real-world, applicable way. The grading of the students' reflections reflects WAC principles by placing focus on the process of writing and thinking. This reflection is primarily graded on students' insights; points are not taken off for grammar or writing style, reducing the stakes for students to put pen to paper. The focus in grading is on process—the experience working with Generative AI and evaluating the outputs—rather than on the final product.

In this assignment, we attempt to pull back the curtain on AI use for students, providing them with the foundation for using the Piktochart tool (<https://piktochart.com>) effectively to improve their work and creative process. Our perspective is that computers are not humans, and it is the student's responsibility to instruct the computer and check its work, rather than allowing the computer to drive the creative process and final product. The assignment could easily be adapted for use at other universities by swapping in different regional or disciplinary issues, and it would work well in other course formats, including online synchronous and in-person.

Assignment Overview

This assignment appears in Module 2 of a five-module course, at the conclusion of a unit focused on present-day environmental changes and their impacts on human societies globally. Prior to initiating this assignment, students have engaged with a lecture unit introducing them to the concepts of the unique physical properties of water, the critical nature of water for survival of all living things, its uneven distribution around the globe, and how access to water shapes societies.

Students use Piktochart's GenAI platform to generate an infographic addressing changes in water usage in Arizona, tailored to a specific audience and time period. Each student has the ability to choose their own combination of variables; the prompt structure directs students to specify the type of water user, geographic location, and time frame, resulting in a focused and contextually relevant product.

Following the creation of the infographic, students are instructed to make substantive edits to the infographic in three domains: factual accuracy, stylistic presentation, and overall format. Students are expected to consider whether the information provided by the GenAI tool is valid and to verify it through consultation of trustworthy sources. These edits are documented through before-and-after screenshots, providing a transparent record of the revision process that is easy to assess in a high-enrollment course.

In addition to the design and revision components, students are required to compose a brief reflection detailing their design choices, the strengths and weaknesses of the GenAI output, and the rationale behind their editorial decisions and improvements in a one-page low-stakes written reflection. This reflective element is central to the assignment's pedagogical goals; it encourages

students to articulate their personal and human engagement with both the technology and the subject matter (O’Loughlin & Griffith, 2020). An optional extension invites students to supplement their infographics with information sourced from GenAI-powered research tools, further reinforcing the value of evidence-based communication. We strongly prefer that the students not use GenAI in preparing their reflection, as the reflection is the critical step where they consider how well the technology performs. By deemphasizing proper grammar and writing style in the reflection, we aim to encourage students to share their own thoughts.

Experiences and Outcomes

Faculty Experiences and Outcomes

This assignment has been taught twice, each time in a 7.5-week online, asynchronous course environment. The second time the assignment was implemented, we formally sought feedback from students regarding their experiences using GenAI and with the overall assignment through a for-credit chat post. To ensure students provided their honest feelings about the assignment and their experience, points were awarded for the chat post regardless of what was shared.

The initial implementation of this assignment in a formal classroom setting yielded several notable outcomes. The assignment was delivered without significant logistical challenges, and students were able to navigate the technical requirements with minimal need for support. Subsequent discussions revealed a high level of engagement, with students actively reflecting on both the capabilities and limitations of GenAI tools. From an instructional perspective, the assignment facilitated meaningful dialogue around digital literacy, information quality, and the evolving role of AI in academic and professional contexts.

The diversity of student majors contributed to an array of infographic products, each reflecting editorial choices and perspectives seemingly informed by their disciplinary standards. The assignment’s structure, which balances guided prompts with opportunities for individual expression, proved effective in accommodating varying levels of prior experience with GenAI technologies. The grading process was streamlined for a high-enrollment class by the use of a detailed rubric, while the reflective component provided valuable insights into student learning and attitudes toward GenAI.

Student Experiences and Outcomes

Approximately half of the students indicated previous experience with GenAI platforms, while the remainder were encountering such technology for the first time with this assignment. Some students reported a previous deliberate avoidance of GenAI tools, citing concerns regarding the reliability and authenticity of AI-generated information. One student articulated this perspective succinctly, stating, “GenAI will never be as genuine as someone’s own words.”

Despite initial reservations, most students ultimately agreed that the assignment was interesting, enjoyable, worthwhile, and enlightening. Several students highlighted the utility of GenAI in structuring content. One student noted, “I liked that it generated section headers; they helped me organize my topic into clear sections.” The assignment’s requirement to edit the GenAI infographic for factual accuracy, stylistic coherence, and audience relevance gave students guideposts that shaped their evaluation of the GenAI output strengths and weaknesses.

Notably, many students observed that while GenAI was effective in generating visually appealing layouts and organizing information, the content often was factually incorrect, sometimes ridiculously so. Several students pointed out the GenAI-created photographs as particularly inaccurate; other students noted that editing the results was necessary for both factual accuracy and tailoring toward a particular audience. One student accurately quipped, “AI would not receive a good letter grade [on this assignment] on its own.” Students also noted that GenAI out-

puts lacked a human voice, “struggl[ing] with the more imaginative aspects of design.” Another student shared the insight that “AI should be used as something more as a framework rather than a finished product.”

The reflective component of the assignment encouraged students to articulate their editorial decisions and to consider the value added by human intervention. It also helped students identify where their new roles and skills in writing and communication might lie when working with GenAI, such as creating a personal voice, identifying and focusing on the target audience, and verifying content accuracy. Students described the process of revising the infographics as an opportunity to enhance both the clarity and credibility of the final product.

Students were encouraged to share their honest thoughts on the assignment, and none shared a negative opinion, even when encouraged to do so. The prevailing sentiment was that the experience was helpful for revealing the weaknesses that can occur when using GenAI and how to approach them. Many students expressed appreciation for being forced to interact with the tools even when they did not want to and felt it was a worthwhile learning experience. Through this exercise, students reported increased confidence in their ability to use and critique GenAI tools, as well as a greater appreciation for the importance of human oversight in digital content creation. These responses were surprising, given that approximately 40% of students in other general education courses in our department have recently stated that it feels like cheating when they are required to use GenAI for written assignments. Overall, this assignment succeeded in fostering both technical proficiency and critical awareness, equipping students with foundational skills for navigating an information landscape shaped by emerging technologies that will likely be part of their professional toolkit.

Reflections and Future Applications

The outcomes of this assignment underscore the potential of GenAI as both a pedagogical tool and a subject of critical inquiry. By requiring students to engage directly with AI-generated content and to reflect on their editorial decisions, the assignment fosters a more connected understanding of the interplay between computer automation and human expertise. The reflective component serves to deepen students’ metacognitive awareness and to promote the development of transferable skills in information literacy and digital communication. Our experience suggests that, as GenAI continues to change students’ engagement with writing, WAC principles will need to be reconsidered.

Looking ahead, this is just the first of many revisions to this assignment. We have considered incorporating peer review to provide additional opportunities for collaborative learning and for exposure to diverse approaches to editing and design. Expanding the range of topics and audiences may further increase the assignment’s relevance and appeal, while continued integration of GenAI-powered research tools can reinforce the importance of evidence-based practice. Ultimately, this assignment aims to prepare students to navigate a communication landscape increasingly shaped by GenAI, equipping them with the skills and ways of doing we see as necessary for critical engagement and responsible authorship.

Acknowledgments

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viewers for their insightful and helpful comments. We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the university strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

ASSIGNMENT

Employing GenAI to Create an Infographic

Assignment Learning Objective

Analyze GenAI created data visualization (informatic) for fact, audience, and design (20 pts)

GenAI Platform

<https://piktochart.com/generative-ai>

Deliverables

An edited infographic co-created by you and GenAI tailored to a particular audience and place; documentation of your prompt; a short reflection on what GenAI did well and where it did not perform well, how a human editor improves GenAI products, and what the next set of improvements would be if you had more time and expertise.

Background Scenario

You are a program manager of a local non-government agency focused on water usage in the state of Arizona. You are responsible for creating communications materials for your website that show the changes in Arizona water usage over the past 50 years. Your audience includes four audiences: the general public and land managers across three settings (agriculture, wildlands, and urban). Your goal is to produce a website infographic for all the audiences that is factually correct and engaging.

The audience for this assignment is **the general public**; the purpose of this assignment is to **inform and motivate action by the audience**; and the organization and style of this assignment is **an infographic provided by a non-profit**.

Assignment Instructions

1. Register for a free account at <https://piktochart.com/generative-ai>
2. Once you have registered and logged in, navigate to the AI tool, called **Piktochart AI** (Figure 1).

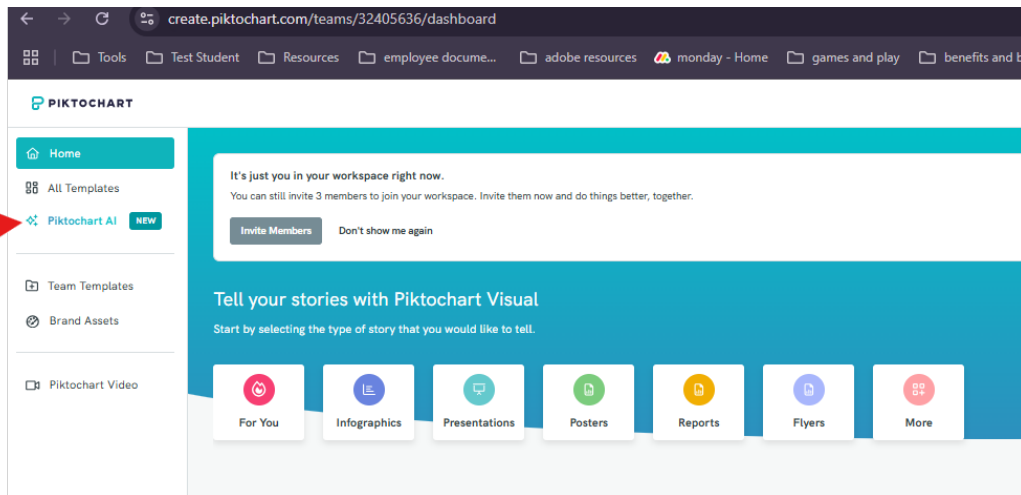


Figure 1. Screenshot of Piktochart dashboard. Arrow on left side points to link for Piktochart AI.

3. Provide the following text prompt to Piktochart AI. “Create an infographic about water usage by (1) in (2) from (3).” Populate the blanks 1, 2, and 3 with one of the choices provided for each number below.

Create an infographic about water usage by:	(1)	in	(2)	from	(3)
	dairy farms		Yuma		1965-1980
	golf courses		Tucson		1980-1995
	industrial parks		Phoenix		1995-2010
	residents		Bisbee		2010-2024

Tailor your prompt with these choices: (1, choose one): dairy farms, golf courses, industrial parks, or residents. (2, choose one): Yuma, Tucson, Phoenix, or Bisbee (3, choose one) 1965-1980, 1980-1995, 1995-2010, or 2010-2024

4. Edit the infographic on these three aspects: fact, style, and format tailored to your audience and personal aesthetic with a minimum of 1 change for each category, highlighting those changes.

The easiest way is to make edits on the Piktochart website then take a screenshot. You will take two screenshots: one of the infographic before you make any edits, one after you make your edits. Both screenshots will be included in your assignment (see [Sample Response](#) in the Supplementary Material). Label them “draft” and “revised infographic”.

5. Write a brief reflection (no more than 20 sentences) on how you chose your particular infographic design, what the GenAI algorithm did well, and what edits you made to improve the infographic. Use your own words filled with your personal voice and human emotion that is creative and insightful, not GenAI please. The focus here is on sharing your thoughts; you will not be graded on your writing style or perfect use of grammar.

6. Include your original GenAI prompt and the course GenAI citation in your write-up.
7. Format your assignment like the example (see [Sample Response](#) in the Supplementary Material), and remember to cite the GenAI platform per course policy please!

Supplementary Material

For supplementary material accompanying this paper, including a PDF facsimile of the assignment description formatted as the author(s) presented it to students, please visit <https://doi.org/10.31719/pjaw.v10i2.278>.

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Employing Different Writing Tasks to Support Genre Awareness in a Nursing Writing Emphasis Course

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Abstract

The literature review and appraisal assignment is a core foundational component of the writing emphasis course for undergraduate nursing students. The assignment traditionally focuses on navigating databases to locate scholarly research, synthesizing research findings across the literature, and learning APA format. Often, however, students conflate effective writing in the discipline as demonstration of correct APA format. This essay describes a pedagogical innovation that integrates reflective writing and a multimodal infographic component. The changes shift the student focus toward communicating evidence-based, person-centered care, which also promotes metacognition and genre awareness as students connect scholarly literature to culturally congruent care in their future clinical practice.

Introduction

A primary goal of Writing Across the Curriculum (WAC) at the University of Arizona is to enhance student experiences in required writing-emphasis courses, which apprentice them into their field's unique ways of writing and knowing. This is especially true for community-focused majors in the health sciences, such as Nursing. With the goal of helping students to navigate the ambitious standards of writing in the program and to understand the discipline's relevance to communities, we (Lateefah and Aimee) describe an approach for supporting nursing students as they navigate writing skill transfer in Nursing Education. Typically, students become attuned to the differences between their general education coursework and the major, especially the transition from MLA format to APA format, which they transition to when writing for the major (Irvin, 2010). It can be difficult, explains one nursing major, "you jump into nursing school and it's APA. And it takes about a year to figure it out" (Mapes & Kimme Hea, 2018). To reduce the decontextualized emphasis on APA format in the required writing emphasis course, "Scholarly Inquiry in Evidence-Based Practice," we share how Lateefah revised a major writing assignment to deepen disciplinary understanding. Ultimately, these pedagogical shifts help students move beyond seeing writing as compliance in APA and instead explore scholarly inquiry as it informs real-world, evidence-based nursing practice.

Supporting Writing Transfer: Reflection, Culturally Congruent Care, and Genre

Research in nursing education shows that students improve writing practices as they progress through their program of study and continuously engage in research, evidence-based practice, and information dissemination (Gazza et al., 2018). Lateefah recognized that the major writing assignment of her course could foster that development more effectively with a few strategic changes. Historically, the project had been a high-stakes writing assignment accounting for

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more than a third of the course grade. One priority was to help students navigate the transition to writing in the discipline as more than merely mastering APA formatting (Beaufort, 2007; Driscoll et al., 2020; Rounsaville, 2012; Yancey et al., 2014). WAC scholarship shows that when faculty teach writing as a neutral skill that transfers across the disciplines, they overemphasize format and grammar and omit discussions about how writing enacts disciplinary knowledge (Carter, 2007). A disproportionate emphasis on APA format can perpetuate a similar understanding of writing in nursing as only format compliance. However, with adequate faculty development, research shows that faculty learn the importance of connecting disciplinary ways of knowing to professional communication practices (Basgier, 2016). In this way, after completing a WAC faculty training at U of A, Lateefah redesigned the major assignment to connect writing to evidence-based, person-centered care nursing practice. These revisions align with two nursing accreditation domains: person-centered care and the application of theory and research-based knowledge (American Association of Colleges of Nursing, 2026). Students would learn to understand and apply “Culture Care Diversity and Universality” theory as part of culturally competent care standards (Marion et al., 2016). While certain patient needs are universal, Culture Care Diversity and Universality posits that health practices and beliefs are also inherently diverse across diverse cultures. Effective patient-centered care requires nursing students to navigate this tension, recognizing human commonalities while adapting clinical standards to respect cultural differences. Using the lens of Culturally Congruent Care, students learn to examine patient-centered care as an active, ongoing accounting of a patient’s cultural reality.

The first assignment update integrated reflection. In writing studies, reflective writing is a vital “mechanism for professional development, for professional practice, and for the making of knowledge” (Yancey, 2016, p. 9). Reflection helps students learn to apply theoretical knowledge, a critical skill for new nurses transitioning into the profession (Lindblom et al., 2025). It also increases learning transfer, enhances synthesis of knowledge across various contexts, and sparks metacognition in support of lifelong learning (Beaufort, 2007; Gere, 2019; Yancey et al., 2014). Through reflection, students think critically about the concept of Culturally Congruent Care and to transfer their understanding of this concept to their future clinical practice.

A second update was for students to compose a multimodal infographic to convey insights from the research for a different context. Yancey, Robertson, and Taczak (2014) argue that remixing the content of a writing assignment to a different context promotes metacognition and genre awareness. Specifically, when invited to adapt their work to a different genre, writers think more critically about which content, organization, and modalities best serve the new context (Tardy et al., 2020). Fostering increased awareness of genre, audience, and purpose, the infographic contributes to student writing development over time (Driscoll et al., 2020; Gere, 2019; Yancey, 2016).

Taken together, the changes minimize a disproportionate focus on compliance with APA formatting and implement best practices in WAC pedagogy (Bean & Melzer, 2021). The subsequently integrated reflection and infographic activities scaffold students to engage more robustly with scholarly literature. This approach models asset-based, culturally sustaining pedagogy (Ladson-Billings, 2017; Paris & Alim, 2017) because students connect what they learned in the scholarly literature to their future role as nurses and to the communities for which they will care. Both support the tenets of “servingness,” a type of asset-based framework that rejects passive enrollment practices of increased admissions of Latina/o/x students without equal attention to resources for sustained structural and curricular support at Hispanic Serving Institutions (HSIs) (Garcia & Koren, 2020; Tinoco, 2025). Servingness calls for course content to have an explicit connection to students’ lived realities (González, 2024). Through the steps of

reflection and infographic remix, nursing students connect the findings of secondary research to the real world. In what follows, we overview the course context and the phases of the scholarly literature review assignment. Then, we describe the steps of reflection and the infographic to demonstrate how students engage the research literature more critically, synthesize main ideas, and effectively communicate evidence-based nursing practice.

Course and Assignment Context

At U of A the College of Nursing averages approximately 250 student majors annually, and students must earn a minimum cumulative GPA of 3.0 to be admitted. Due to several reasons, such as high demand for certain degree programs and, most egregious, a number of budget cuts, some writing emphasis classes have high enrollment, including Lateefah's course, which enrolls 65 to 75 students with a single instructor. Beyond first-year writing, unfortunately, there are no campus policies requiring small class size for writing intensive courses in the major; each college stipulates course enrollments. Nursing students complete the writing emphasis course in their junior or senior year; course learning objectives support students' engagement with scholarly literature in the field as demonstrated in a synthesized appraisal of the research studies. The literature review project involves multiple steps to guide nursing students to find and analyze scholarly research. Phase one is a process of inquiry involving topic selection, conducting library research, and finally critically reading by annotating and highlighting articles using Adobe software. Phase two synthesizes information in the literature using a table of findings. During phase three, students develop a narrative summary of the findings, including the major definitions, descriptions, and statistical findings in their sources. Phase four is the focus of this essay.

After the synthesis of literature, phase four is a process for "Summary, Creativity, and Reflection." Through two sequential components, students critically engage the findings of secondary research. First, in the Reflection Activity, students examine Culturally Congruent Care with attention to how this process might transfer to their future work as a nurse. Then, in the Infographic Activity, students compose an infographic to inform a public audience of their findings.

The Role of Reflection: Ways of Knowing in the Nursing Discipline

The Reflection Activity prompts students to reflect on the theory of Culturally Congruent Care as it applies to their role as nurses. The reflection offers a space to process new knowledge and explore its application. Responding to three core questions, students express their ideas in a more personal account:

1. What did you learn from the readings about Culturally Congruent Care?
2. How will you incorporate the new knowledge into your practice as a new nurse?
3. What is the importance of providing culturally congruent care to patients and what is the relationship of culturally congruent care to patient centered care?

This activity fosters metacognition, a process especially valuable for writers "required to work in unfamiliar contexts or with forms with which they are unfamiliar" (Tinberg, 2015, p. 76). Through reflection, students connect their learning directly to patient care, making their thinking legible to both themselves and their instructor.

By embedding reflection into the curriculum, Lateefah has more insight into how students personally internalize the research process and connect it to their future clinical roles. They

articulate a variety of relevant themes. Six student reflections illustrate common insights. For instance, the following reflections from two students emphasize active listening and collaborating with patients:

Student # 1

“Culturally congruent care also involves understanding how culture shapes different health behaviors and even their trust in the healthcare system. As a future nurse, I plan to incorporate this knowledge by taking my time to ask meaningful questions about what matters most to each patient and using that to guide my care. I want to have a supportive environment where people feel comfortable expressing their preferences and their concerns. I will also reflect on my own biases, so I can ensure I am respectful, and my care is truly patient-centered.”

Student # 2

“I have learned that culture can impact many aspects of healthcare, such as communication, decision-making, and health beliefs. As a nurse, it is my responsibility to understand these differences and work together with my patients to provide them with the care they need and to create a relationship built on trust and respect.”

Both reflections describe the importance of maintaining an open mind, checking personal biases, and continuously clarifying needs with patients. They highlight a mindset of clinical humility by allowing the patient to guide them as caregivers.

Another prominent theme in the reflections is an awareness of how healthcare inequities leave lasting impacts on ethnically or culturally diverse groups. The following examples demonstrate how students understand and how they plan to navigate systemic inequities when building trust with patients:

Student # 3

- “As a nurse, I aim to be open to being educated by my patients about their cultural beliefs and how I can best care for them while still respecting their culture.”
- “It is greatly important that we take care to show cultural competency when there are so many ethnically and culturally diverse groups that already don't trust the system because it's failed or disrespected them before. Through culturally congruent care, we have the ability to undo previous damage and stigmas surrounding healthcare for minorities while learning from patients, recognizing obstacles specific to them, and incorporating their culture into their care plans.”

Student # 4

“As a future nurse, I plan to incorporate culturally congruent care by assessing each patient's beliefs, preferences, and openness to complementary therapies before implementing pain management strategies. I aim to prioritize patient-centered care by offering options, providing education, and respecting patients' choices and autonomy. By doing this, I can ensure that the care I provide is both culturally appropriate and individualized, fundamentally improving patient comfort, satisfaction, and outcomes.”

Each student considers the effects of systemic inequities on how patients experience care. Student #4, in particular, emphasizes “choice and autonomy” as essential components when caring for communities historically marginalized or stigmatized in medicine.

Finally, students recognize that evidence-based recommendations should align with a patient's individual beliefs to be effective. They reframe cultural integration as a necessity for successful health outcomes, rather than an optional courtesy:

Student #5

“This assignment taught me that providing culturally congruent care involves more than just knowing a patient's background. [...] I began to realize that if exercise recommendations are not communicated in a way that respects a patient's cultural framework or attends to her individual concerns, evidence-based recommendations will be useless.”

Student # 6

- “Working through these four articles taught me that culturally congruent care is more than just mindfulness of someone's background. It means actually shaping the care I give around whom the patient is, what they have been through, and what matters to them.”
- “Going forward, I want to incorporate this into my nursing practice in a few practical ways. First, I plan to slow down and ask patients about their background before teaching or giving instructions, because what works for one patient may feel disrespectful or pointless to another. Second, I want to make a point to pay attention to small things like how I approach a patient, the language I use, and whether I am giving the patient choices, since these details can either build trust or trigger someone with trauma history. Third, I want to remember that I do not have to know everything about every culture to provide solid care. I just have to be willing to listen, ask, and adjust.”
- “Culturally congruent care matters because patients are not just a diagnosis on a chart. They have stories, values, and their own unique ways of coping that were built long before they met me. If I honor that, I think patients are more likely to trust me, continue with treatment, and actually receive the benefit of care I will be trained to give.”

Student #6's reflection is especially illustrative. By rejecting a narrow orientation to patients as “just a diagnosis on a chart,” they offer three actionable insights for practice: the need to slow down, the critical role of language, and the value of patient choice.

Across the responses, students synthesize the principles of Culturally Congruent Care with their emerging visions of real-world practice. Having articulated insights of the theory in their personal reflections, students then transition to the next phase of the assignment in which they communicate insights from their reflection into a visual infographic as we describe in the following section.

Design, Create, and Present: Infographic

After the “Reflection Activity,” students create an infographic that connects the framework of Culturally Congruent Care to the findings of their scholarly literature review. As a form of visual and multimodal communication, an infographic involves the use of images to convey information (Zhao et al., 2024) and may comprise graphics, words, or other images. Increasingly scholarship shows the benefits of doing so. The use of visual communication tools has become a key component in student learning to facilitate better understanding of information (Mardiana-Jansar & Hanafiah, 2020). Studies show that students engage with the learning in “memorable and meaningful ways” (Skogsberg & Rice, 2023, p. 88). Related to writing transfer, Yancey, Robertson, and Taczak (2014) theorize that creative redesign is a reseeing of ideas through a “remix.” When students create a remix, the process facilitates their capacity “to incorporate *new concepts and practices*” (p. 116, emphasis kept). In other words, writers make choices to adapt

content from an initial project for a different audience or form, which fosters metacognition. Students address the following as they compose the infographic:

1. What did you discover in your review of the literature?
2. What is known in the literature about the topic?
3. What is not known about the topic in the literature? (Include ideas for future research on the topic).
4. What are the implications of the findings from the literature for nursing practice?

To provide resources for multimodal composing, the assignment allows students to use any software program they prefer, including infographic generator tools. Popular generator tools are listed in the assignment directions, such as Piktochart, Venngage, Readymag, Canva, and Easel.ly.

During the infographic, students creatively apply Culturally Congruent Care in a condensed presentation of findings into impactful, public-facing bullet points with attention to font, color scheme, and layout. Three examples (shared with the students' permission) demonstrate how students engaged in the process and can be found in the online [Supplementary Material](#) for this article. One infographic, "Type 2 Diabetes Management: Lifestyle Interventions & Technology," conveys practices for managing Type 2 Diabetes. Images of glucose monitors, nurse scrubs, and people exercising frame the textual information. The design scheme accentuates the blue color of scrubs, and arrows direct readers to navigate enumerated sections with information about diet, exercise, and monitoring. It concludes with a call for more research about cultural influences and culturally tailored care in Type 2 Diabetes. Another example focuses on serving Veterans with Post Traumatic Stress Disorder (PTSD). Four sections offer bulleted statements that define "trauma-informed and peer-supported care." The information emphasizes how veterans with PTSD are a cultural group with shared values who benefit from caregivers "who speak their language." A third example focuses on "Non-Pharmacological Labor Pain Management." With shades of magenta, pink, and violet, the design evokes décor common in labor and delivery units. Anchoring the title is an image of a baby in the womb. The infographic focuses on the frequent use of epidural anesthesia during childbirth, a care practice that some cultures reject. It presents alternative pain management to provide culturally congruent care during labor. As these examples display, student infographics exhibit the ability to synthesize disciplinary research in multimodal texts with effective organization and visuals in support of a rhetorical purpose. They also provide evidence of student comprehension and meaningful engagement with Culturally Congruent Care.

Insights of Reflection and Creativity for Culturally Sustaining Pedagogy

After several semesters, the changes have improved the learning experience. For Lateefah, the updates have provided more effective assessment of students' knowledge. The assignment revision has been extremely helpful for gauging students' understanding of the content through three avenues: their scholarly synthesis of literature, their reflective work, and the infographic. It also appears to be beneficial for helping students display their thinking about, processing, and conveying what they have learned. Students engage the content more substantially as they imagine their future role as nurses. Integrating a Fourth Phase into the traditional literature review assignment supported the following learning goals:

- Engage students through varied approaches.
- Employ strategies that facilitate the simplification of concepts in ways that make them understandable to students.
- Help students to make meaning of Culturally Congruent Care.
- Support students on their learning journey.

The assignment updates also minimize the perception that scholarly writing in the field of Nursing is simply following APA format. Instead, students use reflection and a remix to connect disciplinary writing to the real world. Lateefah's revision enacts several recommendations of culturally sustaining pedagogy, including qualities of meaningful writing projects (Eodice et al., 2016). Students' topics are applied to their future work. The infographic provides tools for students to connect to real-world issues. We believe that the two components bolster student engagement and can be adapted to writing courses in any major focused on providing evidence-based care, such as public health, social work, mental health counseling, nutritional science, addiction or rehabilitation services, and physical or occupational therapy.

ASSIGNMENT

Course Summative Assignment, Phase 4

This writing assignment is divided into four (4) phases with specific directions for each phase. Since phase four is the focus in this writing, the prompt for this specific phase is represented here, and the full assignment is in the [Supplementary Material](#).

Phase 4A – Reflection Phase

Write a short reflection (1-2 paragraphs) on what you have learned about Culturally Congruent Care. In your reflection, describe how you will incorporate this knowledge into your practice as a nurse AND share your thoughts about the importance of providing Culturally Congruent Care to patients.

Phase 4B – Summary and Creative Phase

Create an infographic to summarize your findings from the literature. You may use one of the tools provided in the instructions or a preferred tool of your choosing to create your infographic.

Your final infographic must depict the following four points:

- What did you discover in your review of the literature?
- What is known in the literature about the topic?
- What is not known about the topic in the research literature? (Include ideas for future research on the topic).
- What are the implications of the findings from the literature for nursing practice?

Supplementary Material

For supplementary material accompanying this paper, including a PDF facsimile of the assignment description formatted as the author(s) presented it to students, please visit <https://doi.org/10.31719/pjaw.v10i2.283>.

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Grey Areas and Egress

Artifact-Based Collaborative Learning in Cybersecurity Ethics

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Abstract

This reflective essay examines my implementation of artifact-based collaborative learning in cybersecurity ethics education through the analysis of authentic but fictional case studies. Rather than analyzing pre-digested narratives, such as the case of Edward Snowden, students engage with hypothetical primary source materials (internal memos, encrypted communications, investigative reports, and exit interviews) that mirror reality and professional investigative practice. The assignment requires collaborative groups to produce a written analysis addressing six analytical tasks that integrate ethical frameworks, legal analysis, and stakeholder perspectives. Students learn to craft arguments that synthesize documentary evidence, construct legal analyses using appropriate discourse, and develop policy recommendations in professional genres. Students navigate the grey areas of cybersecurity ethics, law, and policy, wrestling with competing approaches where reasonable people disagree. The artifact-based collaborative writing approach demonstrates how technical students can develop integrated writing and reasoning capabilities essential for cybersecurity governance roles when these skills are embedded in meaningful professional contexts.

Teaching cybersecurity ethics has taught me that students arrive expecting algorithms for moral decision-making and leave, if we succeed, comfortable with uncertainty. The EXODUS case study described here presents undergraduate cybersecurity ethics students with a scenario involving corporate data theft, potential whistleblowing, and conflicting professional loyalties. Students often expect clear-cut moral positions and straightforward policy recommendations from such materials. Instead, they encounter ethical, legal, and policy grey areas—complex ethical ambiguity surrounding characters whose decisions potentially affected millions of people. This pattern of student responses revealed a critical gap in cybersecurity education (Frusci, 2024): while technical students often excel at identifying security vulnerabilities and implementing protective measures, they sometimes struggle to analyze ethically ambiguous circumstances, precisely the kind of analysis essential for leadership roles in this field.

The challenge extends beyond individual analytical capabilities. Cybersecurity is inherently interdisciplinary, involving aspects of law, policy, human factors, ethics, and risk management (Blair et al., 2020). Professionals increasingly work within interdisciplinary teams, negotiating between corporate executives prioritizing cost-effectiveness, legal counsel managing liability concerns, and technical staff advocating for robust security measures. These professionals need collaborative approaches for navigating competing professional values, yet traditional case study approaches typically emphasize individual analysis rather than the consensus-building processes that characterize real-world policy development (Christensen et al., 1991; Herreid, 2007).

This reflective essay examines my implementation of an artifact-based learning approach that addresses both the challenge of individual ethical reasoning under ambiguity and the need for collaborative, interdisciplinary synthesis. In artifact-based learning, students engage with hypothetical primary source materials similar to those that professionals would encounter in actual cybersecurity incidents: emails, reports, transcripts, technical logs, and other content.

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This approach differs from traditional case narratives where authors summarize information and guide interpretation. Instead, students examine primary source materials in professional genres—internal memos, investigative reports, legal correspondence—that cybersecurity practitioners encounter in actual incidents, drawing conclusions through careful document analysis rather than authoritative accounts.

Building on document-based historical inquiry methods (Bean, 2011), I designed a collaborative assignment, the EXODUS Collaborative Writing Assignment, requiring students to synthesize evidence across multiple artifacts while applying ethical frameworks, legal analysis, and stakeholder perspectives. The assignment uses cross-disciplinary writing as the vehicle through which students demonstrate their analytical synthesis, preparing them for professional contexts where cybersecurity practitioners must communicate complex findings to diverse stakeholders (Herreid & Schiller, 2013). The genre they encounter—investigative analysis, legal argumentation, policy recommendation—mirror how practitioners communicate findings, acculturating students to disciplinary conventions through practice.

Course Context

CYBR 329: Cyber Ethics is an upper-division, writing-intensive course in the College of Information Science at the University of Arizona. The course enrolls approximately 36 students per section, primarily juniors and seniors pursuing degrees in cybersecurity operations, intelligence operations, information science, and related technical fields. Most students enter with strong technical backgrounds but limited experience with legal reasoning or formal ethical analysis.

The course meets in person twice weekly over a 15-week semester. The EXODUS Collaborative Writing Assignment occurs approximately halfway through the semester, after students have developed foundational knowledge in ethical frameworks, including consequentialism (evaluating actions by their outcomes), deontology (evaluating actions by their adherence to duties or rules), and virtue ethics (evaluating actions by the character they reflect), as well as relevant legal concepts. By this point, students have already completed several case analyses, building toward ever more complex collaborative challenges. The in-person format enables the real-time collaborative synthesis that defines this assignment.¹

The Assignment

The artifact-based approach emerged from my observation that cybersecurity students often struggle when ethical scenarios lack clear technical solutions. Traditional case presentations give students summarized scenarios with predetermined discussion questions (e.g., Manjikian 2022). Even compelling real-world cases like Edward Snowden’s disclosures arrive pre-digested, with the ethical positions already mapped and the key facts selected by textbook authors. This format fails to replicate the investigative complexity of professional cybersecurity work, which requires piecing together incomplete information, interpreting conflicting accounts, and developing policy recommendations amid uncertainty.

The EXODUS Case

The EXODUS case, one of seven immersive case studies in the *Cyber Dimensions* textbook (Straight, 2025a), unfolds through a collection of hyper-realistic but ultimately fictional primary source documents that students must piece together to understand the complete narrative. This 25-page case contains over a dozen distinct artifacts that students navigate independently. It centers on Alex Chen, a quantum computing engineer who allegedly transferred proprietary code to a competitor, and the case takes its name from Chen’s departure: an act of egress whose

ethical and legal dimensions prove far from straightforward. Rather than reading a linear story, students examine:

- internal cybersecurity memos alerting executives to suspicious data access patterns,
- encrypted chat logs between Chen and unknown parties,
- FBI investigation reports detailing forensic evidence,
- exit interview transcripts revealing Chen’s ethical concerns about military applications of artificial intelligence,
- legal strategy documents from competing firms, and
- news coverage with conflicting perspectives.

Interpretive ambiguity emerges from the artifacts themselves. An internal security memo reports that Chen accessed “design files for three separate AI model architectures” (Straight, 2025a) during off-hours and transferred data to personal cloud storage, facts that could indicate corporate espionage. Yet the exit interview transcript reveals Chen expressing that “the applications being developed didn’t align with my personal ethics” and describing a desire to work on “open and collaborative projects” (Straight, 2025a). Students must reconcile these documents: Does the security memo describe theft or an ethical actor protecting work they believe serves broader humanity? Does the exit interview reveal genuine moral conviction or calculated justification? The artifacts provide evidence without interpretation, requiring students to construct meaning across contradictory possibilities.

The legal analysis compounds rather than clarifies. Two federal laws prove particularly relevant: the Computer Fraud and Abuse Act (CFAA) (1986) criminalizes unauthorized access to computer systems, though what constitutes “authorization” remains contested, especially when employees access systems they are permitted to use but for purposes their employers did not sanction; the Economic Espionage Act (EEA) (1996) criminalizes theft of trade secrets, requiring prosecutors to prove both that information qualifies as a trade secret and that the defendant knew or intended to cause harm; the International Traffic in Arms Regulations (2023) and Export Administration Regulations (2023) describe specific actions that could be considered illegal depending on Chen’s behavior. Students must apply both statutes to Chen’s actions while grappling with factual ambiguity about what Chen actually did and why. The legal uncertainty runs parallel to the ethical: the same artifacts that leave Chen’s motivations open to interpretation also leave questions of liability contested.

Assignment Structure and Timing

The assignment unfolds across two in-class phases designed to scaffold collaborative analysis, preceded by individual preparation. In this pre-work, students review the entire EXODUS case independently, reading all artifacts and composing low-stakes written notes identifying key evidence and initial analytical observations. Through this preparatory writing, students process documentary information before discussion, sketch interpretations they will later defend or revise, and produce reference materials for collaborative work. Before the collaborative session, I provide explicit guidance about productive group practices, emphasizing that research demonstrates group case study discussions are more effective than individual analysis for developing critical thinking skills (Mahdi et al., 2020).

In the first phase, a collaborative synthesis during a 75-minute class session, self-selected groups of three to four students work through six analytical tasks characteristic of cybersecurity governance and policy work:

1. applying consequentialist, deontological, and virtue ethics frameworks to evaluate Chen's actions;
2. conducting comprehensive stakeholder analysis (identifying all affected parties, from Chen's former colleagues and the companies involved to the broader public who might benefit from or be harmed by AI applications);
3. determining potential legal violations;
4. analyzing the ethics of military artificial intelligence development;
5. evaluating corporate response through deontological and social contract theory (examining whether institutional actions reflect agreements that rational individuals would accept as fair) lenses; and
6. developing three organizational policy recommendations (addressing institutional practices rather than regulatory proposals) with implementation analysis.

During this session, I circulate among groups, listening to their discussions, fielding questions about case details or assignment requirements, and occasionally redirecting conversations that become mired in single frameworks. Groups become mired when they reach consensus too quickly through a single lens. For instance, some groups conclude that Chen clearly violated the law without examining whether the law itself reflects sound ethical principles. Others determine that Chen acted ethically without considering the legitimate interests of former colleagues who relied on proprietary code.

When I observe such narrowing, I pose questions that complicate their emerging consensus: "What would a virtue ethicist say about Chen's choice to act secretly rather than openly?" or "How might this same evidence look from the perspective of employees who stayed?" These prompts do not provide answers but rather model the kind of multi-perspective interrogation the assignment requires. The session concludes with brief oral presentations of one to two minutes each, where groups share their findings, exposing students to alternative interpretations and analytical approaches. The oral presentations receive formative feedback rather than formal grades, encouraging students to take intellectual risks during the synthesis phase.

In the second phase, groups produce a 900- to 1200-word collaborative written analysis, due at the module's conclusion, demonstrating mastery of multiple disciplinary writing conventions: legal analysis citing specific statutory provisions, ethical argumentation using philosophical frameworks, and policy writing with implementation considerations. The assignment requires students to work exclusively with the provided artifacts, developing analytical skills through careful documentary interpretation rather than from external research.

Groups organize their collaborative writing process autonomously. I have experimented with assigning individuals specific analytical roles, but found that students produce stronger work when they sort responsibilities organically, leveraging their own interests and strengths. Some groups divide the analysis by framework, others by section, and still others draft collectively. To ensure accountability and guard against uneven contribution, each group submits a brief reflection alongside their analysis describing their collaborative process, identifying who contributed what, and reflecting on how the collaboration shaped their thinking. This reflection makes visible whether one member carried the analytical weight or whether the group genuinely synthesized perspectives. When I observe contributions beginning to shift unevenly, I remind groups that the workload should be distributed equitably, though not necessarily discretely.

Assessment Approach

Evaluating this assignment required developing rubrics capturing both process and product outcomes. The multi-dimensional requirements challenged traditional grading approaches, so I assess the written deliverable across six weighted dimensions: multi-stakeholder analysis

(25%), synthesis and integration of perspectives (20%), policy development with implementation pathways (20%), evidence of genuine collaborative process (15%), understanding of technology transfer and strategic protection concepts (15%), and writing quality including proper citation practices (5%). What distinguishes excellent from adequate work is not merely accuracy but sophistication: excellent submissions demonstrate nuanced understanding of how the same ethical framework can support competing conclusions, while adequate submissions apply frameworks mechanically without recognizing their interpretive flexibility. This distinction reflects how expertise functions in cybersecurity governance: professionals navigate contested interpretations rather than apply predetermined formulas. Policy development requires maintaining multiple analytical frames, recognizing that stakeholders with legitimate interests may reach different conclusions from identical evidence.

Student Responses

Analysis of student submissions revealed consistent learning patterns. Students moved from ethical oversimplification toward sophisticated multi-framework analysis. They developed collaborative synthesis capabilities and transformed abstract framework knowledge into applied professional reasoning. Students immediately recognized the assignment's unprecedented complexity. Groups frequently observed that the EXODUS case felt far more ambiguous than previous case studies, marking a crucial shift from expecting clear answers to engaging with authentic professional ambiguity.

The collaborative process surfaced productive tensions. Groups commonly noted that the breadth of the CFAA, with its overlapping civil and federal prosecution pathways, posed distinctive challenges for collaborative analysis. Rather than viewing this complexity as a barrier, students came to see it as representative of professional practice. Writing instructors across disciplines may find this recognition familiar: students in many fields must learn to navigate ambiguity rather than expect tidy resolutions. These patterns emerged across four areas of student development: ethical framework application, legal-ethical integration, collaborative reasoning, and disciplinary writing.

Ethical Framework Application

Students discovered that ethical theories could support different conclusions depending on application approach and interpretive emphasis. Groups frequently identified how a single framework could yield opposing conclusions. Several groups, for instance, observed that deontological reasoning about treating people as ends rather than means could support both Chen's open-source advocacy and the former employer's proprietary interests, depending on which stakeholders and duties the analysis foregrounded.

This recognition, that frameworks are analytical tools rather than answer keys, indicates professional sophistication. Other groups described arriving at a similar realization through close analysis: what initially appeared as a question with a definitive answer revealed itself as a set of competing interpretations, each defensible within different ethical traditions.

Legal-Ethical Integration

Students developed nuanced understanding of how legal considerations apply to contemporary technology contexts. Groups commonly observed that Chen's actions might not violate the CFAA yet could constitute a clear EEA violation, a distinction that led many to question whether decades-old statutes adequately address modern technology practices. This observation reflects students recognizing that legal frameworks designed decades ago may not anticipate modern technological realities. This tension creates interpretive space requiring careful analytical

judgment. This integration of legal and ethical analysis mirrors professional practice, where cybersecurity work regularly requires considering multiple frameworks simultaneously.

Collaborative Reasoning

Groups demonstrated sophisticated collaborative reasoning in their reflections. Several described extended deliberation over whether to defend Chen's position, ultimately distinguishing between the validity of Chen's ethical convictions and the problematic methods of secrecy and unauthorized access through which those convictions were enacted. Students also articulated metacognitive awareness of the assignment's structure, noting that nearly every aspect of the case could be argued persuasively from multiple sides and that the ethical frameworks themselves could be marshaled to support opposing conclusions. This recognition indicates readiness for professional contexts requiring both ethical judgment and legal analysis capabilities.

Disciplinary Writing Development

Analysis of student written submissions revealed significant growth in disciplinary writing capabilities. In earlier assignments, groups often separated ethical, legal, and policy analyses into discrete sections with minimal integration. As the class progressed and collaborative negotiation within their groups emerged, students learned to weave these perspectives together. Groups also submitted a reflective summary describing their decision-making process, which revealed how productive disagreement led to more sophisticated analysis. One group's process exemplified this development: their initial draft presented each ethical framework in isolation, but their final submission wove utilitarian, deontological, and legal analyses together, arguing that potential societal benefits could not override the contractual and statutory obligations that the EEA was designed to protect.

Students also developed competency in citation practices specific to legal and policy writing, learning to reference specific sections of the relevant federal statutes, quote directly from case artifacts as evidence, and distinguish between descriptive summary and analytical argumentation.

Reflection and Broader Applications

Reflecting on the EXODUS implementation, I found that artifact-based collaborative learning created investigative capabilities I had not achieved through previous case study implementations. Students moved from viewing legal analysis as an external constraint to embracing it as integral to ethical reasoning. Initial student frustration gave way to intellectual engagement I had rarely observed in traditional assignments.

Several challenges warrant consideration. The 75-minute in-class synthesis session creates productive urgency mirroring workplace decision-making, but some groups rushed through complex analytical tasks. Group dynamics also presented challenges as teams navigated competing viewpoints. Conflict generated productive discourse in most cases, but some groups struggled to synthesize divergent perspectives, suggesting the need for additional scaffolding or prerequisite collaborative learning experiences.

The structured collaborative approach offers potential for transfer across disciplines requiring complex professional reasoning. Importantly, collaborative learning environments function as social learning systems (Wenger, 2000) that can provide more equitable access to professional reasoning skills. Students from diverse backgrounds contribute unique perspectives while developing shared analytical competencies through participation. Technical programs in engineering, computer science, and health sciences face similar challenges preparing students for interdisciplinary professional contexts.

Writing Across the Curriculum programs (Kiefer et al., 2000–2021) can leverage this approach because it explicitly develops disciplinary writing capabilities through authentic genres: investigative reports synthesizing documentary evidence, legal memoranda analyzing statutory requirements, ethical analyses using philosophical frameworks, and policy recommendations with implementation strategies. The methodology creates a replicable framework for courses requiring investigative reasoning and evidence-based synthesis. Instructors interested in developing their own immersive case study materials can find detailed guidance and resources in an [open educational resource](#) I have developed for this purpose (Straight, 2025b).

A public health course, for instance, might present students with epidemiological data, interview transcripts from affected community members, internal communications from health officials, and media coverage of a disease outbreak. Groups could determine whether institutional responses reflected appropriate precaution or excessive intervention while developing policy recommendations for future incidents. The approach transfers readily to scenarios involving privacy regulations, artificial intelligence governance, digital rights, or any domain where professionals must interpret documentary evidence, apply contested frameworks, and develop defensible recommendations amid uncertainty.

This artifact-based collaborative approach demonstrates that technical students can develop sophisticated ethical and legal analysis skills when provided with primary source materials requiring investigative reasoning across multiple analytical frameworks. Students develop disciplinary writing skills when those skills are embedded in meaningful professional contexts rather than taught as isolated competencies. As cybersecurity education evolves to meet emerging challenges in artificial intelligence governance and global technology policy, artifact-based collaborative learning provides a foundation for developing the investigative reasoning and collaborative synthesis capabilities essential for effective professional practice.

ASSIGNMENT

EXODUS Collaborative Writing Assignment

The Case

Alex Chen is a quantum computing engineer at Quantum Frontier, a leading AI company with government contracts in defense and intelligence. After five years of high-impact work on Project Daedalus, the company's flagship quantum machine-learning initiative, Chen accepts a position at NexGen Cybernetics, a competitor known for an open-source, collaborative approach to AI development.

Before departing, Chen copies portions of the quantum AI algorithms she worked on at Quantum Frontier to personal cloud storage. Her stated intent, later recorded in her exit interview, centers on two threads: using some material as a portfolio piece, and continuing to develop algorithms she feels personally invested in. Quantum Frontier detects the exfiltration. The FBI investigation that follows produces charges under the Computer Fraud and Abuse Act (CFAA) and the Economic Espionage Act (EEA).

The case itself consists of primary source artifacts rather than a summarized narrative: internal memos, encrypted chat logs, FBI investigation reports, exit interview transcripts, legal strategy documents, and news coverage. Your task is to reconstruct meaning across these artifacts and arrive at a defensible position on the ethical, legal, and policy dimensions of what happened.

Before the Collaborative Session

Read the entire EXODUS case independently, including all artifacts. As you read, compose brief notes identifying key evidence and your initial analytical observations. These notes are low-stakes and ungraded, but your group will rely on them during the collaborative session. Students who arrive having only skimmed tend to become passengers in their groups rather than contributors.

Phase 1: In-Class Collaborative Synthesis (75 minutes)

Form self-selected groups of three to four students. Over the course of a single 75-minute in-class session, work through the six analytical tasks below. You do not need to tackle them in order, but do not tackle Task 6 (policy development) until at least three of the prior tasks are substantially engaged. Policy recommendations produced without grounding in ethical and legal analysis tend to be superficial.

The Six Analytical Tasks

1. **Ethical Framework Application.** Apply consequentialist, deontological, and virtue ethics frameworks to evaluate Chen's actions. Explain how each framework might yield competing conclusions depending on interpretive emphasis. Resist the temptation to treat frameworks as answer keys.
2. **Stakeholder Analysis.** Conduct a comprehensive stakeholder analysis identifying all affected parties. Consider Chen's former colleagues at Quantum Frontier, the two companies, Chen herself, the broader public who might benefit from or be harmed by AI applications, and any relevant institutional actors (government agencies, the scientific community, investors).
3. **Legal Analysis.** Determine potential legal violations under CFAA, EEA, ITAR, and EAR. Evaluate whether Chen's actions meet the statutory elements of each, attending to ambiguities in "authorization," "trade secret," and intent. Note where the facts meet the statutory elements cleanly and where they do not.
4. **Ethics of Military AI.** Analyze the ethics of military artificial intelligence development, as raised in Chen's exit interview concerns. Consider benefits, risks, and the ethical responsibilities of AI researchers and the companies that employ them.
5. **Corporate Response Evaluation.** Evaluate the corporate response to the alleged data exfiltration through deontological and social contract theory lenses. Examine whether institutional actions reflect agreements that rational individuals would accept as fair.
6. **Policy Development.** Develop three organizational policy recommendations (addressing institutional practice, not regulatory or legislative proposals) with implementation analysis. Each recommendation should name the ethical framework grounding it, describe challenges in implementation, and address how it balances competing stakeholder interests.

The session ends with brief oral presentations of one to two minutes per group, sharing findings and exposing your group to alternative interpretations from others. These presentations are formative and ungraded.

Phase 2: Collaborative Written Analysis

Your group produces a **collaborative written analysis of 900 to 1200 words, due at the end of**

the module. The written analysis must demonstrate integrated mastery of multiple disciplinary writing conventions:

- Legal analysis citing specific statutory provisions
- Ethical argumentation using philosophical frameworks
- Policy writing with implementation considerations

Work exclusively with the case artifacts. External research is neither required nor expected. The analytical challenge is documentary interpretation, not literature review.

Your group organizes the writing process autonomously. Some groups divide by framework, others by task, others draft collectively. There is no required approach, but there is a required outcome: the final document should read as an integrated argument rather than stitched-together individual sections.

Collaborative Process Reflection

Alongside your analysis, each group submits a brief **250-word reflection** describing:

- Your collaborative process: how responsibilities were sorted, how disagreements were navigated
- What each member contributed
- How the collaboration shaped your group's thinking

This reflection is not counted toward the 900 to 1200 word limit of the analysis. Write it honestly. It helps the evaluator understand your process and serves as a check against uneven contribution.

Assessment Rubric

The written analysis is assessed across six weighted dimensions (Table 1).

What distinguishes excellent work from adequate work is sophistication, not accuracy. Adequate submissions apply frameworks mechanically and treat the tasks as independent questions with independent answers. Excellent submissions demonstrate nuanced understanding of how a single framework can support competing conclusions depending on which stakeholders and duties the analysis foregrounds. Excellent submissions also show evidence of genuine deliberation: passages where the group visibly considered an alternative position and explained why they moved past it, rather than presenting the final position as the only defensible one.

A Note on the Work

This assignment is demanding. It asks you to hold three frameworks, two statutes, six analytical tasks, and a full stakeholder landscape in productive tension at once. The case is designed to resist easy convergence. If your group reaches a unified position early, something has probably gone wrong: you have likely settled on a single framework and are deriving your other answers from its logic rather than treating the tasks as independent probes.

The gap between what is legal and what is ethically defensible is not a bug in the case but a feature. Professionals in cybersecurity governance navigate contested interpretations rather than apply predetermined formulas. This assignment asks you to practice that navigation.

Notes

¹An asynchronous online version of the course uses different pedagogical approaches for collaborative work.

Table 1. Assessment rubric for written analysis

Dimension	Weight	What the evaluator is looking for
Multi-stakeholder analysis	25%	• Depth and breadth of stakeholder identification • Sophistication of handling competing legitimate interests.
Synthesis and integration of perspectives	20%	• Integration of ethical, legal, and policy analysis as woven argument rather than discrete sections • Recognition that frameworks yield competing conclusions depending on interpretive emphasis
Policy development with implementation pathways	20%	• Quality of organizational policy recommendations • Grounding in identified ethical frameworks • Implementation analysis including challenges and trade-offs
Evidence of genuine collaborative process	15%	• Reflection quality • Evidence of productive disagreement, shared intellectual engagement, and equitable contribution
Understanding of technology transfer and strategic protection concepts	15%	• Accurate grasp of CFAA and EEA elements as applied to ambiguous facts • Recognition that decades-old statutes may not anticipate modern technology practices
Writing quality including proper citation practices	5%	• Clarity, organization, mechanics • Correct citation of artifacts and statutes • Distinction between descriptive summary and analytical argumentation

Supplementary Material

For supplementary material accompanying this paper, including a PDF facsimile of the assignment description formatted as the author(s) presented it to students, please visit <https://doi.org/10.31719/pjaw.v10i2.280>.

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