OTESSA PROCEEDINGS

Considering a Reboot: Using Design Thinking Strategies to Maintain a Dynamic, Industry-Relevant Game Design Curriculum

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Abstract

The gaming industry, expected to exceed $300 billion in global revenue by 2025, offers unique challenges and opportunities for academic programs and the traditional collegiate curriculum development process. This research discusses how game design curricula can evolve to meet those demands through sustainability and preparing graduates to be skilled and conscious of their impact and opportunities in the field.

Keywords: curriculum, design thinking, human-centered

Introduction

Fueled by innovations in console gaming, streaming services, smartphone technology, and emerging fields like E-sports, the video game industry is projected to grow to over $300 billion in global revenues by 2025 (Lanier, 2019). Colleges and universities have responded to the growth of game design programs. Despite this growth, the industry is now experiencing a slight decline in the number of game studios, leading to greater competition for jobs and a need for well-prepared graduates.

University programs are under pressure to produce graduates who meet the expectations of this continuously evolving industry. A program considered cutting-edge for one year may quickly become stagnant if it fails to respond to industry needs (Boudreaux et al., 2011; Princeton Review, 2020).

A design-thinking approach to assessing the value of a college program to students—and the value of a program's graduates to game design studios—may provide unique insights for creating and maintaining competitive undergraduate game design programs. This approach begins with a simple question: What qualities, knowledge, and skill sets are considered most important by undergraduate game design students, faculty, and professional game creators?

This research study aims to identify and articulate what qualities, knowledge, and skill sets are considered most valuable among three stakeholders in the game design industry: university-level game design educators (faculty and administrators), professional game creators, and undergraduate game design students. Figure 1 illustrates the overlapping areas of convergence among the stakeholders. It is from those areas of shared industry and academic interests a game design curriculum should draw to create and maintain a rigorous, competitive, and relevant program.

Figure 1
The Converging Perspectives and Interests Among Game Design Stakeholders

Research Question

How might we use design-thinking strategies to develop and maintain a rigorous academic game design curriculum that serves the interests of key stakeholders in a creative and ever-changing industry?

Methodology

Phase I Procedures: Game Design Students

This phase used affinity clustering followed by visualize the vote to identify and prioritize curricular learning outcomes perceived as most important by senior-level game design students. A convenience sample of 11 senior-level students was assembled to identify these outcomes.

Affinity clustering: Students identified important learning outcomes based on their experience. Each outcome was written on a sticky note and placed on a whiteboard, forming clusters organically. Figure 2 shows senior game design students participating in the affinity clustering exercise. (LUMA Institute, 2012). As students took turns placing each learning outcome on the whiteboard, clusters of similar outcomes began to take shape, growing from each other to form a kind "Scrabble Board" design, as pictured in Figure 3.

Figure 2
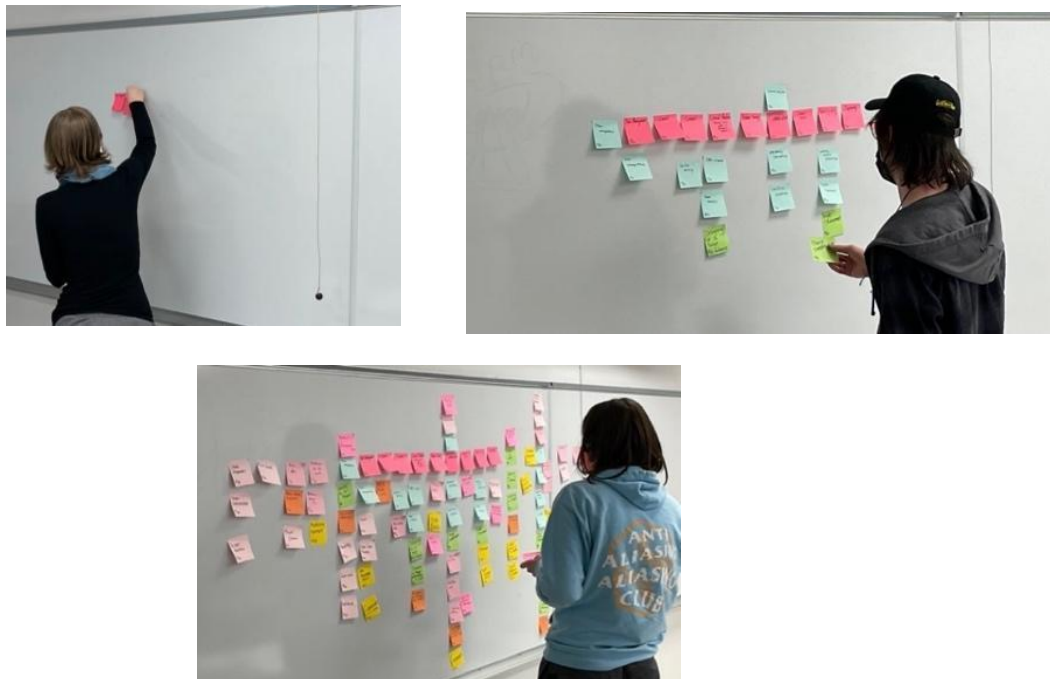*Senior Game Design Majors Participating in Affinity Clustering*

Figure 3
The "Scrabble Board" of Game Design Program Outcomes

After each participant had placed their notes on the board, they were then asked to (as a collaborative body) spend the next 5 minutes arranging the items into clusters of replicated or similar outcomes. Items were then verbally discussed and arranged (and rearranged) into groups and subgroups. After each individual item had found its "home," the researcher then asked the group for assistance in naming each cluster. The cluster titles were then written with dry erase marker above each grouping. Where a smaller outcome grouping was related to a larger outcome, arrows were drawn between the two groups to reflect the closer association. The results of this stage of affinity clustering can be seen in Figure 4.

Figure 4
Developing Categories of Curricular Outcomes
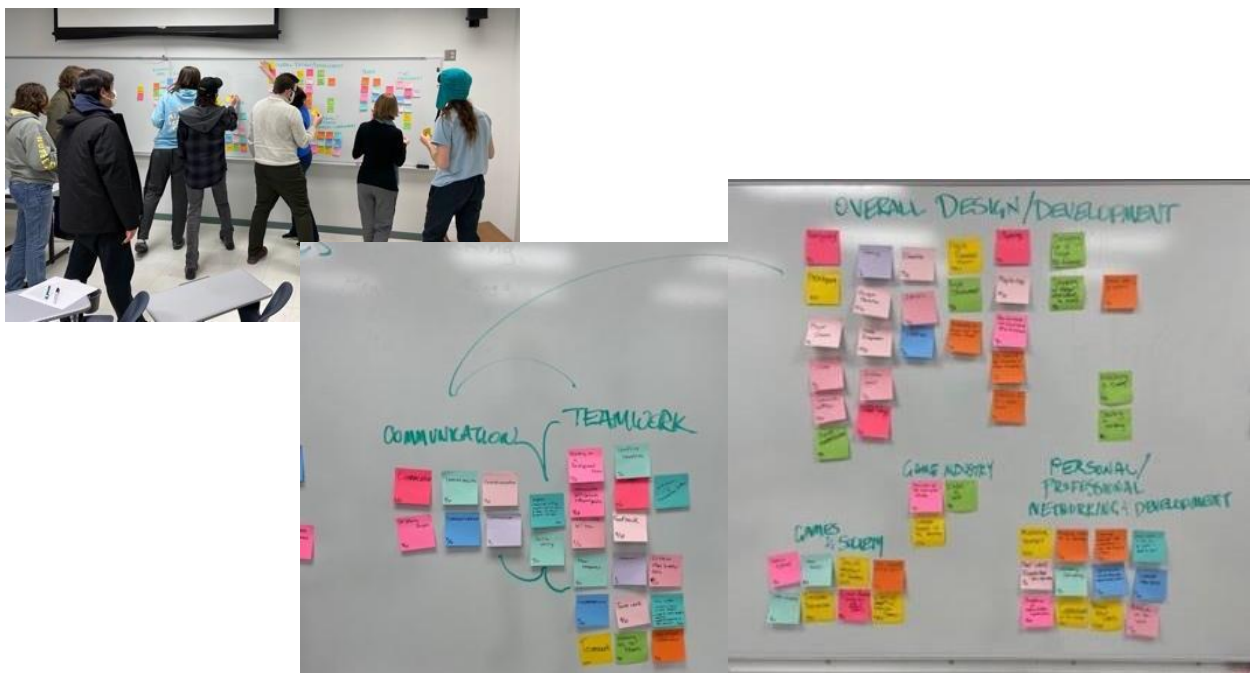
Visualize the vote: Students voted on the most important outcomes using gold-coloured sticky notes, indicating their preferences for specific skill sets and overall categories. (LUMA Institute, 2012). Figure 5 shows students participating in the visualize the vote exercise. After the groupings had been set and the affinity clustering exercise concluded, students were then instructed to begin the visualize the vote exercise. Each participant was given three gold-colored sticky notes to be used as "votes" and placed on each group or subgroup item according to its importance to the participant. Two of the sticky note ballots would feature a large dot; these votes would be applied to a specific skill set or proficiency outcome of the program the student believed was the most important according to their experience with the game design program. The third sticky note (unmarked) would serve as a vote for the most important overall cluster/category. This step was designed to illuminate which learning outcomes from the game design curriculum are considered most relevant among student stakeholders.

As with the structuring of the affinity clusters, the voting part of the exercise generated a great deal of energy and enthusiasm, but also significantly more consideration before the votes were cast. Whereas the ideation and clustering exercise were restricted only by time, the visualize the vote exercise hinged on the allocation of the very finite resource of their three votes. Students were also permitted to place their votes concurrently with others, returning students to an introspective, individual mindset, different from the collective effort in forming and naming the clusters. This part of the process was valuable in that one student's votes did not seem to influence the votes of others or be influenced by the votes of others. This result created a dynamic tapestry (both figurative and literal) reflecting the aggregate of the group's perceptions as well as illuminating each individual's experience in the program, as demonstrated in Figure 6.

Figure 5
Game Design Students Visualizing the Vote

Figure 6
Completed Affinity Clusters and Visualize the Vote Results

Phase II Procedures: Game Creators

Seventeen professional game creators were interviewed to determine the most valued skill sets and knowledge. The interviews focused on industry trends and the preparedness of recent graduates and consisted of open- and closed-ended questions to understand what game design organizations most value in college graduates seeking employment in the industry and ranged in duration from 20–45 minutes. Table 1 provides a sample of the interview questions and responses.

Table 1
*Sample of Interview Questions and Responses*

What knowledge or skill sets do you think are most necessary for recent graduates hoping to find work in the industry?	*They should know what part they are most interested in—art, narrative, engineering, coding, etc. A sense of what the business is like as well. Knowing what kinds of games are out there, and how the business of those games is changing. Understand all of the entertainment industry—watch, tv, film, play games; Be immersed in that space. Play more games, and explore. Being able to evaluate new games, new content. Understanding all the roles in a team. Be more hands-on. Have a writing sample* (Creative Executive, 4 years industry experience).
	Networking. And having something you're interested in and good at outside of game design. Have some background in business, accounting, economic intelligence, the humanities, cultural/race/societal issues (Freelance Game Writer/Designer, 7 years industry experience).
	Core design skills. Teamwork. Soft skills. Leadership, communication. Being able to write technical specs (Systems Designer, 22 years industry experience).

How important is an understanding of the business of game design to graduates hoping to work in the industry?	*Critical. The budget impacts use of certain tools* (Senior Director of Recruiting, 32 years industry experience). *Absolutely critical. Understanding the AAA space and games as commercial art. Organizational business models* (Games Design Manager, 15 years industry experience). *We need economic designers—how to price different aspects, what are the KPIs we are balancing* (Systems Designer, 22 years industry experience). *Important—at least for perspective, to provide clarity for decisions being made* (Senior Designer, 18 years industry experience).
Is there anything else you would like to share regarding the value of academic game design programs as they relate to the needs of the game design industry?	*It's a very competitive field. You need to look at the companies you'll apply to. Get internships—game companies really value professional experience. Figure out what you want to do— learn what that discipline is doing (level designer, narrative designer, systems designer, etc.) so you're prepared to step into the role* (Associate Systems Designer, 5 years industry experience). *We need stronger relationships with game professionals, Advisory committees. Get that creative spark (*Senior Director of Recruiting for Creative, 32 years industry experience).

Phase III Procedures: Game Design Faculty

Findings from the first two phases were presented to five game design instructors. A round robin exercise was conducted to address the challenges identified, encouraging creative solutions, as shown in Figure 7. (LUMA Institute, 2012).

Figure 7
Game Design Faculty Participate in a Round Robin Exercise
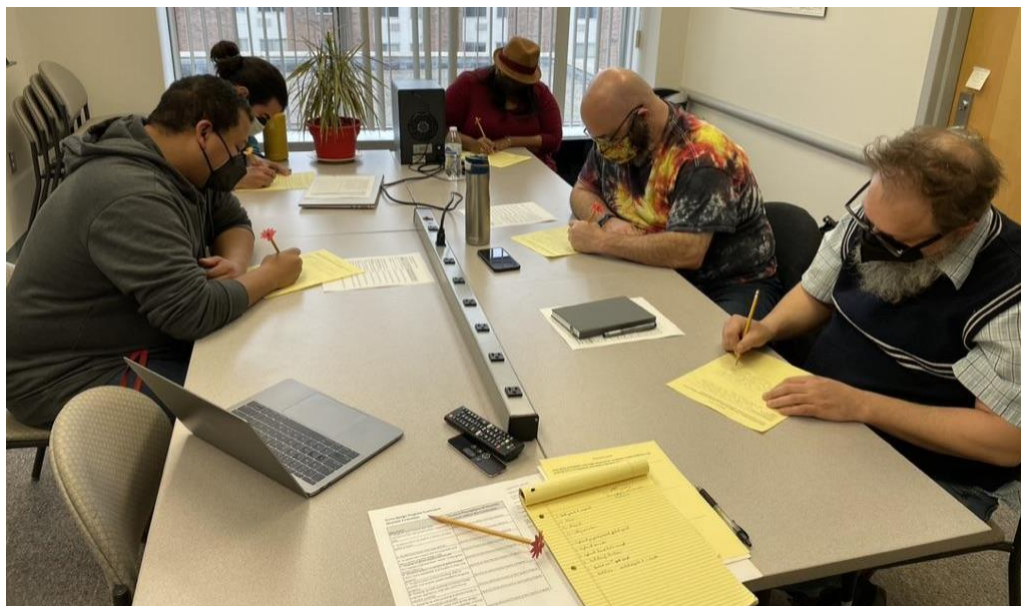
In the round robin, each participant was given a worksheet with one of the program challenges included in this statement: "How might we solve _____?" Participants were then instructed to write one unconventional solution, including as much detail as possible, and to then pass the paper to their left. In the next step, the participants read through the initial idea and write a detailed reason why the proposed solution will fail. The worksheets were then passed once again to the left, and a new concept was proposed to solve for the initial idea's critique. For each step, participants were given 3 minutes. After three iterations of proposal/critique/solution, potentially viable solutions emerged that the faculty then further discussed and even ranked by collective agreement. A completed round robin worksheet is shown in Figure 8.

The faculty members were all very engaged with the round robin process, and their collegial attitudes further enhanced the creativity needed for a fruitful exercise. The three heuristic categories (keeping pace with business trends, keeping pace with technological trends, and creating purposeful supplemental minors for game design students) were acknowledged to be valuable areas of inquiry for improving the curriculum for graduate success. The entire process concluded after one hour.

Figure 8
Completed Round Robin Exercise
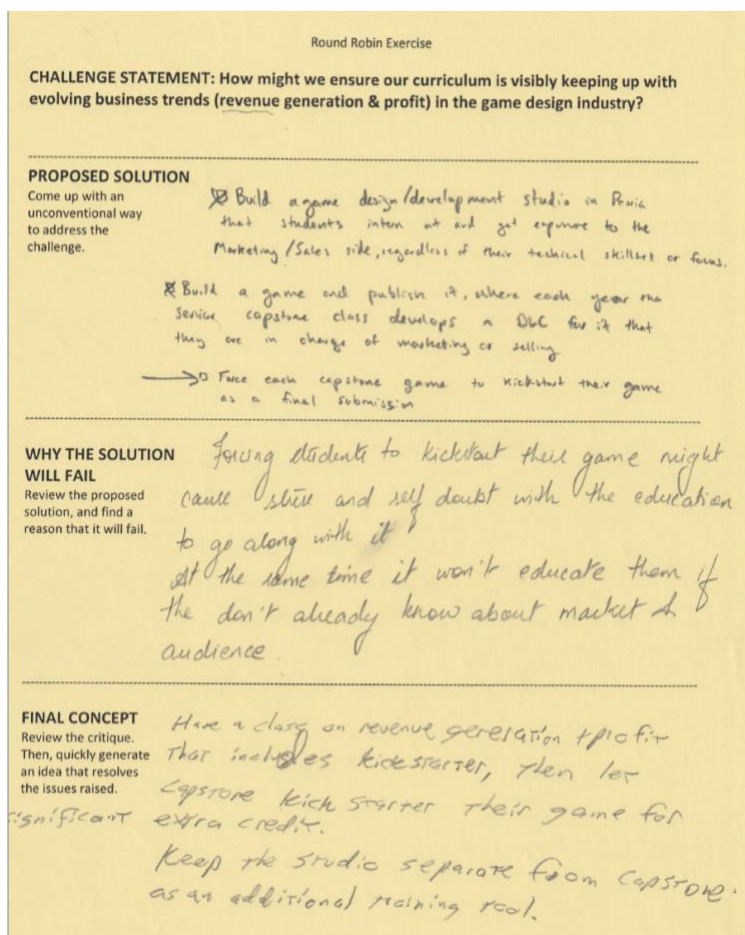
Results

The multi-stage methodology revealed important insights.

Phase I Results: Game Design Students

"I feel like I don't know what they (the game design industry) want me to know" (Senior Game Design major, Bradley University)

Students identified clusters such as Communication and Teamwork, Overall Design and Development, and Technical Skills as critical learning outcomes. The highest-voted cluster was Communication and Teamwork.

Phase II Results: Game Creators

"This is not a solved field" (Software architect, 18 years industry experience).

Interviews highlighted the importance of adaptability, creative production, and understanding industry trends. Three significant areas not recognized by students were technical and business trends and the supplementation of the curriculum with related courses.

Phase III Results: Game Design Faculty

"It was an exciting moment when people read and reacted to my idea" (Professor of Game Design, Bradley University).

The round robin exercise generated innovative solutions to curriculum challenges, emphasizing the importance of keeping up with industry trends and expanding the curriculum (LUMA Institute, 2012).

Conclusions

"It's the Wild West; the Weird Wild West, even" (Game design producer, company owner, 25 years industry experience).

A design thinking approach can leverage flexible data-gathering techniques to understand stakeholders' multidimensional needs. Strategies like affinity clustering, visualize the vote, interviews, and round robin exercises can engage and draw insights from these groups, helping programs stay relevant and produce graduates who meet the needs of an ever-changing industry. The initial research proposal included one concept poster that would visually illustrate the areas of agreement or divergence between the perspectives and opinions held by the three stakeholder groups, as illustrated in Figure 9. It became apparent, however, that the research could yield a second poster of value to visualize the *end result* of using design thinking strategies to identify and adapt curriculums to the changing market needs of the game design industry: the ideal game design graduate, represented in Figure 10. This profile may serve as a standard for the faculty and administrators to reference when considering their program's development, as well as serving as a recruiting tool for prospective program participants, to visualize the graduate and—most importantly—successful job applicant, and where they should be at the culmination of their training.

Figure 9
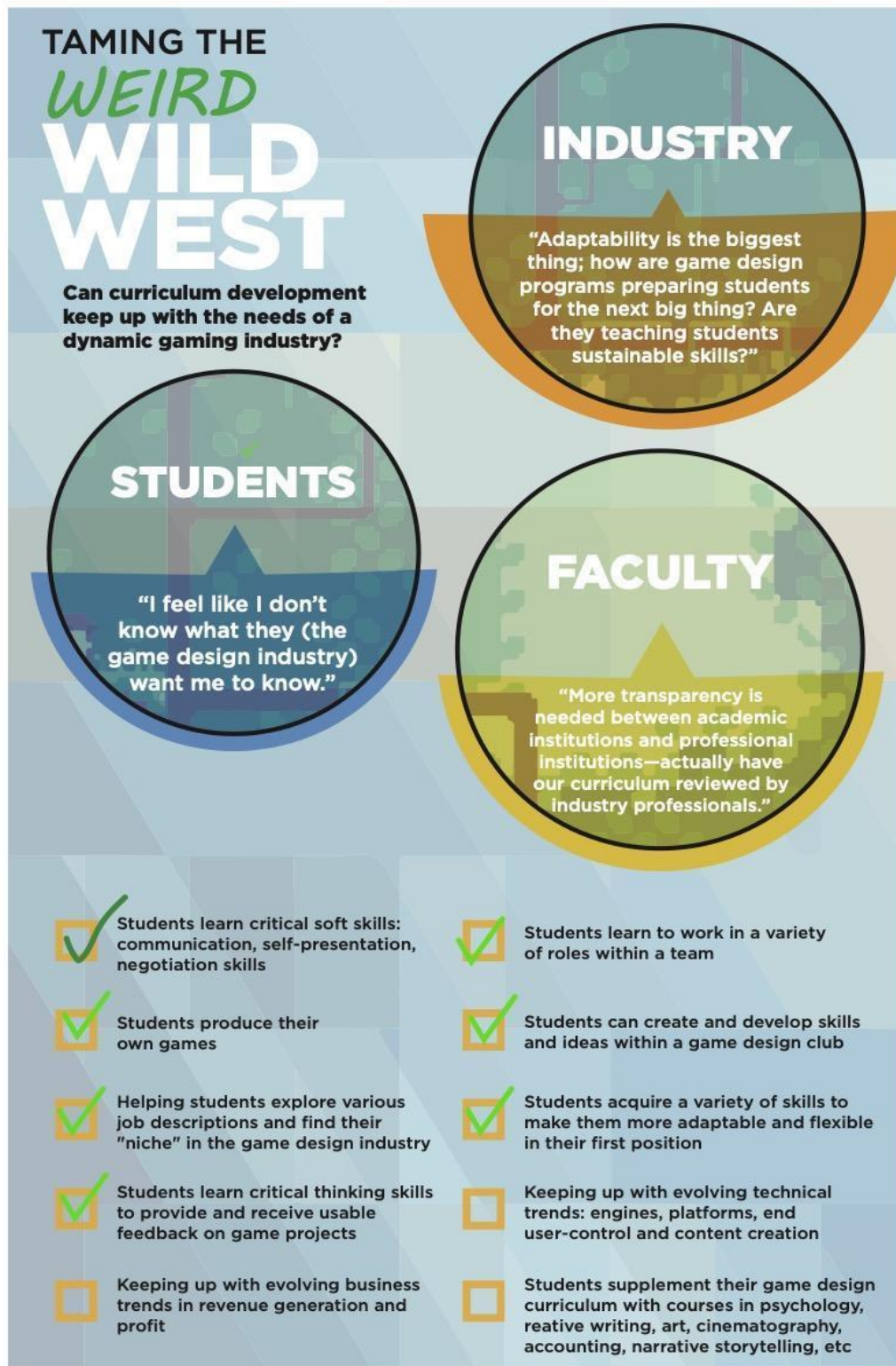*Areas of Agreement and Divergence Among Stakeholder Groups*

Figure 10
The Ideal Game Design Graduate

Author's Contributions

CM, BP: study conceptualization and methodology. CM: data collection, analysis, and writing. BP: data analysis, writing and graphic design.

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Ethics Statement

Ethical approval was granted by the ethics board committees at the authors' universities and participant college institutions. All vita and ethics certificates are on file.

Conflict of Interest

The authors do not declare any conflict of interest.

Data Availability Statement

The datasets used and/or analyzed for this research are available from the corresponding author on reasonable request. The entirety of the data collected can be found in the MFA thesis linked below.

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