




Fall 2023

## Fierce Female Friendships: An Artistic Representation and Exploration of the Benefits of Gender-Based Inclusivity and Community in STEM

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### Recommended Citation

Bachmeier-Evans, Maya, "Fierce Female Friendships: An Artistic Representation and Exploration of the Benefits of Gender-Based Inclusivity and Community in STEM" (2023). *WWU Honors College Senior Projects*. 770.

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# **Fierce Female Friendships**

An artistic representation and exploration of the benefits of gender-based inclusivity and community in STEM.

Maya Bachmeier-Evans

Advised by Professor Thomas Hummel

A Western Washington University Honors College Capstone

December 2023

## 1.

This project is both an exploration and an invitation. It gives voice and asks for voices. It reshapes past experiences and calls upon others to do the same.

## 2.

I, like many other women, have been underestimated and ignored because of my gender. When it happens, regardless of the setting, it destabilizes experience in a way I've never quite been able to articulate. The tone in someone's voice when they talk down to you, the side-eye for doing something *unladylike*, the smirk when you say the wrong answer—no matter how frequently these things happen, and no matter how familiar I am with the feelings of dismissal that result, it's difficult to find the strength to respond. And when these experiences make their way into a classroom, a space that is meant for collaboration and support, they cause alienation and dejection in equal measure. Which is why, as I began conceptualizing my Honors Senior Capstone Project, I decided to pursue the effects of gendered interactions on my daily life as a woman in mathematics.

Throughout my coursework in the Honors College, interdisciplinary approaches and empathetic calls-to-action were always present, so it seemed necessary to create a work that would put me into direct contact with an audience. In the end, I created two paintings: one based on the sense of isolation that can occur in the learning environment, and another depicting the diverse, communal atmosphere of the ideal classroom. The differences between them are few, but life-altering. It is

my hope that these works underscore how close we are to creating classrooms of care, yet how far we are from bringing them into being.

**3.**

*I firmly believe that contributions from diverse identities are not a recommendation but a necessity throughout all fields of science. They have been shown to lead not only to far better social-professional environments, but to better-designed and better-presented studies themselves.*

(Person 25)

**4.**

Beyond the paintings, and in an effort to incorporate the voices of my peers, I created a fourteen-question survey regarding experiences and perceptions of gender and gendered interactions at Western Washington University. I wanted to see if other women felt the way that I do. Despite my project's focus on STEM fields, opening this survey to all majors and genders allowed me to appreciate the unique differences of gendered experience across the academic disciplines.

**5.**

*Gender...is a constant that we're all judged by.* (Person 9)

## 6.

- If you were asked to visually depict how you feel in gendered interactions on campus without using people, gender, or personification, please describe how you would go about it. Feel free to be as creative or elaborate as you wish.
- If you were asked to visually depict the experience of receiving or witnessing microaggressions in class without using people, gender, or personification, please describe how you would go about it. Feel free to be as creative or elaborate as you wish.
- If you were asked to visually depict how your academic department creates a safe space for people of varying genders without using people, gender, or personification, please describe how you would go about it. Feel free to be as creative or elaborate as you wish.

## 7.

As I made my way through the responses to the questions above, I began to consider the ways cultural conceptions of gender are transmitted and perpetuated. From the earliest possible age, we are surrounded by image, text, and language that—just by virtue of repetition—dimensionalize and solidify traditional understandings of gender. In many ways, gender is generated by the same procedures that artificial intelligence (AI) uses to generate art. So, I decided to bring the two into direct contact.

Using the responses to those questions, I generated nearly 200 images using only texts provided by survey participants. Once I had the images, I picked the ones that most resonated with the project and compiled them into two sixteen-by-twenty-inch posters of eighty images each. The

first poster contains responses about how my peers visualize gender, and the second contains responses about how my peers visualize microaggressions and major inclusivity.

**8.**

Reproductions of my paintings and AI image collections, as well as the complete survey and the demographic data of its results, can be found at the end of this document.

**9.**

I gained more out of this project than the paintings and posters. I gained knowledge about myself and my peers. I was able to do a lot of personal reflection while completing these works, around 140 hours of reflection to be exact. The alone time I spent while painting coupled with the detailed survey responses I received, helped me in my artistic process and opened my mind to new possibilities and ideas.

Painting 1.

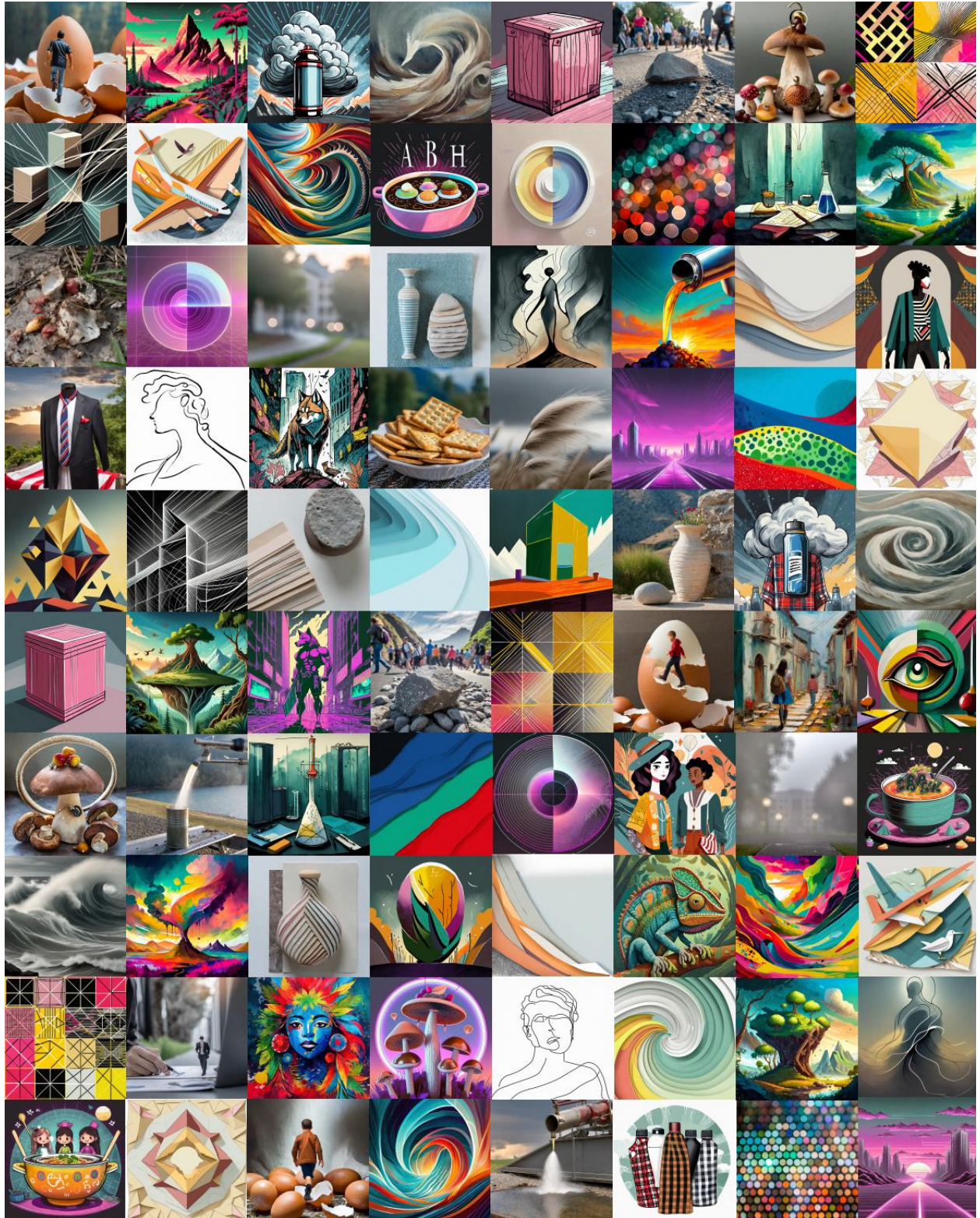


Painting 2.

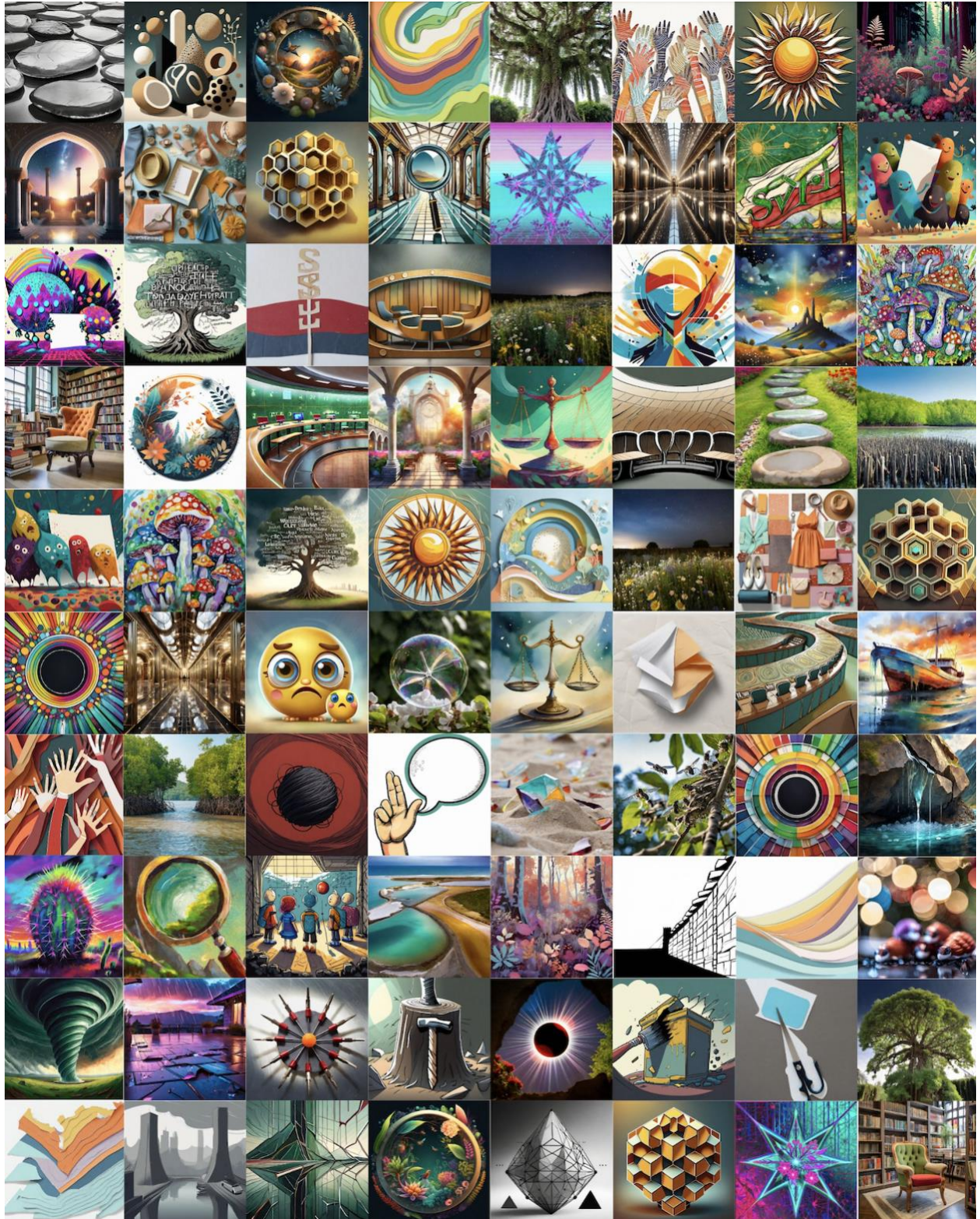




Poster 1.



Poster 2.



## Survey.

Hello! Thank you for participating in this survey for my Honors Senior Capstone Project:

I am making a series of paintings depicting the sense of isolation that can occur in spaces where you are not the gender majority in hopes of illustrating the benefits of representation within an academic community. While my project will explore gender dynamics in the WWU Math department, I would like to hear from students pursuing any STEM field at Western.

This survey asks a series of questions regarding your experiences and perceptions of gender and gendered interactions during your time at Western. But since my project involves artistic production, I've also included several questions about how you would visually depict those experiences and perceptions. Throughout the survey, please be as thorough as possible.

*Please note: since my project is centered around gendered interactions, questions regarding pronouns and age are required.*

All answers will be kept anonymous with no way of tracing your responses back to you, so please be as honest as you would like! Thank you again for participating :)

\* \* \*

**Please select your pronouns.** She/her; He/him; They/them; She/they; He/they; Other.

**Please list your major**

**Please list your age**

- **Do you know the gender-distribution percentages for your major?**
- **If you do, what are they? Do you feel that those percentages are reflected in your classroom experiences?**

- **If you don't, based on your classroom experiences, what do you think the percentages of each gender are within your major?**
- **How does gender or the perception of gender affect how you interact with peers on campus? How do you feel it affects how others interact with you?**
- **If you were asked to visually depict how you feel in gendered interactions on campus without using people, gender, or personification, please describe how you would go about it. Feel free to be as creative or elaborate as you wish.**
- **Have you ever felt uncomfortable talking to someone of a different gender at Western? If so, what caused the uncomfortability?**
- **Have you experienced or noticed microaggressions based on gender from peers in your major? If yes, please explain.**
- **Have you experienced or noticed microaggressions based on gender in classes required for your major? If yes, please explain.**
- **If you were asked to visually depict the experience of receiving or witnessing microaggressions in class without using people, gender, or personification, please describe how you would go about it. Feel free to be as creative or elaborate as you wish.**
- **What are the benefits of having peers of similar gender identity to you within your major?**
- **What are the benefits of having peers with differing gender identities within your major?**
- **Do you feel that your major offers a diverse community of peers and professors (e.g., gender, race, ethnicity, age)?**
- **In what ways does your major foster gender-based inclusivity? Or, if it doesn't, what steps could it take to create a more inclusive environment?**
- **If you were asked to visually depict how your academic department creates a safe space for people of varying genders without using people, gender, or personification, please describe how you would go about it. Feel free to be as creative or elaborate as you wish.**

## **Survey Demographics.**

*Pronouns:* 56% she/her, 24% he/him, 12% she/they, 4% they/them, 2% he/she, 2% he/she/they.

*Major:* 8% Anthropology, 2% Biochemistry, 4% business, 4% cellular and molecular biology, 2% chemistry, 6% computer science, 2% data science, 6% environmental science, 4% English, 6% environmental studies, 2% film studies, 2% financial economics, 4% history, 2% journalism, 2% linguistics, 14% mathematics (2 of 7 participants being master's students), 2% political science, 2% polymer materials engineering, 6% psychology, 4% sociology, 6% statistics, 2% urban planning, 2% vocal performance, 6% undeclared.

*Degree:* 50% bachelor of science, 46% bachelor of arts, 4% masters of science

*Age:* 12% 18, 12% 19, 30% 20, 28% 21, 10% 22, 2% 23, 4% 24, 2% 42.

*Knows the gender-distribution for major:* 96% no, 4% yes

*Thinks their major is diverse:* 14% yes excellent, 52% yes but could be improved, 20% no but not that bad, 4% not at all, 6% specifically about lack of racial diversity, 4% I don't know.