

A UMR Perspective: How Does Biology Play a Role in Identity?

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Abstract

Students were asked in the beginning of their semester in Fall of 2019 before completing Genetics (BIOL 3311) to answer how strongly they agreed or disagreed with a list of statements. Their responses were recorded on a scale of 1 (Very Strongly Agree) to 7 (Very Strongly Disagree). They were asked the exact same series of questions at the end of completing BIOL 3311 in the exact same format. Again, rating their answers on a scale of 1 to 7 with how much they agreed, or disagreed with the statement. Their recorded answers were not analyzed until after they completed their semester and final grades had been published. After their answers had been analyzed a few trends became apparent in the data;

- 1) There was an underlying bias, and students did have opinions about gender, sex and identity before taking the course.
- 2) There was a shift in the data after completing the course.

Their answers tended to reflect the idea that there is a much more socialization component to identity, rather than biology alone being the sole determining factor of identity.

Resources

Medical Treatment of Intersex: Parental Perspectives
 Feder, Ellen K. (2009). IMPERATIVES OF NORMALITY: From "Intersex" to "Disorders of Sex Development". GLQ: A Journal of Lesbian and Gay Studies, 15(2), 225-247.
 Feder, E., & Dreger, A. (2016). Still ignoring human rights in intersex care. Journal of Pediatric Urology, 12(6), 436-437.
 Wiesemann, Claudia, et al. "Ethical Principles and Recommendations for the Medical Management of Differences of Sex Development (DSD)/Intersex in Children and Adolescents." European Journal of Pediatrics, vol. 169, no. 6, 2010, pp. 671-679.
 Feder, Ellen K., & Karkazis, Katrina. (2008). What's in a name? The controversy over "disorders of sex development". The Hastings Center Report, 38(5), 33-36.
 Feder, E. (2009). Normalizing Medicine: Between "Intersexuals" and Individuals with "Disorders of Sex Development". Health Care Analysis, 17(2), 134-143.
 Viau-Colindres, J., Axelrad, M., & Karaviti, L. (2017). Bringing Back the Term "Intersex". Pediatrics, 140(5), Pediatrics, Nov 2017, Vol.140(5).
 Reis, Elizabeth, and Matthew W. McCarthy. "What Hospitalists Should Know About Intersex Adults." Perspectives in Biology and Medicine, vol. 59, no. 3, 2016, pp. 391-398.

Background

Research Questions:

- 1) Do UMR students have an opinion, or perhaps an underlying bias around how biology plays a role in identity?
- 2) If a bias does or does not exist, how does that opinion, or lack thereof, change after gaining contextual, biological knowledge?

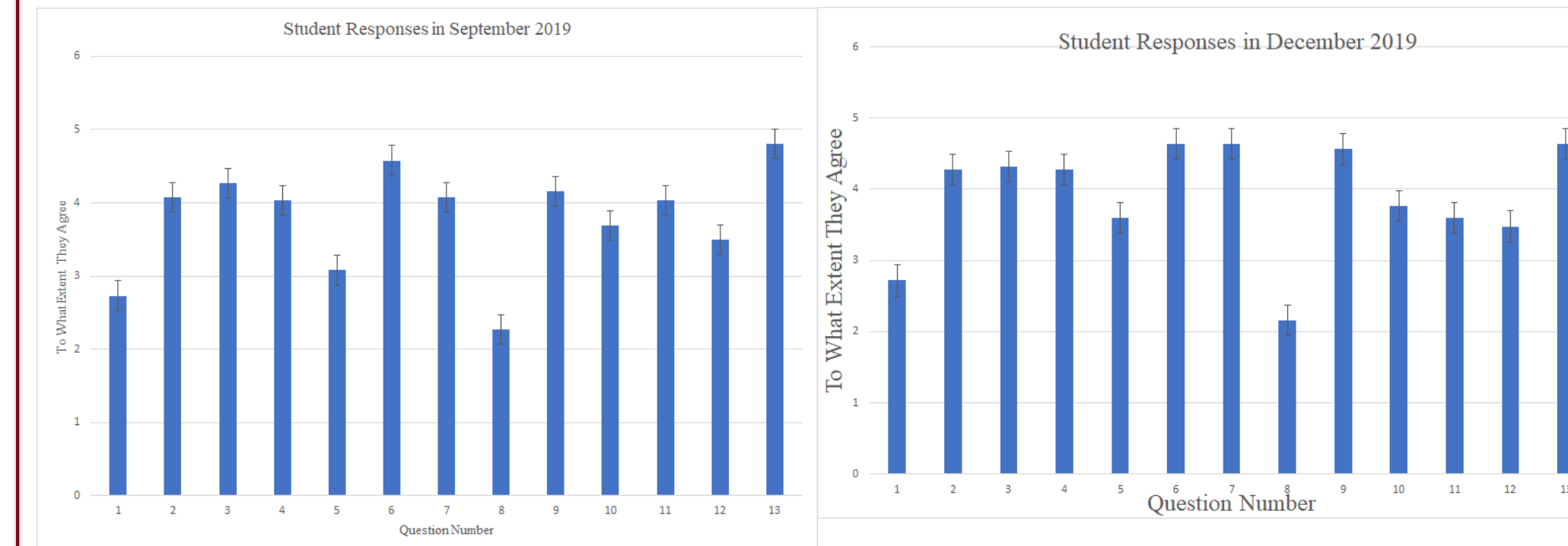
Background Studies:

- This hasn't been studied on a college campus before (Wiesemann, C, et al, 2010).
- There is reason to believe there should be a change before after completing the course (Feder, E. & Karkazis, K. 2016).
- Could this be applied in other settings, such as in athletic competitions? (Viau-Colindres, J., Axelrad, M., & Karaviti, L. 2017).

Methods

- Students were asked at the beginning of the semester; to what extent they agreed with the statements.
 - Some of the statements that were asked, were designed to induce a strong, binary response. Others were designed to induce a very non-binary response.
- The survey was given at the beginning of the semester, and at the end of the semester, in the exact same format. The alleged shift in their responses was analyzed after they completed their second response at the end of their semester.

Data and Analysis



Figures 1 and 2: The graphs above display the student responses to what extent they agree with the statements asked in September (left) and December (right) of 2019. This was asked with 1 being Very Strongly Agree, and 7 being Very Strongly Disagree.

Question Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Student Answer in Sep	2.6538	3.9084	4.2985	3.9066	3.2894	4.6941	4.3846	2.1635	4.0577	3.8346	4.0519	3.275	4.8404
Student Answer in Dec	2.7192	3.9688	4.2279	4.1212	3.4567	4.9314	4.4959	1.9594	4.1197	3.9274	4.1688	3.25	4.8226

Figure 3: The table above displays the numbers that were graphed in Figures 1 and 2. The answers that showed the greatest shift in response (Questions 8 and 11) are highlighted. Question 8 stated: *Intersex individuals should be given an opportunity to choose how they identify.* Question 11 stated: *Athletic organizations should identify competitors as either 'male' or 'female' but never 'neither' nor 'both'.* The shift in both responses indicated that the students agreed more with Question 8 after the semester, and less with Question 11 at the end of the semester.

Conclusion

As seen from the shift in responses, especially in questions 8 and 11 (as seen in Figure 3), there is a trend that can be seen in the data. The data tends to reflect the idea that the more contextual knowledge of biology and sex-determination that is gained, the less the students tend to hold the opinion that identity is biology-based. Their answers also tend to reflect the idea that there is a much more socialization component to identity, rather than biology alone being the sole determining factor of identity.