Introduction

- Socio-scientific dilemmas are becoming more prevalent in today’s modern technological society
- Majority of college students made up of non-science majors take a position on these dilemmas
- Out of the 1.9 million degrees conferred in 2014-2015, roughly only 11% were in science or engineering.
- These individuals will go on to be the next politicians, policy makers, voters, etc.

Research Question

What influences non-science major students responses when making decisions about socioscientific issues?

Methodology

Concepts in Biology (BIO 126) – 200 Student responses (99% response rate)
Introductory course for non-science majors
Survey given at the end of the semester
Included questions about socioscientific issues that were covered in class
Dual-coded student responses from those who completed survey
Coding inter-rater reliability was measured by Cohen’s kappa (0.81)

Conclusions

- Preserving health was the most popular rationale used to make decisions
- Only ~10% of students answered used evidence based rationale to make decisions
- Over half of students consistently use non-evidence based rationale across socio-scientific issues
- Very few students consistently use evidence-based decisions about socio-scientific issues

Discussions

- Students can be scientifically educated on socio-scientific issues, but that does not mean that this knowledge will become the heaviest influence on their overall decision-making
- The low prevalence of evidence based rationales could be due to the fact that these two technologies are still heavily regarded as ‘risky’ or too experimental to use

Results

Q #1: If you had genetic disease (ex: cystic fibrosis) that could be treated using CRISPR, would you use it?

Code | Description
--- | ---
Self-Preservation | I want to better my life/health, help my kid
Opportunist | Would do anything, if we have the technology let’s use it
Risk Assessment | Risk outweighs reward, potential side effects, would use if proven safe
Evidence- Based | Based off educational knowledge learned or known prior
Monetary | Don’t have the money; will use if I can afford
Ethical | Help others first; Unjust; it’s the right thing to do
Miscellaneous | Response uses personal feeling or other kind of rationale
Religion/Fate | Should not play God/ ‘Was meant to have this disease’
No Rationale | Did not provide a response. Left the question blank.

*Note that the only difference between rubrics is that Q #2 did not have a code for monetary

Are students consistent in their decisions?

| CHIMERA EMBRYO | 59% of students were consistent in answering yes to both the CRISPR and Chimera Embryo question. Chi square value $\chi^2 > 2.51 \times 10^{-4}$ was significant.
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<td>Yes</td>
<td>118</td>
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<tr>
<td>No</td>
<td>45</td>
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<td>Total</td>
<td>163</td>
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CRISPR

| Yes | 132 |
| No | 200 |

Future Directions

- Same survey to be given at the beginning and end of the course to track the effect of instruction on how student make decisions
- Analyze other socio-scientific issues to determine how consistent student rationale is across other controversial areas (ex: sex determination).

Acknowledgments

We would like to thank the C.I.C. REU program for this opportunity. This project was funded by the NSF grant number, DUE 1560142 and DUE 1852045. We would also like to thank Kurt Williams for contributing his magical statistical ideas.