

Student engagement with global issues: the influence of gender, race/ethnicity, and major on topic choice

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Abstract:

This qualitative study integrated understudied factors such as gender, race/ethnicity, and major that affect the content and emotional tone of college students' writing about global issues. Textual analysis was performed on 1511 written essay responses to an open-ended assessment prompt that was conducted for regional accreditation purposes. There were significant differences in topic choice and concomitant emotion intensities related to student demographics. Findings suggest critical strategies for instructors focusing on global engagement, including acknowledging the role of student agency and potential emotional engagement in selected global issues.

Keywords: diversity | engagement | global issues | sentiment | topic autonomy

Article:

1. Introduction

Research connecting student characteristics and global engagement is sparse. This study investigated essay topic choice among university students to address this gap. We used text mining to examine written responses to an open-ended prompt where students were free to select a global issue to analyze. Theories on culturally relevant pedagogy (CRP; Ladson-Billings Citation2014) and meaningful writing (Eodice, Geller, and Lerner Citation2017) were used to scaffold research goals. CRP recognizes the importance of including students' socio-cultural orientations in all aspects of learning. Meaningful writing relies on concepts of student agency and engagement in an academic task. Benefits derived from meaningful writing have included: leveraging students' connections with content, creating a space for intersubjective understanding, motivating student engagement by connecting writing to the real world, and helping students transfer writing skills to future lives.

Global issues address international problems of an economic, social, cultural, or humanitarian character (UN Citation2020a). 'Global problems are complex, intractable, and make human society as a whole very vulnerable' (Richard Tanter Citation2008). By prefixing the word

'issue' with the term 'global,' we assume that a global issue affects multiple stakeholders (Hane and Korfmacher Citation2020). To distinguish topics that students ought to recognize as global issues, we sought an acceptable framework. The United Nations Global Issues Forum (UN Citation2020a) identified problems that are characterized as global issues by experts (Figure 1).

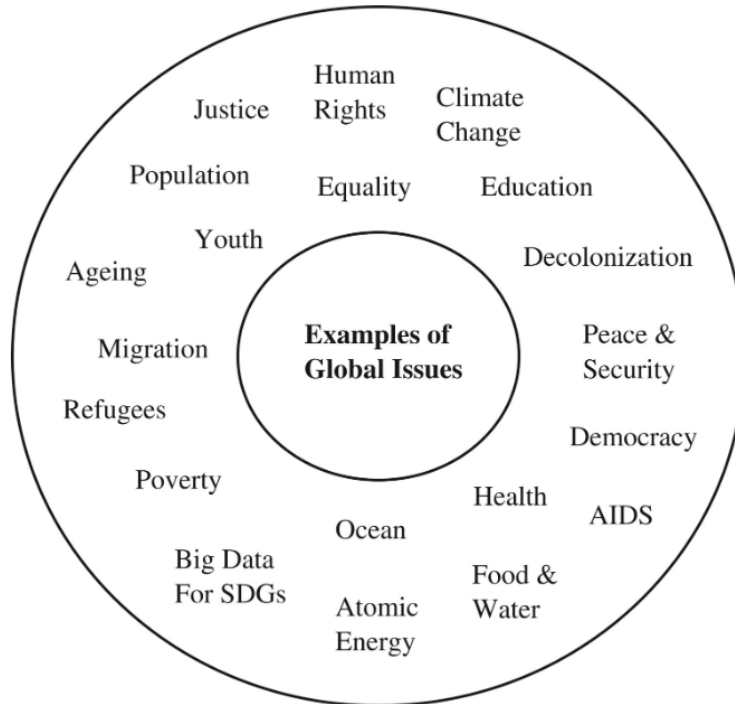


Figure 1. Issues considered global by experts.

Global engagement continues to be a critical goal for higher education, both in teaching (Rhoads and Szelenyi Citation2020; Wihlborg and Robson Citation2018) and research (Annan-Diab and Molinari Citation2017; Bebbington and Unerman Citation2018). The United Nations (UN) calls for us to 'end the poverty, protect the planet and improve the lives and prospects of everyone, everywhere' (UN Citation2020b). In 2020, a pandemic, massive unemployment, and racism-driven protests occurred simultaneously (Galea and Abdalla Citation2020). This dramatically highlighted the importance of understanding global issues and taking social action. Researchers believe that education is vital for creating needed citizen competence (Avelar, da Silva-Oliveira, and da Silva Pereira Citation2019; Cottafava, Cavaglià, and Corazza Citation2019; Vilalta, Betts, and Gómez Citation2018). According to Medium Corporation (MC), 'students who learn about global issues are more than twice as likely to see the importance of personally taking social action.'Footnote1

However, topic interest is a variable and instructors benefit from understanding what drives it, considering the many issues that might be emphasized in college courses (Anderman Citation2004). A deeper study of factors that motivate urgency among students is needed (Brock, Sanchez, and Sharpe Citation2020). To our knowledge, there is a gap concerning the effect of student characteristics on issue priority. Consequently, we focused on the relationship between student characteristics, expressed agency (choice of global issue topic), and the emotional engagement communicated when writing about the selected topic. Secondary data was examined, i.e. 1511 responses to a voluntary university-wide prompt (see Figure 2). The prompt formed the

basis for regional accreditation assessment of undergraduate students' engagement with global issues.

- 1) Please state the issue you chose. Of all the issues you could select, briefly explain why you selected this one. Identify and evaluate contributing factors of the international or global issue that you selected.
- 2) Identify and evaluate two or more different ethical perspectives on this issue. State your own ethical position or perspective on the issue, what you wish would happen and give reasons to justify this position.
- 3) If you were assigned to work on a project related to the issue you chose with another student from your class who was from another culture, how would you approach communication in light of any cultural differences? Explain why and give examples

Figure 2. Prompt instructions provided to university students.

Study findings should prove insightful for global engagement initiatives. Contributions are made to theories on CRP and meaningful writing by clarifying if student characteristics associate with emotional intensities linked to individual global issues. Going forward, the literature outlines a theoretical justification for the study. Following that, the methodology is detailed in section three. The fourth section presents results, and the discussion and conclusion are provided in sections five and six.

2. Theoretical background

Assumptions driving the study derive from two areas. One is CRP, which recognizes the influence of students' lived experiences on teaching and learning (Ladson-Billings Citation2014). Second is the literature on meaningful writing (Eodice, Geller, and Lerner Citation2017). Global issues are the context for student topic choice, while global engagement is viewed as a form of student engagement measured via emotion scores.

2.1. Culturally relevant pedagogy

CRP research has demonstrated that teaching is a situated activity (Tsui and Ng, Citation2010) where teachers can potentially deepen and deploy cultural knowledge about their students (Milner Citation2011). Teaching can 'refocus instructor attention on the larger social, cultural, and institutional structures within which pedagogical choices are deployed' (Lawrie et al. Citation2017). For example, student responses to topics such as race or immigration might be constructed based on students' internalized definition and personal experience with concepts such as oppression or structural inequality (Testa and Egan Citation2014).

Teachers have fostered social change (Davis et al. Citation2008) by increasing students' cultural capital (Stephens et al. Citation2015) and empowering students (Pappamihel and Moreno Citation2011). CRP has provided opportunities to safely communicate student perspectives (Matusov Citation2001) and address intersubjectivity. Intersubjectivity focuses on interactions

between students and others (teachers, disciplines, other students) during the learning process (Fridberg et al. Citation2019; Gunn Citation2014; Hane and Korfmacher Citation2020). Some authors define intersubjectivity as the process of synthesizing viewpoints in creating knowledge or agreement (Lim et al. Citation2017; Lim and Hall Citation2015). In this vein, intersubjectivity infers a student's receptivity to multiple perspectives. Instructional designs inviting students to share inner subjectivities have included cultural autobiographies (Davis et al. Citation2008; Martell Citation2013), personal histories (Hutchison and McAlister-Shields Citation2020), 'testimonio' (Coleman Citation2020), and critical self-reflection exercises (Evans, Muijs, and Tomlinson Citation2015), although these reflective tools are no guarantee of truthfulness (Geiger Citation2016).

2.2. Theory on meaningful writing

CRP has moved writing instruction from an exercise in summative scoring to serving as a channel for student agency and voice (Kiss and Mizusawa Citation2018). Meaningfulness has been interpreted in various ways. Gupte et al. (Citation2021) envisioned chemistry writing as a way for students to access prior knowledge and creatively solve problems. In another case, students addressed external audiences, in hopes of writing for genuine impact (Thorson Citation2018; Wargo Citation2020). However, instructor-defined meaningfulness has been largely dependent on formulaic writing goals (Labaree Citation2020), i.e. emphasizing disciplinary jargon, writing conventions, or rigidly structured genres of academic writing. Others draw attention to the student's personal drive to write, i.e. that students can become invested in written communication as a form of student voice influenced by one's socio-cultural milieu (Barnes Citation2020; McKenney Citation2018; Yoo Citation2017). Meaningful writing theory (Eodice, Geller, and Lerner Citation2017) incorporates important constructs such as student agency and student engagement.

2.2.1. Student agency

Agency has been defined as the 'socio-culturally mediated capacity to act' (Ahearn Citation2001, 112), including reflection of and on one's identity, competencies, knowledge and values (Nagaoka et al. Citation2015). In meaningful writing, agency manifests when 'students had or made a connection to the content of the project itself, which, in turn, mapped onto students' sense of their past, present, and future lives' (Eodice, Geller, and Lerner Citation2017, 40). Instructors encourage agency through assignments that recognize student social embeddedness (Hedengren Citation2018). Gardner (Citation2018) argued for 'pedagogy of writing in which the writer is as much learning about the self and the self as a social agent, as they are about the writing process. In the construction of meaning at the level of text, the writer operates as a reflective practitioner, teasing out the social, cultural, political, intertextual folds' (12). Writing is a responsive engagement with the world from a subjective standpoint (Gardner Citation2018). Accordingly, we see agency in students expressing their inner subjectivities and reactions to global issues through topic selection and subsequent writing.

2.2.2. Student engagement

Student engagement is a multifaceted construct, i.e. cognitive, behavioral, and/or emotional in nature, and able to vary in intensity and duration (Fredricks, Blumenfeld, and Paris Citation2004). Engagement may develop from the ways in which 'personal connections to a writing topic brings the student to the topic and carries the student's thinking to the future' (Eodice, Geller, and Lerner Citation2017, 62). Results from Inda-Caro et al. (Citation2019) confirmed that teaching strategies that drew upon students' prior knowledge and helped students see personal relevance explained a large amount of the variance in the emotional engagement of students. In essay writing, 'participants were more likely to generate a higher quality essay when they reported a greater incidence of the affective states associated with that topic, irrespective of whether these affective states were positive (i.e. happiness and engagement/flow) or negative (anger and disgust)' (D'Mello and Mills Citation2014, 151). In this study, we extracted measures of emotion from essays to operationalize student engagement with a global issue, assuming emotional engagement with topics might affect student's performance on related tasks.

A single global issue can map differentially onto each individual student in a course (Brock, Sanchez, and Sharpe Citation2020). Past exposure to an issue matters (Brunell Citation2013; Russell Citation2018). For example, taking a mission trip correlated with post-trip civic activity (Beyerlein, Trinitapoli, and Adler Citation2011). There is evidence to suggest that demographic factors will influence college students' emotional intensities around issues (Brock, Sanchez, and Sharpe Citation2020; Hermida Citation2010). Emotions have been described as socially patterned; they reflect the time and place [and role] an individual occupies (Molz Citation2017). Although individual student writers can each represent a complex intersection of gender, age, social class, ethnicity, major, and many other classifications, this study looks specifically at gender, race/ethnicity, and major – the variables available in the secondary dataset.

Gender. Some issues are gendered, i.e. women's issues, such as child marriage, child sex ratios, property rights, inequities in employment, and basic physical security (Den Boer and Bode Citation2018). It is also possible to discriminate male and female interests, e.g. male students are more interested in economics (Förster and Happ Citation2019). Gender conceivably is a factor affecting student interest in topics for writing about global issues (Preiss et al. Citation2013).

Race/ethnicity. Bonyadi and Zeinalpur (Citation2014) found that social affiliations influenced students' topic selection. For example, 'Black male doctoral students' interests [included] working to solve problems faced by communities of color' (Platt and Hilton Citation2017, 36). Concern about micro-aggressions varied across groups (Sue Citation2010) and 'many white students were uncomfortable talking ... about any topic perceived to be "racial"' (Lewis-Charp Citation2003, 2). Such findings make plausible theoretical linkages between race/ethnicity and particular global issues.

College major. College major is an important factor in interpreting student engagement in issues (Barry and Ohland Citation2009; Culver et al. Citation2013). Law and medicine programs require significant community service, while business schools less so (Coulter, Wilkes, and Der-Martirosian Citation2007). After service-learning, business students increased their belief that the world is a just place, while other majors' scores declined (Seider, Gillmor, and Rabinowicz Citation2011).

2.3. General statement of research purpose

This study contributes to work on CRP and meaningful writing by investigating essay topic selection and seeking insights on student agency in this context. Firstly, we document what global problems were prioritized by whom and why students chose these topics. Analysis explored whether agency (operationalized as topic choice) was influenced by gender, race/ethnicity, and college major. To clarify this goal, we offer the following proposition:

R1 Choice of global issues topics will vary significantly across groups of students distinguished in turn by gender, race/ethnicity, or major.

Secondly, we assessed the sentiments resident in the essays, addressing the following propositions. Sentiment was used to measure emotional engagement (Reeve and Tseng Citation2011):

R2a The emotional profiles of student narratives will vary across topic clusters.

R2b The emotional profiles of student narratives will vary across selection reasons.

R2c The emotional profiles of student narratives will vary across groups of students distinguished in turn by gender, race/ethnicity, or major.

Figure 3 diagrams key concepts in our study. Student engagement (sentiment) is portrayed as an implicit mediator between student agency (topic selection), and subsequent outcomes, including positive evaluations of the student task, i.e. denoting writing about global issues as a meaningful activity. Since we did not have data on explicit outcomes, we drew a dotted line to that factor.

3. Methods

We used a secondary dataset of essays responding to a global engagement prompt. Using text mining, we examined: (1) the global issue selected by students (agency); (2) reason for topic selection; (3) emotional tone (engagement) of students' narratives; and (4) the role of student demographics (gender, race/ethnicity, and major).

3.1. Positionality statement

We viewed student identity as a factor in teaching due to our interests in identity formation and security in information networks as well as identity and intersectionality in business organizations. Ultimately, we believed identity could be described using socially constructed self-reported variables, including gender, race, and disciplinary focus. We also perceived an individual's identity as something to be nurtured and/or protected through the application of appropriate technology or teaching strategies. With respect to the use of sentiment scoring to determine tone in student writing, we concurred that strong sentiments towards a global issue (regardless of whether positive or negative) might correlate with bounded rationality when students were invited to discuss a topic.

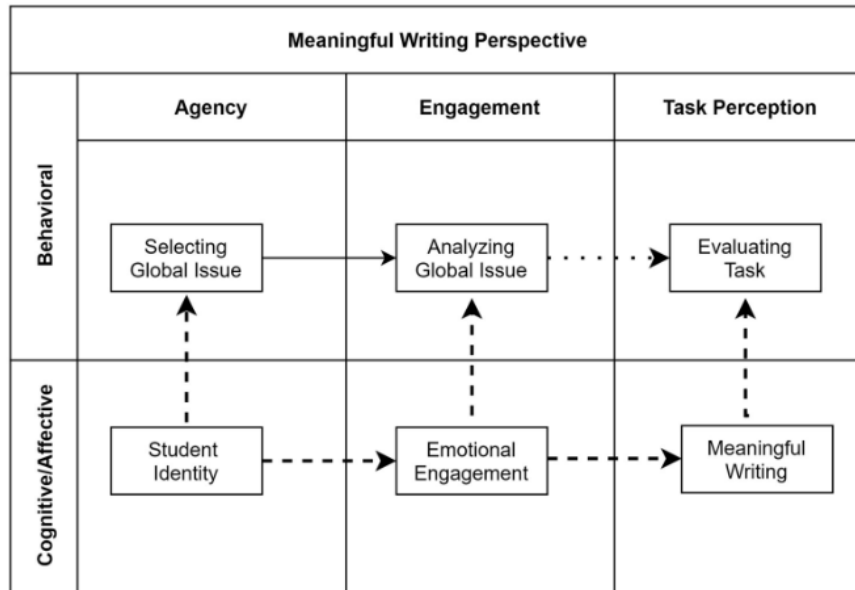


Figure 3. Applying meaningful writing theory to global issues analysis.

3.2. Data collection

The unit of analysis comprised essays submitted during an online global engagement assessment activity within a public university in North Carolina, USA. Faculty/experts in assessment and global learning jointly crafted the writing prompt, which was piloted with a study abroad cohort. No word length was required of students. We obtained a spreadsheet of textual essays that constituted 2014 records, with gender, major, and race/ethnicity data. Essays in the lower 25th percentile of word length (below 228 words) were deleted, yielding 1511 records. Data reduction was prompted by studies showing the quality of essays was consistently associated with essay word length (Kyle Citation2020; MacArthur, Jennings, and Philippakos Citation2019) and a methodological assumption that keywords have a higher probability of occurrence in longer texts, supporting more robust sentiment analysis. No bias was noted in major variables after record deletions.

3.3. Analytical methods

Topic analysis. We applied Structural Topic Modelling (STM) to determine proportionalities of essay topics selected (Roberts, Stewart, and Airolti Citation2016). STM discriminates word sets using covariance-based estimates (Roberts, Stewart, and Tingley Citation2014). STM is widely used (Sachdeva, McCaffrey, and Locke Citation2017), e.g. in higher education, Reich et al. (Citation2015) mapped discussion themes with STM. We used manual content analysis to pinpoint topic choice rationales by recognizing surrounding phrasing such as ‘I chose this topic because.’

Sentiment analysis. Sentiment discovery and analysis (SDA) describes underlying attitudes, sentiments, and subjectivity (Han et al. Citation2020). Lexicon-based matching to text words drives sentiment identification, disregarding syntax and grammar (Naldi Citation2019; Taboada et al. Citation2011). A single lexicon tracks a specific emotion and may also measure intensity, i.e. degree of positiveness/negativeness (Naldi Citation2019; Shama and Dhage

Citation2018). Troisi et al. (Citation2018) applied SDA to examine the empathy gap between teachers and students, while others compared/coordinated sentiment and cognitive goals (Crossley, Kyle, and McNamara Citation2017). Sentiment scores have been linked to behavioral engagement, i.e. interaction frequency and student effort (Han et al. Citation2020). Syuzhet package in R is widely used (Liu and Lei Citation2018; Valdivia, Luzón, and Herrera Citation2017). It scores anger, anticipation, disgust, fear, joy, sadness, surprise, and negativity/positivity sentiments (Jockers Citation2017). The Syuzhet lexicon comprises 10,748 words with an associated valence range, spanning the $[-1, 1]$ range. For example, 'awful' and 'brutal' carry values of -1 while 'constructive' and 'satisfied' carry values of $+1$. We used Syuzhet to extract sentiments from student essays and divided scores by essay length to calibrate scores. Text analysis output was combined with demographic data for use with SAS and SPSS statistical procedures.

4. Results

4.1. Profile of student participants

Almost three-quarters of students identified as female (Table 1). Freshman were dominant (oversampled due to assessment protocols), followed by seniors, juniors, and sophomores. The actual student body comprised Black/African American (28.4%), Hispanic (9.2%), White (48.2%), and other (14.2%). Deviations from this in our samples were deemed negligible given overall n-sizes of these samples available for analyses. Table 1 shows that subgroup breakdowns between the original and the refined data sets were reasonably similar.

Table 1. Characteristics of student participants.

	Original sample (all texts included) % of 2014 records	Refined sample (texts \geq 228 words) % of 1511 records
<i>Gender</i>		
Female	72.1%	73.4%
Male	27.9%	26.6%
<i>Class</i>		
Freshman	41.8%	39.6%
Sophomore	14.6%	13.5%
Junior	20.7%	21.6%
Senior	22.6%	25.3%
Unclassified	0.3%	0.3%
<i>Race/ethnicity</i>		
Black or African American	27.9%	25.5%
Hispanics of any race	11.8%	12.7%
White	46.2%	48.0%
Other	14.1%	13.8%
<i>Major cluster</i>		
Arts, Humanities, & Social Sciences (AHS)	43.8%	44.7%
Business & Economics (BUS)	21.4%	20.6%
Health Sciences & Nursing (HSN)	21.8%	22.2%
Science, Technology, & Mathematics (STEM)	13.0%	12.5%

4.2. General nature of student global issue essays

4.2.1. Overview of topics selected by students

STM yielded models ranging from 8 to 15 word sets. The 13 topics model was parsimonious, with discrete word sets that were internally consistent. Table 2 provides proportional frequencies of topics, and word sets extracted. Looking at topic 2, the words 'immigration, migrant, illegal, legal, families, border, and Mexico' were its seven highest frequency words, which led us to name it 'Immigration.' Table 2 shows that 10 of the 13 extracted topics matched United Nations topics. Appendix 1 shows student statements to further elucidate topics.

An STM topic correlation feature graphically linked topics. Figure 4 illustrates five entities, including two clusters. Economic development, poverty, food crisis, and climate were conceptually connected, as were human rights, assimilation, race, world conflict, immigration and diversity. Education, global health, and miscellaneous were independent entities with no semantic overlap with other global issues. To simplify analysis, these five entities were used for further statistical processing rather than using all 13 topics as comparison subgroups.

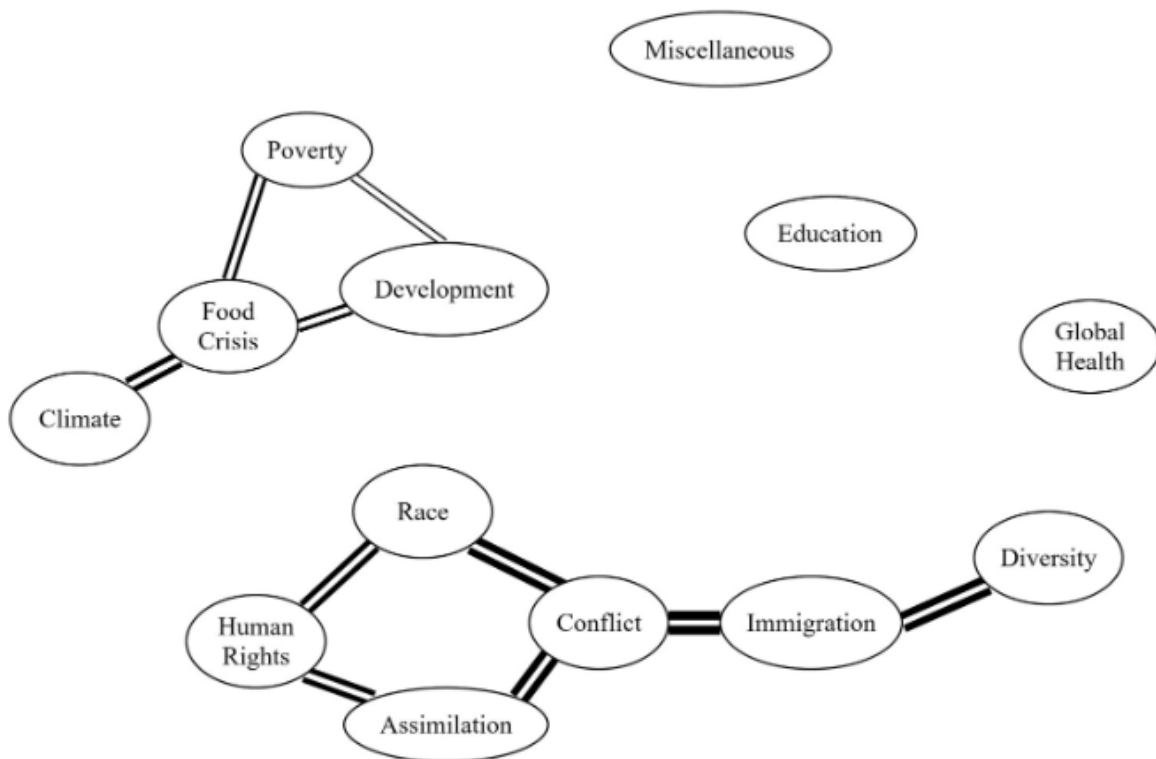


Figure 4. Topic correlation network from STM.

Table 2. Proportional topic selection.

United Nations topics	Proportional frequency of student essay topics (100% of n = 1511)	Seven highest frequency terms in topic category (with given topic label in parentheses)
Equality	16.5%	Perspective, ethic, factor, individual, respect, contribute, approach (Diversity)
Migration	13.4%	Immigration, migration, illegal, legal, families, border, Mexico (Immigration)
Education	10.4%	Teacher, school, education, college, teach, student, test (Education)
Human Rights	8.4%	Women, abortion, rights, trafficking, gender, sexual, men (Human rights)
Climate Change	7.6%	Warm, climate, pollution, planet, earth, animal, carbon (Climate)
Health Care	6.5%	Healthcare, health, medic, mental, vaccine, public, care (Global health)
Food and Water	5.3%	Food, hunger, water, eat, meet, waste, clean (Food crisis)
Peace and Security	4.0%	Conflict, war, peace, gun, attack, political, elect (World Conflict)
Ending Poverty	1.3%	Poverty, alleviate, poor, read, aid, assist, money (Poverty)
Refugees	1.2%	Refugee, language, English, learn, new, speak, accept (Assimilation)
<i>UN topics not selected by students in study</i>	<i>Topics selected in sample not aligning with UN topics</i>	
Ageing	Race (2.8%)	Black, police, racism, white, African, race, brutal (Race)
AIDS		
Atomic Energy		
Big Data for the SDGs		
Decolonization		
Democracy International Law and Justice		
Oceans and the Law of the Sea		
Population		
Youth	Development (.6%)	Business, drug, company, economy, labor, technology, worker (Development)
	Miscellaneous (22%)	Thing, think, don't, just, get, talk, reality (Miscellaneous)

4.2.2. Reasons for topic choices

When asked why they chose their essay topics, over two/fifths of students pointed to it being an important global (25.2%) or ethical (23.5%) issue, followed by having personal experience (19.4%) with the issue. Additional reasons were seeing a problem as controversial and/or politicized (14.0%), viewing it as related to the major (6.5%), or having personal interest (5.0%) in the topic. Lastly, students saw an issue as a hot topic (2.5%), an intercultural problem (2.1%) needing attention, or an overlooked issue (1.8%). With respect to academic class, there was a monotonic increase in choosing a topic related to one's major as we moved from freshman (3.4%) to senior status (10.0%) (Chi-Square = 48.326, d.f. = 24, $p = .002$). Seniors (7.9%) were also twice as likely than freshman (3.5%) to select a topic based on personal interest. Figure 5 demonstrates that controversial topics associated with higher anger and fear and lower positivity and the related to major rationale had higher anticipation and positivity and lower fear scores.

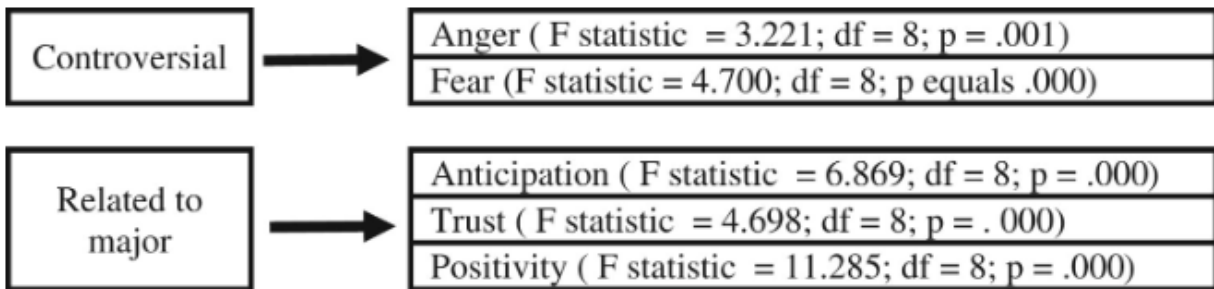


Figure 5. Selection reasons with comparatively higher emotion intensities.

4.3. Comparisons of chosen topic, selection reasons, and emotional intensities

4.3.1. Gender comparison

Figure 6 compares topic choice between genders. Numbers on the horizontal axis are mean differences in topic proportions. Values below zero (0) indicate males chose the topic more than did females. Male-identified subjects were more likely to write about climate change, world conflict, diversity, and economic development, while females were more likely to write about global food crises, human rights, healthcare, race, and education topics. The topics of immigration, poverty, and assimilation were gender neutral.

The gender groups did not exhibit different reasons for topic selection (Chi-Square = 9.229, $df = 8$, $p = .323$). No direct effects of gender were evidenced on any of the emotion intensity scores (t-statistics ranged from .092 to 1.105; $df = 1509$; p-values ranged from .269 to .927). Thus, while gender was associated with choice of topic, no relationship was perceived between gender and sentiments displayed in student essays.

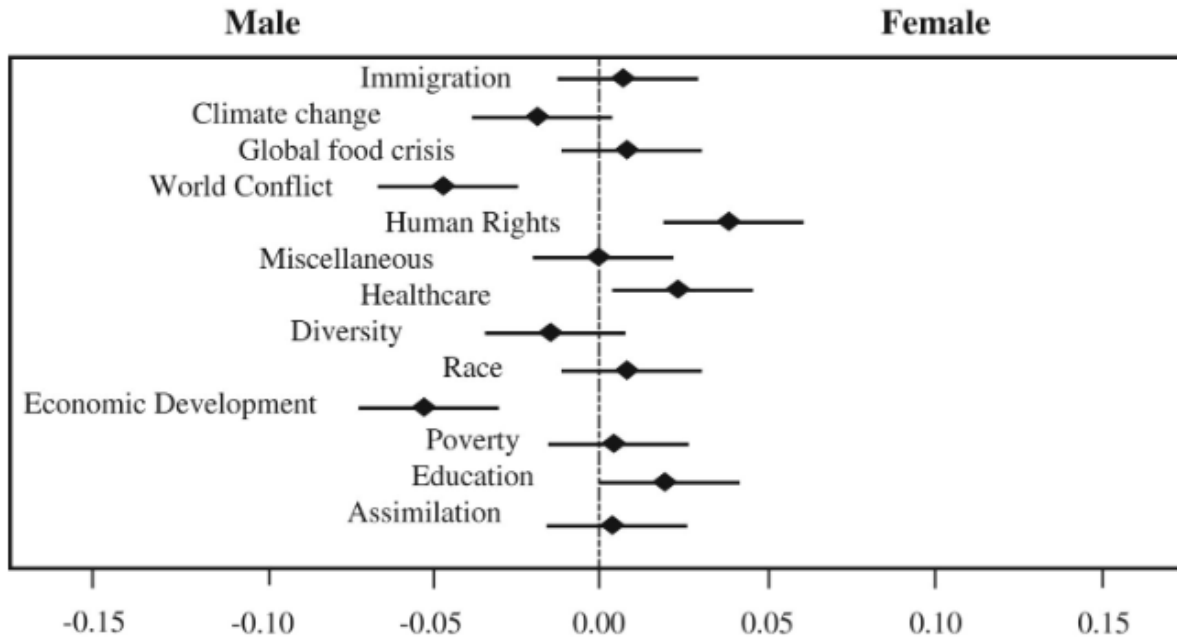


Figure 6. Topic choice by gender.

4.3.2. Race/ethnicity comparison

Students self-identified as White, Black/African American (herein reported as Black), or Hispanic. Figure 7 provides insight into three binary comparisons. We see that immigration is frequently addressed by Hispanic students compared to Black and White students, while race is more often discussed by Black students compared to the rest. Conversely, global food crisis, world conflict, and poverty topics are close to the middle which means they were discussed equally among all groups. On the other hand, climate change and diversity topics appeared more frequently in White students' essays. Regarding reasons, being globally important was the dominant selection reason across all groups. Some differences emerged (Chi-Square = 58.298, d.f. = 24, $p = .000$). Black students were more likely to choose topics they viewed as ethical issues (32.8%) than White (19.4%) or Hispanic students (23.6%), and less likely to state their topic was controversial (9.3% vs. White = 15.3% or Hispanic = 15.2%). Hispanic students were most likely to select a topic based on having personal experience with the issue (25.7%) compared to White (18.5%) or Black students (18.3%). White students were twice as likely (9.1%) to choose a topic related to their majors compared to Black (4.1%) and Hispanic students (4.7%).

Looking at racial/ethnic comparisons of sentiment scores in Table 3, White students demonstrated marginally lower anger (F-statistic = 3.562, d.f. = 3, $p = .014$), disgust (F-statistic = 3.16, d.f. = 3, $p = .091$), fear (F-statistic = 2.491, d.f. = 3, $p = .059$), and sadness scores (F-statistic = 2.821, d.f. = 3, $p = .038$), than did Black students. White students' essays had higher positivity scores than did essays of either Black or Hispanic students (F-statistic = 6.498, d.f. = 3, $p = .000$).

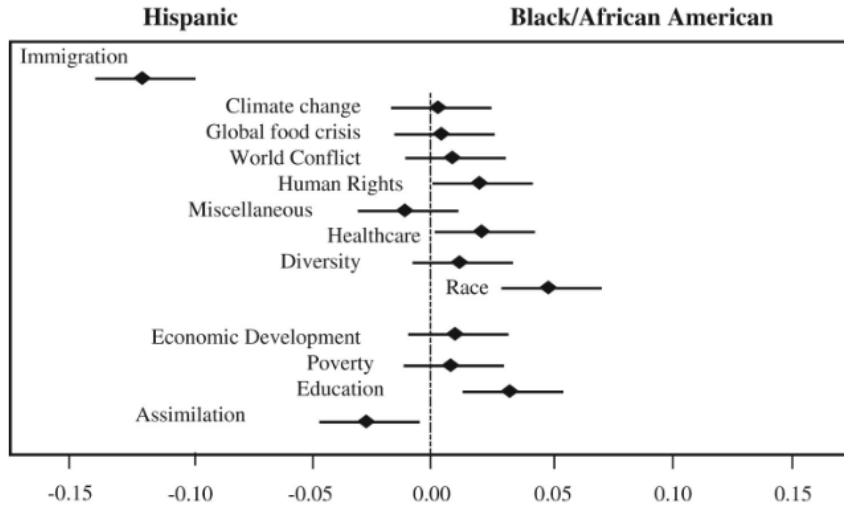


Figure 7b

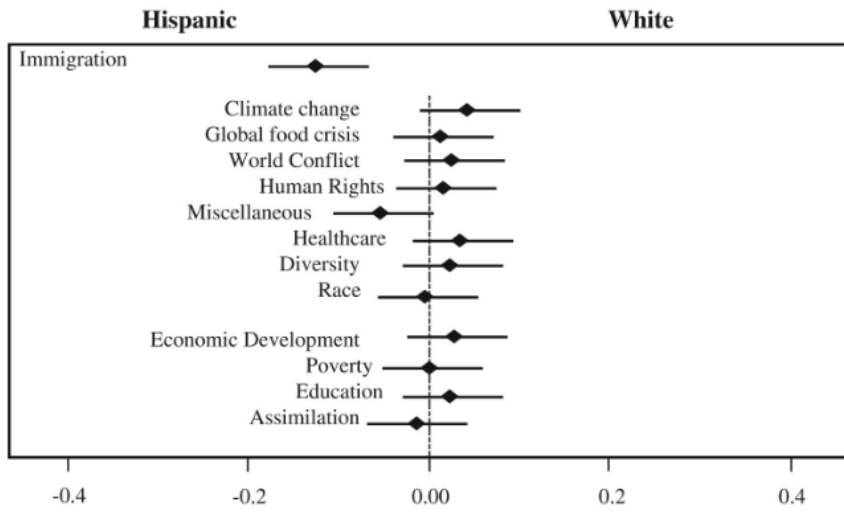


Figure 7c

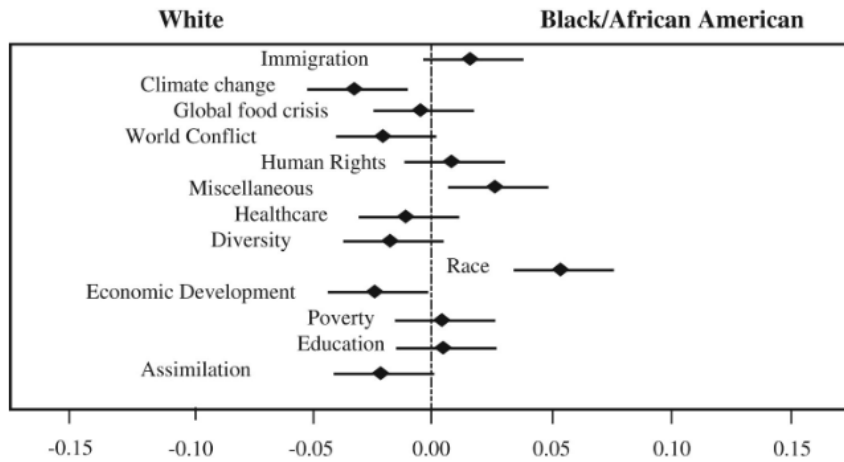


Figure 7. Topic choice by race/ethnicity.

Table 4. Proportional frequency of topic selection by major clusters.

	Arts, Humanities & Social Sciences (v596)	Business & Economics (n = 272)	Health Sciences & Nursing (n = 329)	Science, Technology, & Mathematics (n = 180)	Sample Overall (n = 1377)
Assimilation	1.7%	1.5%	0.9%	0.6%	1.3%
Climate	6.4%	8.8%	4.9%	12.2%	7.3%
Development	0.5%	2.6%	0.3%	0.0%	0.8%
Diversity	17.4%	16.9%	21.0%	18.3%	18.3%
Education	10.6%	10.7%	9.1%	9.4%	10.1%
Food Crisis	4.5%	7.0%	4.6%	2.8%	4.8%
Global health	3.2%	4.0%	13.1%	11.7%	6.8%
Human rights	9.7%	5.9%	7.9%	5.6%	8.0%
Immigration	12.6%	12.9%	12.8%	9.4%	12.3%
Poverty	1.3%	2.9%	0.3%	1.1%	1.4%
Race	3.0%	2.6%	2.1%	2.7%	2.7%
World Conflict	4.5%	4.0%	3.3%	3.3%	4.0%
Miscellaneous	24.5%	20.2%	19.8%	22.8%	22.3%
Total	100%	100%	100%	100%	100%

n.b. Chi-Square = 44.686, df = 24, p = .006.

4.3.3. College major comparison

Table 4 shows some differences across majors' topic selections as well as similarities (Chi-Square = 94.938, $df = 36$, $p = .000$). Selections of education, diversity, immigration, world conflict, or race as topics were equivalent across the major clusters. On the other hand, BUS majors had a greater propensity to write about poverty, development, and food crises but comparatively lower engagement with human rights. HSN students demonstrated greater propensities to select global health as a topic and a lower selection of poverty. Finally, STEM students had higher tendencies to select climate and health issues and fewer choices of food crises or human rights as topics.

Dissimilarities across major groups emerged concerning reasons for choosing a topic (Chi-Square = 44.686, $df = 24$, $p = .006$). Fewer STEM students characterized their topics as controversial (10.0%) compared to AHS (14.6%) or BUS students (17.6%). STEM students had lower instances of personal experience with their topic (15.6%) than did BUS students (23.4%). STEM students mostly relied on rationales of the issue being an ethical or global societal concern (52.8%). HSN students were distinguishable only in their propensity to select topics relevant to their majors (10%) compared to AHS (6.5%), BUS (3.1%), and STEM (6.1%). Regarding sentiments, most of the emotion measures were indistinguishable across major clusters. The only anticipation showed any difference, there being lower word frequency of anticipatory terms in essays of AHS majors (F -statistic = 2.630, $d.f. = 3$, $p = .049$).

5. Discussion

The top five topics were diversity, immigration, education, human rights, and climate. Close to 75% of the issues identified in this study matched global issues listed on the United Nations' website (UN Citation2020a). Thus, findings show students can identify high-priority global issues. Although many students chose topics because they were globally or ethically important, findings suggest that previous personal experience primes some students to select a topic when given free choice, consistent with Eodice, Geller, and Lerner (Citation2017). Student agency partially rests on giving students opportunities to connect topics to past, present, or future lives.

5.1. Reasons for topic selection and related sentiment

Although common selection reasons, choosing 'a globally important topic' or 'an ethical problem in society' did not associate with strongly positive or negative emotion scores. This suggests the likelihood of greater emotional distance between students and topics when generic notions of societal wellbeing, general expectations of morality, or professional codes of ethics are used to justify engagement with an issue. Having personal experience, e.g. having parents who immigrated to the U.S., also did not align with strong emotions compared to some of the other rationales, such as choosing controversial or major-related issues. This was unexpected since personal experience was anticipated to trigger stronger emotional connections to a topic.

Tones of anger or fear were significant for controversial topics. Yet this might be instinctive rather than intentional, intimating that, with controversial topics, negative

language needs to be anticipated, monitored, and managed. Conversely, students choosing topics relevant to their majors demonstrated more anticipation, trust, and positivity in their essays.

Some of the rationales inferred competing third party influences on topic choice. In the first case, students who chose topics related to their major expressed higher trust and general positivity compared to students who chose 'hot news/social media topics.' Possibly, the college experience is a more effective mentor of student engagement with society than is the general media. In the second case, students who chose 'overlooked' topics were perhaps attempting to nudge public action by focusing attention where others do not. However, unlike students who chose topics related to their majors, they did not express high levels of anticipation or general positivity, i.e. the type of positivity that might accompany passionate advocacy for an underrepresented issue. Perhaps, issues that are controversial or overlooked were perceived as harder. With major-related topics, there may be a clearer path forward as well as an acceptable return on time and effort in tackling familiar issues. Dealing with 'overlooked' issues may not provide similar rewards, which introduces the problem of how to motivate students to advocate for less popular concerns.

Notably, there were no overt pragmatic explanations for topic selection, such as lessening mental or physical effort on the task. The responses to why they chose the topic do, however, suggest that the relationship between topic and student is a salient idea that some students can articulate. Moreover, the selection rationale may anticipate students' tone in writing samples.

5.2. Demographic differences in topic choice, selection reason, and sentiment

Gender, race/ethnicity, and major affected students' topic choices. Understanding where students are coming from is a useful point of knowledge for instructors who want to encourage global engagement and openness to multiple perspectives.

5.2.1. Gender

Gender associated with topic selection. Results showed that subjects identifying as male were more interested in world conflict and economic development while female-identified students gravitated towards human rights and healthcare. This is consistent with prior research findings that women's rights were a female-dominant topic, while men discussed politics, war, and scientific discoveries more often than did women (Kipers Citation1987). Hence, topic preference is impacted by gender in ways that may be predictable and unique to individual disciplines. This is a useful insight for constructing assignments and project groups to enhance engagement levels. Instructors can raise the question of gendered interests with their students to determine if genders, however, defined, do indeed differ on their interest in subject matter.

5.2.2. Race/ethnicity

Differences in topic selection were noted between three subgroups (Black, Hispanic, and White). White students selected world conflict, climate change, healthcare, diversity, and economic development, i.e. significantly more than did Black students, and to a slighter

extent, than did Hispanic students. They also stated major-relatedness as a rationale more than other students did. Hispanic students selected immigration more often as a global issue topic and indicated significantly more topic selections based on personal experience. Black students chose race, human rights, and education more often as their topics and were largely concerned with the ethical nature of their topic. Findings suggest that topics and selection reasons are systematically distributed among minority groups, emphasizing the importance of student agency in determining meaningfulness (Yoo Citation2017).

5.2.3. College major

In most cases, topic frequencies made sense in the context of the students' majors. BUS majors prioritized economic development, poverty, and food and water supply more than did other majors. HSN students tended to overselect health (which coincided with their comparatively higher numbers choosing a topic related to the major) and diversity as issues, and underselect poverty. STEM majors had a greater tendency to choose more science-based issues, i.e. climate and healthcare, but were not as prone to select human rights or immigration. STEM majors had the highest percentage explaining choice on the basis of general global/ethical concerns and the lowest choosing controversial topics or due to personal experience, which suggests that more cognitive than affective motivations may be influencing their global issues selection process.

Of note, STEM majors were least likely to select food and water supply as an issue, which is problematic, given technology and science are vital for solving this problem. The apparent disconnect between HRN majors and poverty might also be an issue to reconcile, to support health equity. Topics of AHS majors tended to be balanced, likely due to the AHS cluster representing more diverse programs/fields.

Overall, comparisons across academic major suggested that students engaged with familiar topics. Assuming students had exposure to their selected global issue through college programs, it shows that student interpretations of what is relevant and sense of agency can stem from a topic's perceived association with career goals, as well as with background factors. In particular, STEM and HSN topic choices may be more impacted by major than in other fields.

5.3. Practical Insights for Educators

For educators, communicating the importance of global engagement to a diverse student body is an increasingly common activity. However, this does not make these goals immediately meaningful for students nor does it create urgency on the part of students to take action. It is clearly critical to recognize the role of student agency in what is meaningful (Jones 2017).

Agency is interpreted as a precursor to engagement and perceived meaningfulness. It is vital that instructors discern student insights formed by gender, ethnicity and discipline. Some students may embrace a global issue as a mere teaching case or intellectual exercise to satisfy course requirements. Others may view the discussion as a way to find solutions to problems that have besieged them since birth. Based on our findings, permitting free topic choice can be a direct route to activating student agency. Instructors can also verify reactions to required/embedded topics in the curriculum. Instructors can invite students to connect to topics in unique ways to build student engagement (Inda-Caro et al. Citation2019) and reduce the limiting effects of self-interest

and disciplinary foci on participative thinking. Instructors can structure activities to compare, aggregate and/or meld reactions to global issues from diverse points of view.

Working through emotions may be necessary. For instance, anger, sadness, and positivity scores varied across racial/ethnic groups. However, Fortier (Citation2010) argued that positive emotions are not end goals. Anger can empower individuals during the initial stages of dialogue. The promotion of intersubjective understanding, therefore, is not dependent on neutralizing emotions. In fact, the enabling of student agency to 'own' affective tone may enhance student engagement. However, strategic enabling of emotions requires full cognizance of the potential impact on senders and receivers. It is the role of instructors to manage emotionally loaded topics and conversations.

6. Conclusion

The present study used essays as a source of authentic responses to explore student behaviors in global issue writing. Although the focus was on writing samples, the results are relevant to all communication acts requiring students to compose arguments, including discussions or group work. This study stresses the importance of topic selection, student emotions, and consideration of student gender, race/ethnicity, and major, when designing interventions meant to stimulate global engagement.

Addressing global engagement requires educators to undertake a variety of teaching strategies. Firstly, they can purposefully select issues best analyzed from a variety of stakeholder viewpoints, for example, problems requiring a mix of efforts from multiple societies, countries, or organizations. Secondly, based on sentiment findings, instructors should develop activities that foster understanding of diverse student motivations and the role of emotions in discussing specific global issue topics. Instructors can establish goals and measures that emphasize cooperative communication styles while respecting the usefulness of and proper place for student emotional involvement and passion in forming ideas and arguments.

6.1. Limitations and future research

By focusing on topic selection and sentiment in this study, we constrained the outcomes to those measures that were readily available through the software employed. Future studies can more broadly measure additional essay features. Regarding sentiment measurement, we used available emotion dictionaries. Future research might take a more direct approach in examining the nexus of student emotion and communication about a global issue topic, by objectively capturing bodily reactions during deliberations on diverse global issues, i.e. pupil dilation (eye tracking), skin conductance, brain activity, heart rate, and facial expressions.

Since the data used was a secondary source, limited profile data was made available to the researchers. Other factors such as international or migratory experiences of students or age might have yielded additional insights as to why students selected specific topics. It is possible also that the concept of academic major can be revisited to understand better what the disciplinary influences over time are on students' global engagement. Lastly, we acknowledge that considering academic quality of the essays would be quite intriguing, but felt it was beyond the scope of the present paper since we were not privy to summative grading scores.

There are no conflicts of interest or other disclosures. The study complied with ethical standards. Our review board determined it did not constitute human subjects research as defined

under federal regulations [45 CFR 46.102 (d or f)] and did not require IRB approval. The office where the data was sourced was a separate unit and we had no formal connection with that office. We were not provided with any identifying information nor do we know what other data was collected by the university at the time of the assessment.

Notes

1 <https://medium.com/global-perspectives>

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Appendix

Sample statements showing nature of topic categories

Assimilation (Refugees)	<p>Refugees are a huge issue in many parts of the world today. My family is from Syria, and I am the first generation to be born and raised in America</p> <p>I lived in Germany from 2014-2018. When I first arrived there I felt so much safer there than in the US. As time went on though, more and more refugees started to seek sanctuary in Europe</p>
Climate	<p>I chose to select climate because, as a Biology major, this is an issue that I have always chosen to discuss about, and one that affects the entire planet as a whole</p> <p>Climate change is an issue that I chose. I chose this issue because it has significantly impacted our world today through natural disasters, endangered species, and etc.</p>
Development	<p>For this assignment, I am choosing the issue of capitalism, which for the purposes of this essay will be defined simply as the global economic system that encourages private ownership</p> <p>The Rise of Automation and the Changing Global Economy. We live in an age of increasing automation</p>
Diversity	<p>Out of the many issues that need global awareness I choose deafness. Internationally 'deaf' has many forms. The oppression that lies in disability and deafness is vast</p> <p>Sexism is the fault of all of us who ignore its existence, all of us who are too uncomfortable to speak about such a pervasive and serious issue. It is not only perpetuated by men, but by women as well</p>
Education	<p>I chose education. I selected this 1 because my mom is a grade school teacher and I have been personally affected by this since I am a student</p> <p>The issue that I chose to write about in this prompt is the issue of education. For centuries college students have been getting an education from universities and colleges</p>
Food Crisis	<p>For this prompt, I chose to write about the topic of global food waste. I selected this because, as a nutrition & dietetics major, this topic is commonly discussed</p> <p>A contemporary problem with global implications is a waste of food and the vast amount of food deserts</p>
Global Health	<p>In the United States, vaccinations are typically required and encouraged for children. However, in underdeveloped countries, children do not always have access to healthcare or vaccinations</p> <p>Public Health is a significant global issue that impacts the entire world. I am currently taking a public health course and there are many issues that we discuss</p>
Human Rights	<p>A contemporary global issue that I chose was child marriage. Although it is illegal in the United States, this issue still goes on around the globe today</p> <p>Women's rights is an ongoing battle in most every country. Every day women die simply for not conforming to what men in power want them to be</p>
Immigration	<p>Immigration relates to me the most because I am a first generation American born citizen. My family migrated from the Democratic Republic of Congo</p> <p>The issue I am choosing is immigration. My own perspective on this issue is that illegal immigrants should be deported back to their own country, since it is illegal</p>
Poverty	<p>For my microeconomics class, I read a book entitled 'Poor Economics' which focused mainly on poverty alleviation and evaluated the causes of poverty itself</p> <p>The issue that I choose is poverty alleviation. I decided to select this one because I feel that it's a very serious and relevant issue that needs to be addressed as soon as possible</p>
Race	<p>I chose the conflict between the movements of 'Black Lives Matter' and 'All Lives Matter,' the struggle between crimes against black lives and also crimes against other societal groups</p> <p>I am choosing the topic of the mistreatment of African Americans in America. I selected this topic because as an African American female, I have had personal experiences with being mistreated</p>
World Conflict	<p>Peace and conflict is a topic that ranges from domestic conflict to war overseas. Peace and conflict is important to discuss since conflict is part of everyday life all around the globe</p> <p>The issue I chose to discuss is world peace. I selected this issue because it is the one thing that can never be truly achieved</p>
Miscellaneous	<p>A global problem that I come to think about a lot is kindness. I think the world could just use a simple lesson as to why they should be kind to one another</p> <p>I chose the issue of people being able to hack through the internet. I saw one of my favorite streamers get hacked, and lose everything</p>
