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Towards a Comprehensive Understanding: An Inquiry on Generative AI, Learning Inequalities and Civic Responsibility.

Greici Alles

Towards a Comprehensive Understanding:

An Inquiry on Generative AI, Learning Inequalities and Civic Responsibility.

by

Greici Alles

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Michael Dando, Chairperson
Danielle Donelson
John Madden

Abstract

Artificial Intelligence has been around for quite some time, but recently, it has taken impressive leaps in its capability to revolutionize human-machine interaction. Naturally, discussions on its societal impact are becoming more prominent. Generative AI tools have a unique capability of interacting with people that no other technology had before. Within academia, the discussion of how AI tools are to be implemented in learning classrooms are also getting traction, with a major concern of preserving academic integrity. Historically, diverse students have faced many challenges of inequality in classrooms and theorists like Paulo Freire and Sonia Nieto have long argued for the need of a more inclusive and critical curriculum that focuses on empowering marginalized students and reversing oppressive power dynamics. However, the discussion of how generative AI can reinforce language discrimination and perpetuate the existing marginalization of diverse students in higher education learning environments is still highly unexplored. By looking at the history of language discrimination in education and the marginalization of diverse students, the current discussions of algorithmic bias and AI's potential for discrimination, as well as data gathered from a mixed-method study with higher education students; this research aims to start a conversation on the impact of generative AI as a learning tool on deepening inequality for diverse students and perpetuating existing power asymmetries and oppressive systems that extend well beyond the classroom.

Key-words: Generative Artificial Intelligence, Algorithmic Bias, Critical Pedagogy, Diverse Students, Learning Inequality, Language Diversity.

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Chapter 1: Introduction

In 2023, Penn State's Center for Socially Responsible Artificial Intelligence (CSRAI) conducted a competition called "Bias-a-thon", where both students and faculty submitted prompts that led popular artificial intelligence tools to produce biased or stereotype-reinforcing outputs. The winning prompts included a scenario where an "engineer" and "secretary" are being harassed by a colleague, in which ChatGPT assumed the engineer was a man and the secretary was a woman. Another winner prompted a picture that should show both a group of academics and a group of computer scientists winning awards at a conference. While the photo with general academics showed limited diversity in age, gender, and race, the four generated photos of computer scientists showed almost exclusively younger, white men (Ford, 2024). These results were nothing short of eye-opening. The debate surrounding the potential of generative artificial intelligence technology to perpetuate bias, prejudice and inequality is gaining traction fast.

Generative artificial intelligence (AI) technologies are a group of machine learning algorithms designed to generate new data that mimics existing data (Chan, 2023). Based on the training data fed to these systems, the tools learn patterns and "gain experience" to generate new content, such as text, images, sounds, videos, and code. The advancement of generative AI tools proposes to continually revolutionize the learning process, offering students a path to enhanced proficiency. Generative AI tools have a unique capability of interacting with students by providing simple answers to complex questions, explanations to abstract concepts and supplying information about any topic being researched. However, as with any new technology being introduced into an environment where power asymmetries are existent, it is crucial to analyze how the environment will be impacted going forward. As these technologies' use becomes more prominent in higher education classrooms, it raises complex questions around existing issues of equity.

Historically, diverse students, by which I mean students belonging to already marginalized and discriminated populations, both racially and linguistically, have faced many challenges of inequality in classrooms. Issues such as the reinforcement of English as the language of power and only language possible have been recurrent in both secondary and higher education classrooms (Wong-Fillmore, 2005); as Sonia Nieto argues, “the real problem might be what Moll called “the obsession with speaking English", as if learning English would solve all the other dilemmas faced by language minority students, including poverty, racism, poorly financed schools, and the lack of access to excellent education.” (Louis Moll, 1992, p.20, qtd. in Nieto, 2002 p.86). Beyond that, the white-washing of history taught in schools (Banks, 2020) and the need for diverse students to silence their cultural identities for a mainstream cultural assimilation (Wong-Fillmore, 2005; Nieto, 2002) are real issues in learning environments. Ultimately, it becomes natural to ask how generative AI can serve as a perpetuator of those issues. The impact of AI is still highly unexplored as an aggravator of inequality and marginalization for diverse students in higher education learning classrooms.

By looking at the history of language discrimination and marginalization of diverse students and at the current discussions of the societal impact of AI, this research aims to better understand classroom learning disparities in a technological environment. I will rely on literature review and theoretical frameworks, as well as on data gathered from a study conducted with higher education students regarding their experiences with AI tools, multiculturalism, and civic responsibility. As a sidebar to this research, I want to mention that the original title for this work was “Generative AI and the challenge of equity and access for diverse students in university classrooms”, further down the line of research, however, a new title was formed: “Beyond ChatGPT: A qualitative study on the societal impact of generative AI as a learning tool”. After much back and forth, on whether this title was encompassing of

what this research's main intent is, I asked ChatGPT to come up with a catchier title. Here are some of the answers provided:

- Generative AI in Education: An In-depth Analysis of Social Impacts
- Towards a Comprehensive Understanding: Social Implications of Integrating Generative AI as a Learning Aid
- A Qualitative Inquiry into the Social Fabric of Education with Generative AI
- Generative AI and Social Dynamics in Education: A Qualitative Inquiry

Based on the responses, the final title became: "Towards a Comprehensive Understanding: An Inquiry on Generative AI, Learning Inequalities and Civic Responsibility." By showing how a Generative AI tool functions in providing answers to given prompts, I hope to shine light on a couple aspects that will be discussed throughout this research. First, is to show that the use of these tools can prove beneficial to writers, researchers and students when crafting their written work. Second, however, is to highlight the fact that human critical interpretation is still needed and essential to properly adapt the insight gathered to reflect the author's own perspective and purpose.

The first chapter of this research provides an overview of the major concepts discussed in the following chapters, as well as details on the purpose of the study and its guiding questions. Chapter 2 delimitates the theoretical framework used to analyze the concepts and data, with a discussion of a couple major theorists of Critical Theory. Chapter 3 provides a Literature Review, with the current discussions and debates surrounding AI's societal impact and multicultural identity in education, as well as its implications for this study. Chapter 4 details the methodology used to gather data, including the development and application of the online survey, as well as the explanation of why specific groups of students were selected. Chapter 5 specifies the study and the data collected and Chapter 6 discusses the interpretation of the data and its impact on this research.

A Word on Artificial Intelligence and the Danger of Discrimination

Different Artificial Intelligence research and development have been around for quite some time, but recently, it has taken daring leaps in its capability to revolutionize human-machine interaction - and it has no intention of slowing down. It seems that over the past couple years, people have started to look at AI with greater fear and fascination. At the end of 2022, OpenAI - an AI research organization - released ChatGPT, which falls under the umbrella of what is known as generative AI. Different from previous forms of AI models, generative AI tools are capable of, upon prompting, creating original knowledge. These systems can write new text, craft images, videos, sound, code and much more based on simple directions given by the user.

Following the ChatGPT release, in 2023, many other generative AI tools were launched into the market, and it quickly became a "hot-topic" for researchers, professionals and academics. The introduction of generative AI into the learning environment is relatively new, but the conversation surrounding the harms and downfalls of AI technologies is already a decade-old debate. Different AI developments were introduced into various facets of daily life, prompting a debate of racism and discrimination. With the rise of face recognition programs for example, it was noted that the softwares have a harder time recognizing darker skin tones than lighter ones. AI-powered hiring tools are susceptible to replicate bias and prejudice that will inevitably harm certain candidates' chances. Joy Buolamwini (2023) is one of the most prominent voices of the conversation surrounding the societal impact of AI technologies. She developed the concept of the "coded gaze" to describe how the priorities, prejudices, and preferences of those who hold the power to create technology transfers into whom that technology better serves and whom it overlooks.

Within academia however, the conversation remains, too often, focused on the threat of chatbots to academic integrity and the preservation of original creativity. The ways in

which it can also lead to the marginalization of certain students gains less spotlight in the discussion. Algorithms are believed to be free of biases that can deepen discrimination, after all, they run on codes - on math - and math is purely objective. However, in order to generate new knowledge, these systems are programmed to recognize existing patterns, they learn from observation and imitation. In other words, all new knowledge created by generative AI tools is based on existing knowledge. They are pulling from a large pool of available information, both reputable and questionable, partial, and impartial, neutral and hateful. Beyond the fact that these systems are also programmed by individuals and that alone makes them subjective, it also reproduces knowledge from a limited source of already shared content. The internet does not contain all human knowledge, especially marginalized ideas and conventions that are not broadly accepted or that go against mainstream societal beliefs. The patterns fed to AI are human and they represent a partial representation of reality; because it is a human-led process it is naturally subjective.

Generative AI in Education

Generative AI tools have a unique capability of interacting with students that no other technology had before. It is capable of providing simple answers to complex questions, easily understandable explanations to abstract concepts and eloquent drafts derived from simple prompts in a matter of seconds. For linguistically diverse students, generative AI tools have the potential to enhance grammar and widen vocabulary much faster than any regular class could. At surface level, it could provide second language learners or any linguistically diverse student with the opportunity to get one step closer to writing and communicating at a native English speaking level. However, introducing a new technology such as generative AI in an already asymmetric environment, can deepen the unbalance rather than help correct it.

When looking at the history of education in the United States, the discrimination and marginalization of diverse students is not an unfamiliar topic - on the contrary, it is an

intrinsic part of it. According to Sonia Nieto (2002), English is the language of power in the United States. It is also the language of power in the world, the “lingua franca”; and given the status of world power possessed by the U.S. and the heavy number of new technologies coming from it, the power of English is reinforced. In many countries, to speak English as a second language is a synonym of status and prestige; bilingualism opens the door to a wider variety and a higher quality of information and resources. However, within the United States, according to Nieto, language diversity is still not a significant aspect of the education curriculum. There is a systemic mechanism of exclusion in education already present in the construction of curriculums, communication, and prioritization of knowledge. The discussion of these mechanisms of exclusion is intrinsic to the discussion of power relations and broader social inequality.

As with many forms of oppression, the ability for generative AI systems to discriminate does not have to be explicit to exist. Historically, linguistically diverse students and cultural minorities have faced many challenges of inequality and discrimination, not only in terms of access to education but also in the need to suppress and negate their cultural identity in learning environments. When students from various cultural and linguistic backgrounds are presented with generative AI tools as a learning tool to help absorb, interpret, and produce knowledge, they are exposed to a process of ‘expedite cultural assimilation’. (Wong-Fillmore, 2005) When students are provided with tools to generate knowledge pulled only from mainstream sources, it perpetuates the marginalization of cultural and ethnic minorities, it continues the long tradition of “white-washed” history. (Banks, 2020) When the ability to use these tools efficiently depends on a linear ability to communicate fluently and eloquently it continues to negate diverse student’s cultural identities and their commitment to their local cultural communities. Technological tools are not meant to be seen as the ultimate solution to learning inequities, but instead, be used to

help overcome barriers of access in education. (Global Education, 2023). Ultimately, education should aid in the creation and maintenance of a diverse and critical society; especially because the connection between an individual and their cultural roots is maintained via various channels (Banks, 2020) and it should not be suppressed in learning environments.

The students of today are the citizens of tomorrow, so it is crucial to look at the existing structures of power in play inside and outside of the classroom. The introduction of generative AI tools into an already asymmetric learning environment begs the question of who ultimately gets better usage of these tools, or in other words, which population were they ultimately created to cater to? The ultimate goal of education should be to empower learners to think critically about the world and strive to create a more equitable society.

Study Purpose and Research Questions

What this research ultimately intends to do is open a conversation about the impact of generative AI on diverse students' learning experiences in terms of inequality, cultural identity, and civic responsibility. Researchers such as Ruha Benjamin and Joy Buolamwini have called attention to the fact that generative AI tools are not as impartial and objective as we might have once thought. On the other hand, there is a known history of learning inequality that affects diverse students, as shown by theorists such as Paulo Freire and Sonia Nieto. Looking further into the impact of diverse student marginalization, theorists like James A. Banks have argued how the education system requires cultural assimilation as a requirement for citizenship. Therefore, the impact of language discrimination spreads far beyond the classroom and it influences student's civic life, deepening the demand for diverse students to negate their cultural identity.

The crucial element of this discussion is seeing how all these theories and conversations that are seemingly removed from each other, are actually closely related.

Generative AI tools are getting more integrated into learning environments, with or without the consent of academia; therefore, it is essential to look at how they might have the potential to do more harm than good for these already disempowered populations. It is in higher education that students are pushed to begin thinking critically and to formulate independent beliefs that will guide their actions and choices beyond the classroom, in a society where they take on roles of not only citizens but also decision-makers, policymakers and leaders. The use of generative AI as a learning tool in university classrooms can help reinforce language discrimination and the marginalization of diverse students. The awareness of the subjectivity present in the creation of these tools, which is a consequence of power disparities already existent in society, is a key part of understanding how to better utilize these tools and how to incorporate them in a way that allows for the empowerment of diversity in the classroom.

My research is driven by questions that spread from the relation between using generative AI as learning tools can help lead to discrimination to how the marginalization of diverse students impacts their role as citizens beyond the classroom. For example, is generative AI disempowering diverse students inside the classroom? When interacting with these technologies, to what degree are students being demanded to negate their cultural identities? What is the impact of diverse student marginalization in the classroom to their roles in society, as citizens of a mainstream American culture?

Chapter 2: Theoretical Considerations

Critical Theory

The discussion of how generative AI can reinforce language discrimination and the marginalization of diverse students in learning environments is intrinsic to a broader discussion of power relations and social inequality. Therefore, to frame and develop the questions proposed, I will take a Critical Theory approach, focusing on theorists from both the field of education and technology. Researchers from the field of education (i.e. Paulo Freire, Sonia Nieto, James Banks) can shine light into the history of language discrimination, curriculum creation and the intersectionality between culture, identity and learning. On the other hand, researchers from the field of technology (i.e. Joy Buolamwini, Ruha Benjamin) can provide a clearer perspective on how emerging technologies function within social environments and what their impacts are on existing issues of equity and discrimination.

Critical Theory is a compilation of different theoretical streams derived from the Frankfurt School. According to the Stanford Encyclopedia of Philosophy, "a critical theory provides the descriptive and normative bases for social inquiry aimed at decreasing domination and increasing freedom in all their forms" (Bohman et al, 2019). Ultimately, it aims to examine current dynamics of power and domination, exposing systems of oppression and inequality with the goal of promoting a more inclusive conversation that will ultimately lead to social justice. According to Christian Fuchs (2021) "Critical theory is dialectical, ethical, a philosophy of praxis, and a critique of domination, exploitation, domination, and capitalism." (p.10) Fuchs definition encompasses all the various facets of Critical Theory that can be found in different streams that originated from it, such as feminist theory, critical race theory, queer theory and postcolonial/decolonial theory.

For the purposes of this research, I will use Boike Rehbein definition of Critical Theory, which argues that it is a "sociologically applied philosophy and not desk-study." (Rehbein 2015, qtd. in Rehbein 2018, p. 56). A critical approach entails both an awareness and a sense of action in the social context to fully understand how different actors participate and are affected. Taking a Critical Theory's empirical lens allows me to better understand the asymmetries of power that are present in less than obvious interactions, such as the relationship between technology and discrimination, and the correlation between a student's cultural identity and their role as a citizen.

Algorithmic Bias

While researching how technology can help perpetuate discriminatory behavior, Buolamwini came up with the concept of the "coded gaze". Inspired by the concepts of male gaze (how women are often portrayed from a male perspective) and white gaze (assuming that the audience is by default white and so it prioritizes their stories and representation), the "coded gaze" describes the ways in which technologies are encoded with the priorities, preferences, and prejudices of their creators (Boulamwini, 2023). Who has the power to develop and program technological tools will naturally encode their own subjective perceptions into it as well, thus propagating them under a facade of impartiality.

While the coded gaze can seem to focus mainly on facial recognition or discrimination based on physical appearance, its core foundation is the existence of algorithmic bias in coded systems. Ruha Benjamin created a similar concept, which she calls the "New Jim Code", that also points to how subjective and partial coded systems can actually be. Similar to the coded gaze, Benjamin invites us to look at how the creation and use of new technologies, which are perceivably more impartial and objective, actually reproduce existing inequities and prejudices.

Looking at how coded systems, which includes generative AI tools, carry biases inherited from their creators (i.e. algorithmic bias) is crucial to understanding how the interactions between user and machine are not neutral. These concepts help frame how existing power disparities and social inequities are not being diminished by the existence of technologies that create knowledge, but instead, the very core of discriminatory and oppressive ideas we see in a social context of interaction are simply being transferred into a different medium.

Critical Pedagogy

Critical Pedagogy is one of the streams of Critical Theory that takes the analysis of power relations and oppression into the field of education. According to Critical Pedagogy, Education is political; it has a history of inequalities, oppression, and domination that need to be recognized (Kincheloe, 2004). This theoretical framework argues that social issues of inequality, democracy, justice, and citizenship are not distinct from the learning environment. These issues should, instead, be taken into consideration when creating curriculums and implementing learning strategies. Education can become a way in which students are equipped to engage against systems of oppression when the same existing structures in education are challenged. (Critical Theory Pedagogies Guide, 2023)

Paulo Freire is one of the most prominent and well-known theorists in the field of education and he is known as the founder of Critical Pedagogy. According to Freire, education has a strong transformative social power to foster justice and liberation. One of his central concepts is that of “conscientização” or “critical consciousness” (1985), which defends the need to break oppressive systems by aggregating diverse needs and perspectives in the creation of new norms, systems, and laws. In the case of education, Freire defended the need for new curriculums that allowed for a participatory and dialogical approach where traditionally oppressed groups are invited to collaborate in the creation of knowledge. The

ultimate goal of education should be to empower learners to think critically about the world and strive to create a more equitable society.

Freire developed the basis of Critical Pedagogy in the 1980s, when learning disparities were already observable. However, language discrimination in learning classrooms is still a current issue that, at times, masquerades itself in new technologies that promise more equality and impartiality. Using Freire's theory of Critical Pedagogy will allow me to better understand the evolution of language discrimination in learning classrooms in the United States and how learning equity is tainted by emerging technologies such as generative AI.

Sonia Nieto is another well-known Critical Theorist in the field of education. Inspired by the basis of the Critical Pedagogy theory, she developed the concept of "language diversity" (2002). Nieto argues for the importance of incorporating second language learning into the education system as well as allowing non-native English speakers to bring their native language into their learning process. She argues for a less "only English is valid approach" and a more diverse way of teaching and learning that allows students to bring their full identity into the classroom and lean into their diversity to enhance the learning process.

Similarly to Freire's arguments that certain populations who do not have the power to weigh in the creation of curriculums end up having their voice silenced and disempowered, the discussion of language diversity is also closely correlated with the division of power and status in society. Certain languages are associated with prestige and status and others are associated with lower classes. This mechanism of exclusion can be seen in the creation of school curriculums, of communication, and in the invention of technologies that aim to improve quality of life through the ability to generate knowledge, such as artificial intelligence.

Although both Freire and Nieto focus their research and theories around K-12 learning and this research focuses on higher education classrooms, their concepts allow for a more holistic understanding of the theoretical foundation of learning. The discussion of power asymmetries and student marginalization doesn't automatically end with high school, but instead, the issues take on new forms in higher education that derive from similar structures. Therefore, the concepts developed by Freire and Nieto are relevant to this research because they shine the necessary light into the issues at hand.

Schools and universities, but also the technology created can help reiterate the purpose of eliminating traces of other languages, especially those considered "lower status", and reinforcing English proficiency as the mark of power. Nieto defends the necessity of bringing second languages into the classroom and into the interaction held between students and educators and using it as a framework for better learning and understanding. Ultimately, both Nieto and Freire suggest the adoption of a critical framework of learning, where diverse perspectives and voices can be brought together to create equality and neutralize the ever-present asymmetry of power. Looking at both Freire and Nieto to understand the concept of Critical Pedagogy will allow me to better understand how this theory can be applied to a classroom that is getting significantly more reliant on technologies such as generative AI.

Transformative Citizenship

Beyond the classroom, it is vital to understand how the impact of language discrimination spreads into the civic lives of diverse students. Also under the umbrella of Critical Theory, researchers such as James A. Banks have focused on exploring the field of multicultural education and global citizenship. In 2020, Banks published the book "Diversity, Transformative Knowledge, and Civic Education: Selected Essays" where he discusses the concepts of "liberal assimilationist citizenship" and "transformative citizenship". Banks

argues that, in the United States, individuals from diverse groups need to give up their former cultural and linguistic identities in order to be included and fully participate in a civic culture. There is no space for civic participation and full access and for a diversity of cultures simultaneously (Banks, 2020).

We live in an increasingly diverse and interconnected world, not only because of technology but also due to migration tendencies. The United States' population is a strong example of a country with a "global society", where diverse cultures come and their future generations stay and blend with others, creating a complex web of both overlapping and distinct cultural identities. However, the education system has historically reinforced cultural assimilation as a requirement for citizenship, and it continues to do so. The curriculums and learning strategies are not created with a multicultural perspective in mind, as Freire, Nieto and Banks point out. Because of that, educational theorists and critical theorists argue for the need of a different perspective on citizenship - which Banks calls it a "transformative citizenship". The dominant culture of the nation-state, which we will call the "mainstream American culture", should incorporate aspects of the immigrants' experiences, cultures, and languages, as they would enrich the mainstream culture and help the marginalized populations reach a more equitable and recognizable civic place (Banks, 2020).

The argument of transformative citizenship will help shine light on the strong impact that education has on shaping social action. It also helps to contextualize the bigger picture of why looking at tools such as generative AI and their impact on learning equity for diverse students is crucial right now. Critical Theory and the concepts of Algorithmic Bias, Critical Pedagogy and Transformative Citizenship have been discussed in different scenarios and during different times. Discussions involving power relations in education are decades old, but its creation didn't explore the emerging technologies of the last decade. On the other

hand, issues like Algorithmic Bias have not been developed with a lens of education or learning disparities, instead, they are discussed in a broader social context.

Using this critical theoretical framework from different fields will help pave a still unexplored space of discussion that aims to bring the educational concepts developed by Freire, Nieto and Banks into a fast changing, technological classroom. Even though these concepts have been around for long, they are now relevant to better understand how generative AI tools fit within the current issues of learning inequality. For example, when using generative AI, the knowledge created can only replicate existing data pulled from the internet, where objectivity and impartiality do not reign. Beyond that, written inquiries must be worded carefully and precisely in order to generate a quality answer, which I argue based on my own experience as a non-native English speaker interacting with generative Artificial Intelligence tools.

These usage requirements ultimately beg the question of who gets better usage out of generative AI tools, or in other words, which population were they ultimately created to cater to? There is a pressing need to better understand how the acquisition of this new digital literacy is impacted and even shaped by social and cultural norms. By not bringing awareness to these issues, existing power disparities and systems of oppression will continue to be reproduced and eventually will become part of normal teaching and learning structures. Diverse students whose literacy is painted by more complex layers of linguistic knowledge and cultural identity are impacted by these technologies in ways that can easily go unnoticed.

Chapter 3: Literature Review

The Societal Impact of Generative Artificial Intelligence

Before attempting to unfold the complex layers of how generative Artificial Intelligence influences power relations and social inequality, it is important to understand how generative Artificial Intelligence systems work to generate knowledge. Generative AI systems such as ChatGPT and other chatbots are powered by Large Language Models (LLMs), which are programs trained to recognize and analyze patterns. The systems are fed with algorithms and are programmed to learn patterns from existing data and then, based on these learned patterns they create new and 'original' content. (Accenture, 2023, qtd. in Sabherwal and Grover, 2024). The training data, a lot of times, is the information that's available on the internet (Buolamwini, 2023). The program learns how to recognize language patterns present on the data and provide you with persuasive, coherent and grammatically correct information based on the prompt given. From that interaction the system gains experience, it "learns" with each use, relying on the algorithms to create highly realistic content (Business Insider, 2023).

The problem with this "replication of knowledge" is that the internet can be both a limited and subjective place to gather insights from, which raises concerns of reliability and accuracy of the data (Wach et. al, 2023). Generative AI tools are not able to assess the validity of the content and determine whether the output they generate contains misinformation, thus their use requires human oversight (Lubowitz, 2023). The same happens with biased discourse; generative AI tools don't come with an embedded bias checker. Because we come from a tradition of "white-washed" history (Banks, 2020), there is a lot of content out there reflecting ingrained systems of discrimination and oppression, white-supremacy, sexism, racism and all other -isms you can think of. The problem of bias and

discrimination in data and algorithms is a prominent concern in research on AI and chatbots (Dwivedi et al., 2023).

That brings us to the discussion of societal impact. Societal impacts are broader manifestations of Generatie AI. These could be positive or negative and reflected at various levels of society (Sabherwal and Grover, 2024). The societal impacts of Generative AI encompass both its risks and its opportunities for society as a whole. Amongst the risks, according to many researchers, are the potential biases present in the training data. Ruha Benjamin, for example, defends that "the data that systems are using to learn and make decisions reflect deeply ingrained cultural prejudices and structural hierarchies." (Benjamin, 2019) It is known that mainstream knowledge is and will be replicated much faster than marginalized knowledge; therefore, it is much more likely that systems designed to recognize patterns will use ideas that have been shared more often, because they form stronger patterns that will consequently be interpreted by the trained system as being the truth. An artificially learned inclination towards representing certain interests and priorities and underrepresenting others is distant from the neutrality these systems were supposed to guarantee. (Janssen et. al, 2020)

Beyond that, the field of AI is highly homogeneous and dominated by white males, who are responsible for creating training models and selecting the data to train these models (Farrokhnia et al., 2023; Getahun, 2023). Biased AI systems can have a serious impact on specific, already marginalized, groups. (Wach et. al, 2023). There are several examples of AI being biased and hurting diverse populations. For example, Law Enforcement started utilizing AI tools to identify criminals and, in 2016, ProPublica found out that AI was more likely to misclassify Black people as recidivists than White people. (Getahun, 2023) An Amazon recruitment AI tool discriminated against female applicants, downgrading the resumes that contained "female" words and preferencing male resumes. (Hamilton, 2018)

LLMs do not filter information based on an acquisition of critical literacy derived from embodied experiences; it doesn't have a holistic understanding of social inequality and power dynamics. By replicating existing content in a persuasive manner without critical interpretation, it mutes diverse and marginalized populations. LLMs learn to speak the language of their creators - not only programmers but all of us, users, online who contribute to the datasets on which AI learns. (Benjamin, 2019). Ultimately, the data used by generative AI systems powered by LLMs use a set of data that represents limited and subjective standpoints in concordance with the makers of the system, the people with the power to design the technology. To mitigate the bias, it would be necessary to make algorithms adopt a more holistic perspective and operate in a more inclusive way (Wach et. al, 2023).

The Impact of Cultural Identity on the Learning Process

According to Sonia Nieto (2002), English is the language of power in the United States. In many countries, to speak English as a second language is a synonym of status and prestige; language diversity opens the door to a wider variety of opportunities and a higher quality of information and resources. However, within the United States, language diversity and bilingualism are still not a significant aspect of the education curriculum. (Nieto, 2002) Diversity of language and bilingualism are valued when the speaker already holds a position of prestige in society and a high degree of education, but it is seen as a mark of low status if the speaker is already in a low social and financial status and is part of a minority group. Before I explore in more depth the relationship between cultural identity and learning. I will explore the contextualization of cultural identity in a broader social sense.

The United States is an increasingly heterogeneous country. According to the Migration Policy Institute (2023), the United States is home to more international migrants than any other country in the world. Since 1970, the number of immigrants coming to the

United States has started increasing faster than ever before. (Ward and Batalova, 2023) Also, by 2060, the number of people who are of two or more races is expected to increase by 200% (Banks and Banks, 2019). Because of the high number of immigrants, many theorists have started referring to the United States as a "melting pot". The concept was created in 1908 by the playwright Israel Zangwill to describe how immigrants from many different backgrounds come together in the United States (Owen, 2005). The idea of a "melting pot" resembles that of cultural assimilation, a process of homogeneity that is created from the combination of all cultures. "The "melting pot" metaphor assumed that over time the distinct habits, customs, and traditions associated with particular groups would disappear as people assimilated into the larger culture." (Owen, 2005). In other words, in order to be "American", diverse groups would need to negate their cultural identity for the sake of being a part of the mainstream group.

The "melting pot" metaphor gained traction and support from many researchers as well as Americans. A survey from 1996 gathered data that confirmed that 95% of Americans believe that the United States is "the world's greatest melting pot where people from all countries can be united in one nation" (Hunter and Bowman, 1996). A study conducted in 2005 found that more than half of participants believe that immigrants should "adopt America's culture, language, and heritage," (Rasmussen Reports, 2005).

Since the rise in immigration in the 1970s, however, researchers and theorists have begun to question the accuracy of the "melting pot" metaphor. Many immigrants, especially older people, don't come to the United States with English Fluency and in many cases don't acquire English fluency while living here, sticking to their mother-tongues, especially within the household. In 2021, approximately 46% of the 45 million immigrants ages 5 and older were Limited English Proficient (LEP). (Ward and Batalova, 2023) Figure 3 exemplifies the

diversity of languages spoken throughout the U.S. due to the high number of immigrants who moved over the years and established families and future generations in the country.

Figure 3

Map of Most Commonly Spoken Languages other than English and Spanish by State, 2021.

Source: Ward and Batalova (2023). Migration Policy Institute.

As Figure 1 shows, immigrants didn't lose their cultural identity once they moved into the United States as the "melting pot" metaphor would suggest. Instead, they formed new relationships that created overlapping cultural connections. In fact, today, nearly a quarter of all students in U.S. classrooms are either immigrants or children of immigrants, many of whom speak a language other than English at home (Gándara 2013). Even so, language discrimination is an intrinsic part of the history of U.S. education.

According to Lily Wong-Fillmore (2005) in societies like the United States, with diverse populations, children from linguistic minority families must learn the language of the society in order to take full advantage of the educational opportunities offered by the society.

Because English is seen as the language of power, having proficiency in English has always been viewed as a door opener, a "neutral" language that could provide a false sense of equality of learning. However, asking non-native speakers to be "native-like" in English asks them to negate their mother-tongue. Asking diverse students to have the same level of English fluency as native speakers and to negate their fluency in other languages and dialects is to negate their cultural identity. The demand for a universal language fluency in both speaking and understanding is impossible in a country with so many intersectional identities. Still, the demand for cultural assimilation is strong - few American-born children of immigrant parents are fully proficient in the ethnic language, even if it was the only language they spoke when they first entered school (Wong-Fillmore, 2005). This process is reinforced by an educational structure that requires fluency and "homogeneity" in learning, which is similar to the concept of a "melting pot" rather than an integration of multiple cultures in a system where there is an equal space for co-existence.

The idea of multiculturalism is still a source of significant societal and political tension (Owen, 2005). The education system, for example, reinforces cultural assimilation as a requirement for citizenship (Banks, 2020) In order to fully participate in a society and to fulfill one's civic duties, in other words, to really be an American, individuals from diverse groups need to give up their former cultural and linguistic identities. "Historically, the western education system focuses on helping students develop national loyalty, commitments and allegiance to the nation state and have given little attention to their need to maintain commitments to their local communities and cultures or to their original homelands." (Banks, 2020). The notion of being American is closely correlated to an idea of following a combined ideal, a shared dream. However, the multifaceted and complex identity of a huge portion of American youth stands in the way of their recognition as true Americans, as true citizens. In

this context, cultural diversity, but ultimately, language diversity becomes a barrier to citizenship, to real fulfillment of one's social exercise.

In order to understand this issue more deeply and focus on creating new paths in education, researchers have developed concepts that facilitate the connection between cultural identity and learning, for example, multicultural education. Multicultural education is a concept which recognizes, accepts, and encourages people from different ethnic backgrounds to maintain and be proud of their cultural backgrounds (Barrington, 1981). It argues that all students, regardless of race, gender, social class, culture, or ethnicity, should have an equal opportunity to learn. It also recognizes that only students from specific groups benefit more from the education system as it is currently structured. (Banks and Banks, 2019). All the different concepts and discussions existent around cultural diversity in the United States, both from a social and educational perspectives, reinforce how crucial it is to pay attention to the existing issues of learning inequality and power asymmetries. The core of these issues starts outside the classroom, but the learning process is impacted nonetheless, and its influence is seen, again, outside of the classroom.

Implications for This Study

The conversations surrounding the societal impact of new technologies is pressing and necessary. At first glance, technological advancement and issues of inequality and discrimination do not seem directly correlated or influential on each other. However, recent events where interactions between user and system have led to the discrimination of certain populations (Getahun, 2023, Hamilton 2018), point out that the connection is strong and dangerous. It is vital to pay attention to how new technologies are entering different social spaces and interacting with existing structures of power. Whenever we talk about social spaces with human interaction, there is inherent inequality and power asymmetry. This

research aims to look specifically at the field of education. The United States has a long history of language discrimination in the education system, where cultural assimilation is prioritized over cultural diversity. Theories developed by Critical Theorists such as Freire and Nieto argue how learning curriculums help reiterate systems of oppression that can be observed outside the classroom rather than help mitigate them.

When students from various cultural and linguistic backgrounds are presented with generative AI tools to help absorb and interpret knowledge, they are exposed to a process of expedite cultural assimilation, both in terms of how the user must interact with these tools and what information will be provided. For second language learners, for example, constructing appropriate prompts poses a challenge as it requires a certain level of linguistic skills (Chan, 2023). In order to obtain the most accurate information out of generative AI tools one must become as close to a native English speaker as possible. In voice, accents must be changed to mimic that of a native English Speaker, foreign words must be recreated and stressed differently. A written question or inquiry must be worded carefully and precisely to generate a quality answer. When the ability to use these tools efficiently depend on a linear ability to use specific vocabulary and specific accents, it continues negating student's identities and their commitment to their local cultural communities.

Beyond that, technologies that can produce knowledge are believed to be impartial and objective sources of knowledge. However, the discussions proposed by Ruha Benjamin and Joy Buolamwini shine light on the fact that bias and subjectivity is, in fact, very present in how AI systems are trained and developed. When students interact with tools that generate knowledge pulled mainly from mainstream sources, and whose dataset reflects a specific group's priorities and prejudices, it perpetuates the marginalization of cultural and ethnic minorities.

According to James Cummins (1996), students will succeed academically to the extent that the patterns of interaction in school reverse those that prevail in the society at large. The tools used to help the learning process must aid the creation and maintenance of a diverse and critical society; they are not and must not be seen only as grammar tutors and vocabulary expanders or worse, as impartial, and objective knowledge keepers. It is crucial to look at the existing structures of power in play and how they determine the level of equity for diverse students. Beyond that, looking at these issues in education can help generate awareness of larger systems of social inequality that can be reshaped and reversed by a more critical and inclusive learning process.

Chapter 4: Methodology

This research adopts a comprehensive mixed-methods approach, strategically combining both quantitative and qualitative data collection methods. The qualitative aspect of the study is anchored in a rigorous examination of existing literature, serving as a foundational method for data gathering and analysis. In this phase, I engaged in a critical evaluation of a diverse pool of literature, drawing on the arguments and theories provided by various critical theorists as a framework of interpretation. The focus of this literature review was to gain a deeper understanding of how issues pertaining to cultural identity, language diversity in the classroom have been addressed over time, with a specific focus on power asymmetries and inequality. Further evaluation focused on exploring the current discussions around technology development and its impact on existing social issues.

The exploration into critical theorists' works not only facilitated a comprehensive grasp of theoretical frameworks but also offered valuable insights into the existing issues within educational contexts, specifically in terms of how inequality is affected by new technological advancements, in special, generative AI. This critical analysis serves as a theoretical foundation that informs the following stages of the research.

In parallel to the literature review, the research incorporated a practical element by conducting a semi-structured survey. The target demographic for this survey consisted of first-year composition students at St. Cloud State University who either took this class during Fall 2023 or Spring 2024. This intentional choice aimed to capture the perspectives of individuals navigating the initial stages of their higher education journey, ensuring a diverse and representative sample. The survey serves as a key instrument for gathering firsthand insights from participants, enriching the study with real-world perspectives and experiences. Beyond that, it is a crucial tool to understand the unique perspective of students on the issues being discussed. The existing discussions surrounding higher education learning experiences

and the impact of generative AI on their outcomes have no shortage of researchers, professors, professionals, and theorists, but the perspective of students is not as prominent. According to John Biggs (1999), taking into consideration students' perspectives about their own learning environment and experiences can have a substantial impact on how they approach their own learning and ultimately, what the outcome of their educational experiences will be. Beyond that, it provides a different point of view into discussions and issues that impact students both inside and outside of the classroom.

Through this mixed-methods approach, the research seeks to gather data and provide a robust and multi-faceted understanding of the intricate and complex connection between cultural identity, language diversity in the classroom, and the impact of generative AI in the higher education landscape. All my findings and results are summarized, analyzed, and compared in Chapter 5.

The Study

The study conducted during this research was a semi structured, online and anonymous survey. It focused on gathering primary data about students' experience with generative AI tools for classroom purposes and their experience with cultural identity in learning environments. The study was conducted completely online, for a few different reasons. First and foremost, during the semester this study took place, I was not living in the United States; therefore, unable to recruit participants, conduct the study and gather the results in person. Resorting to an online survey allowed me to reach my desired target participants faster and, based on my experience as an English 191 instructor, provide them with a medium that is more appealing to be answered. Beyond that, keeping all answers in a safe, password secured, online platform, allowed me to maintain their anonymity and the privacy of the data in a more efficient manner.

After the study received approval from the Institutional Review Board (IRB), which is tagged as Appendix D, I reached out to professors who have agreed to collaborate with me in this portion of my research. The criteria for the selection of the professors focused on them being instructors of English 191 in the Spring semester of 2024. I forwarded all necessary materials for the professors to be able to share details of the study with their students during their weekly English 191 sessions. Each instructor shared with their class the Student Recruitment Letter, tagged as Appendix A, which contained contextualization about the research, details about the survey, contact information should students want or need to contact me about the research and the link to the online survey. In total, about 100 students were contacted to participate in this study and seven students agreed to participate.

Participants

The target participants of this study are students who are enrolled full time and that have taken English 191, "Introduction to Rhetorical and Analytical Writing." at St. Cloud State University during the Fall 2023 or Spring 2024. I chose St. Cloud State University because of its high number of international students, which provides me with a diverse ethnic and linguistic population, allowing for a wider range of data comparison.

I chose to frame the survey around students of the English 191 class for a variety of reasons. First, the class curriculum focuses heavily on acclimating students to academic writing and research, with a higher amount of writing assignments than most of their other classes, which, in comparison, is a class where they might feel most inclined to utilize generative AI tools to complete assignments or enhance their learning experience.

Also, it is a mandatory class for all university students; therefore, the population of the class has different academic backgrounds and interests, not limited to English majors or even liberal arts majors. From personal experience being an instructor of English 191 for

three semesters, it is also a class with a high amount of ethnically and culturally diverse students, including both local and international students. Finally, the majority of students taking this class are first years, which is most likely the case if they took the class between the Fall of 2023 and the Spring of 2024. Therefore, it is one of their first experiences with higher education writing and research, which, within the limitations of this research, provides me with a population with approximately equal experience in a given subject matter. For the similar reason of needing students with a similar level of higher education exposure, I chose to focus the study only on students who are enrolled full-time at St. Cloud State University.

With the Student Recruitment Letter, all participants received a link to the online survey. Upon clicking on the link, they were directed to a page with the Implied Consent Form, which is tagged as Appendix B. The Implied Consent form, among other things, clarified that upon completing the survey, students were automatically agreeing to the terms established in the form (Appendix B).

Survey

The survey has been designed and implemented through the popular online platform, Survey Monkey. This survey employs a semi-structured format, incorporating a combination of closed and open-ended questions. With a total of nine inquiries, the survey is intentionally crafted to elicit both quantitative and qualitative data, allowing for a comprehensive exploration of the participants' insights.

Regarding the content, the questions cover a broad spectrum of topics related to the participant's familiarity with and experience with generative AI tools. The survey further probes into the participants' perspectives on how their classroom learning experiences impact their social roles as citizens. Specific areas of focus include the participant's exposures to

second languages, as well as their understanding of how cultural identity impacts their higher education journey and classroom-learning experiences.

This comprehensive approach ensures that the survey captures a rich amount of information, ranging from the practicalities of AI tool usage to the nuanced interplay between language diversity, cultural identity, and the learning environment. The complete set of questions and details are tagged as Appendix C for reference.

Chapter 5 will analyze, in deeper detail, the results of the data gathered in the study, expanding into the patterns and trends discovered. Chapter 6 will discuss the impact of the study's results to the current research and their significance to the broader argument being presented.

Chapter 5: Results

Overview

As mentioned in previous chapters, the ultimate goal of this research is to explore the implications of employing generative AI as a learning tool and initiate a dialogue about its potential role in deepening educational disparities among diverse student populations. The questions that guide this research aim to explore if and how generative AI is disempowering diverse students inside the classroom. When interacting with these technologies, in what ways are students being demanded to negate their cultural identities? What is the impact of diverse student marginalization in the classroom to their civic roles in society? To explore and understand these questions, it is vital to focus on the student's perspective of their learning environment and how they perceive the integration of new technologies as well as the importance of their cultural identity to their learning experience.

The important role of student perspective has been argued by several theorists in the field of education. According to John Biggs (1999), the way students perceive their learning environment, their own capabilities, and the instructional methods employed strongly impact their approach to learning. Which, in turn, shapes the outcomes of their learning experiences. The study conducted in this research focused on gathering information to better understand their experience with generative AI tools, their perceived connection between cultural identity and learning and how they see the social impact of classroom learning in their civic lives. In total, seven students participated in the study.

This study recognizes a limitation regarding the sample size, as the response rate to the survey was relatively low. A smaller-than-desired number of participants engaged in the research, impacting the generalization of the findings to a broader population. The limited sample size may affect the statistical power of the study and warrants caution in translating

the results to a larger group. Despite this constraint, the insights gained from the available data still provide valuable perspectives to the discussion, and the findings should be interpreted with the awareness of the study's sample size limitation in mind.

The survey, a set of nine thoughtfully crafted questions, followed a systematic structure. It kicked off by exploring participants' racial and ethnic backgrounds, alongside their exposure to languages other than English. Transitioning, the survey delved into participants' familiarity and experiences with artificial intelligence, probing their knowledge and encounters with this technology. The next segment delved into the intricate realm of biases and cultural stereotypes within AI technologies, exploring participants' perspectives and experiences with these issues.

Continuing, the survey then focused on the relationship between higher education experiences and their impact on participants' civic lives. This section aimed to uncover the perceived connections between the learning process and civic responsibilities. Wrapping up, the survey concluded by exploring participants' personal perceptions of how their cultural identity shapes their higher education experiences and the level of comfort they feel in expressing their cultural identities in the classroom. This segmented structure allowed for a comprehensive exploration of race, language diversity, AI experience, biases, civic engagement, and cultural identity within the educational context. The complete survey can be found at the end of this research, tagged as Appendix C.

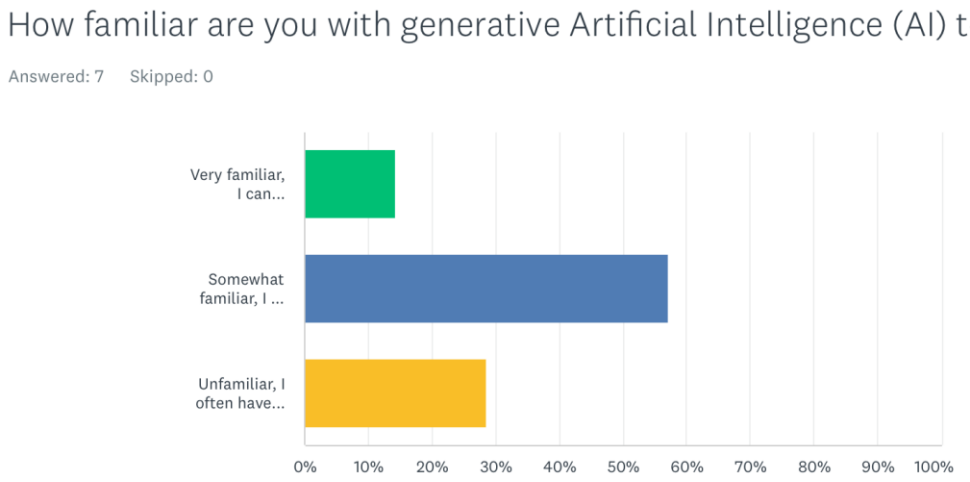
Generative AI in University Classrooms

When asked about their overall familiarity with generative AI tools, over half of the participants (57%) declared to be only somewhat familiar, confirming that, yes, they can utilize the tools, but most of the time the insights provided are not what they were looking for. As Figure 5.1 confirms, 28% of participants confirmed having trouble getting useful

information out of AI tools and only 14% confirmed to be able to successfully interact and get useful information out of the tools.

Figure 5.1

Students' Familiarity with Artificial Intelligence Tools



ANSWER CHOICES	RESPONSES	
Very familiar, I can successfully use AI tools and the insights provided correspond successfully to what I need.	14.29%	1
Somewhat familiar, I can use AI tools but the insights provided are not usually what I am looking for	57.14%	4
Unfamiliar, I often have trouble getting useful information out of generative AI tools.	28.57%	2
TOTAL		7

Note: The section "Answer Choices" provides the full text of the choices as well as the exact percentage of answers.[1]

Intriguingly, the study revealed interesting insights pertaining to the frequency of utilization of generative AI tools for classroom assignment completion. A substantial majority of participants, constituting 71%, asserted that they had never used generative AI tools for this purpose. At the same time, significantly less participants, totaling 28%, acknowledged sporadic usage, while none reported frequent engagement with such tools.[2]

[1] Created using SurveyMonkey, 2024

[2] In the survey, the answers were presented as follows:
71.43% Never
0% Rarely
28.57% Sometimes
0% Very often

Furthermore, in an exploration of negative experiences associated with the use of generative AI tools, a predominant portion of the participants reiterated either their non-utilization of these tools or argued less than enough interactions with them to justify negative experiences.

This trend could suggest that there is still hesitancy or unfamiliarity among students regarding the integration of generative AI tools into their academic practices. The lack of negative experiences, or even the preference for not utilizing these tools for classroom assignment completion may indicate a degree of caution or reluctance in embracing these tools, potentially influenced by concerns related to efficacy, reliability, or ethical considerations.

When probing a more in-depth question pertaining to whether or not students believed, based on their experience, that generative AI technologies have the potential to perpetuate cultural stereotypes or biases, students had much stronger opinions. The most recognizable pattern showed that students are very aware that these tools have the potential to disseminate hateful or discriminatory knowledge, given the subjectivity that naturally occurs with human-programmed systems. Based on these answers, it is inferable that the previously observed hesitancy or limited use of these tools may be indicative of an underlying awareness or concern among students regarding the potential perpetuation of biases in AI systems.

The apprehension in using and relying on AI generated information may be rooted in the awareness of biases embedded in AI algorithms (i.e. algorithmic bias), which raises ethical questions about the equitable treatment of diverse student populations. Consequently, the lack of negative experiences could be interpreted not only as an unfamiliarity with the technology but also as a lack of exposure to or recognition of potential biases that might exist within generative AI tools. This interpretation can be further exemplified by the fact that 85% of respondents self-declared White, while the remaining 14% self-declared Hispanic and/or Latino(a). Also, when asked if participants, or anyone in their household, spoke a language

other than English, 28% answered yes, while the majority (71%) confirmed that English is the only language spoken by them and their household. Within the context of race and language diversity, this demographic imbalance potentially introduces a new lens through which we can analyze disparities in the utilization and perception of generative AI tools. The overrepresentation of English-only speakers and White respondents in the sample might underscore the importance of considering how interactions with generative AI technologies are influenced by racial and ethnic factors.

Cultural Identity and Learning Experiences

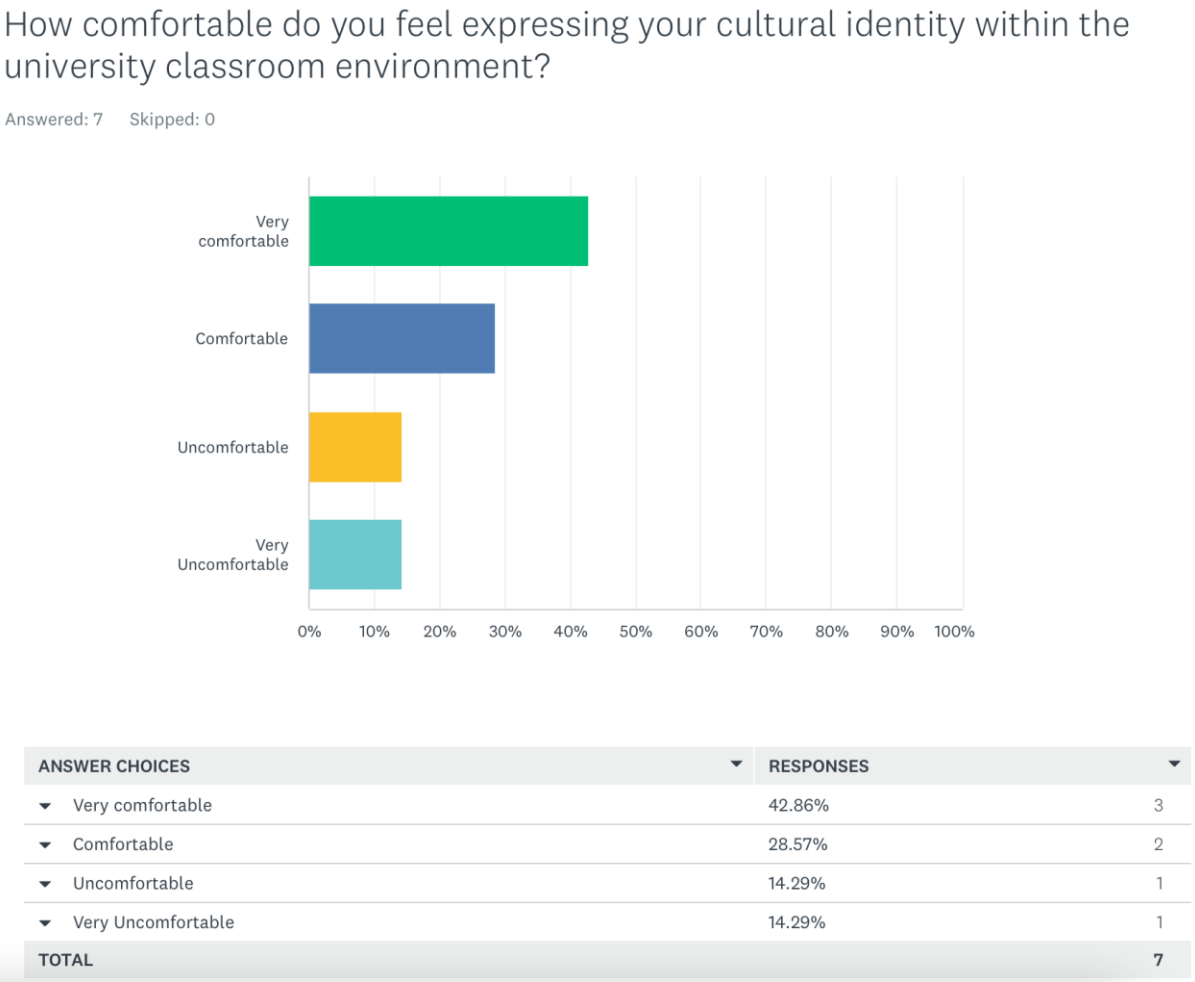
An interesting insight came up in the question about the impact of cultural identity in shaping the higher education experience. The one respondent who self-identified as Hispanic and/or Latino(a), had a different perspective than the majority of other participants. This individual articulated a perspective suggesting a perceived insignificance of their cultural identity in shaping their university experience. The respondent articulated: "My heritage shouldn't shape my overall university experience or how people treat me. I just want everyone to treat me like how they would treat everyone else." This response introduces a note-worthy element to the discussion of generative AI tools and their potential to perpetuate biased discourse. The respondent's assertion reflects an aspiration for a neutral and unbiased treatment, advocating for an experience detached from the influence of cultural identity. This perspective may serve as a nuanced counterpoint to the observed hesitancy or limited use of generative AI tools among the broader participant group. It suggests a stronger desire for impartiality rather than empowerment of one’s cultural identity.

In contrast, the majority of the respondents (which, aside from the one respondent analyzed above, by default, have all self-declared White), confirmed the importance of cultural identity, but mostly in terms of recognizing a position of privilege. One respondent

claimed, “I feel my identity is important when recognizing my own privilege”. This trend shows an important element of awareness of power disparities in terms of a broader understanding of social inequality. It probes the question, however, of how much awareness there is in terms of introducing cultural identities as an integral part of the learning process. Adjacent to the previous question, the responses to an inquiry regarding the degree of comfort students experience when expressing their cultural identity within the classroom setting, gathered a variety of responses, as shown in Figure 5.2.

Figure 5.2

Students Level of Comfortability Expressing their Cultural Identity Within the Classroom



ANSWER CHOICES	RESPONSES	
Very comfortable	42.86%	3
Comfortable	28.57%	2
Uncomfortable	14.29%	1
Very Uncomfortable	14.29%	1
TOTAL		7

Note: The section “answer choices” provides the exact percentage for each choice.[3]

[3] Created using SurveyMonkey, 2024

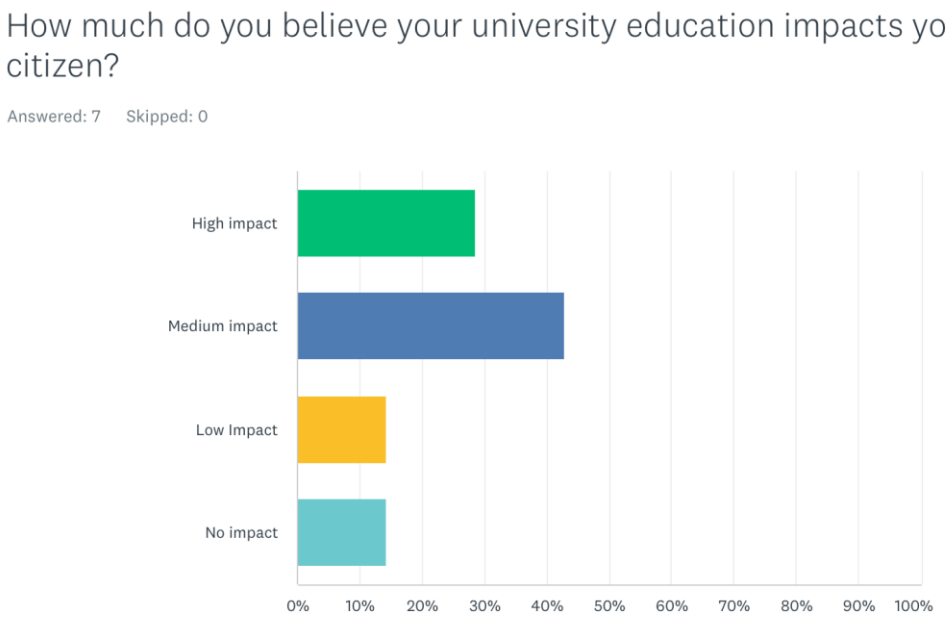
A significant minority, comprising 28% of participants, expressed feeling uncomfortable or very uncomfortable with expressing their cultural identity within the university learning classroom. In contrast, a substantial majority, totaling 71% of respondents, expressed feeling comfortable or very comfortable expressing their cultural identities. This distribution of responses can help highlight the intersectionality between cultural identity, learning experiences, and the adoption of generative AI technology. The pattern of answers seen in Figure 5.2 reflects the variety of written responses to whether cultural identity impacts the overall higher education experience. Beyond that, the proportion of students experiencing discomfort emphasized potential challenges related to inclusivity and cultural sensitivity within the academic context. Ultimately, it is clear that students bring a pre-established baggage of knowledge pertaining to the weight their cultural identity should have on their experiences as well as if it is something they are comfortable or not sharing.

Education and Civic Life

The concluding segment of the survey probed the participants' perceived connection between the higher education learning process and its consequential impact on students' civic lives. The responses, as shown in Figure 5.3, exhibited a diverse variety of viewpoints. While the majority of respondents acknowledged a high or, at least, a medium level of impact the higher education process has on one's role as a citizen, a notable portion, constituting 28% of participants, indicated a viewpoint in which education was not regarded as a substantial factor influencing one's civic responsibilities.

Figure 5.3

The Perceived Impact of Higher Education in Students' Civic Life



ANSWER CHOICES	RESPONSES	
High impact	28.57%	2
Medium impact	42.86%	3
Low Impact	14.29%	1
No impact	14.29%	1
TOTAL		7

Note: The section "answer choices" shows the specific percentages for each choice.[4]

This variation in responses adds another layer to the exploration of the intersectionality between education, technological advancement, and broader societal considerations. The presence of "low impact" and "no impact" answers help reiterate the argument that education for transformative citizenship (Banks, 2020) is necessary and sometimes lacking in learning environments, not only in early and secondary education but also in higher education, as perceived by the responses. It further proves the importance of

[4] Created using SurveyMonkey, 2024.

creating critical curriculums that promote the empowerment of different perspectives for the creation of an inclusive society.

Chapter 6: Impact and Significance

The outcomes of the study conducted carry note-worthy implications that resonate across multiple layers of both the educational landscape and social power dynamics. The hesitancy or limited experience students claim to have with generative AI tools, highlights a potential apprehension rooted in concerns of bias and equitable treatment within AI systems. Moreover, the collision between cultural identity, comfort in expressing it within the classroom, and the perception of higher education's impact on civic life reveals a complex landscape of intersectionality between technology, society, and education.

Generative AI in University Classrooms

In the context of generative AI tools, the observed trends suggest that students have not yet integrated these technologies into their learning process. The reasons for that might come from a few different places. First, as mentioned previously, there is a pressing concern in academia about the threat of generative AI technologies, such as ChatGPT, to academic integrity and originality (Sullivan et al, 2023). During my time as an Instructor of English 191, I taught students how to write at an academic level, including working with sources (quotations, paraphrasing, summarizing, and synthesizing). In my experience, many students struggled with properly “borrowing” ideas from other authors and incorporating them into their own insights and conclusions. One of the biggest struggles came from the fear of plagiarism, which is a word that always causes distress among students.

University policies are clear and direct on rules about academic integrity. However, policies around the use of chatbots and other generative AI tools are relatively new, given how recent their introduction into these environments are. Because of that, many times,

universities and instructors resort to prohibiting the use of generative AI tools within the classrooms altogether (Sullivan et. al, 2023).

Because of this automatic connection between generative AI in learning and plagiarism, students may hesitate to engage with these tools from a fear of its use being deemed unethical. The hesitancy and lack of experience with using AI technologies for assignment completion shown by student's responses on the survey could be explained as a result of this connotation given to generative AI in the learning environment. How students perceive a technological innovation such as Generative AI, their views, concerns, and experiences of the technology can impact their willingness to engage with it and to integrate it into the learning process (Chan, 2023). Based on the insights gathered from the survey, there is a known awareness from students of the potential these systems have to perpetuate prejudices and stereotypes. This awareness doesn't necessarily come from personal negative experiences using the technology - as inferred based on the data gathered from the survey - but it could, potentially, be a result of exposure to data, news, testimonies, etc. This conclusion derives from the significant number of studies have been conducted on the benefits and challenges of AI in education, with results that highlight students' concern with ethical use (Gillissen et al., 2022; Jha et al., 2022, qtd. in Chan, 2023) limited human interaction/element (Bisdas et al., 2021; Essel et al., 2022, qtd. in Chan, 2023), potential data leakage (Bisdas et al., 2021, qtd. in Chan, 2023), absence of emotional connection (Chen et al., 2023, qtd. in Chan, 2023), and reduced job opportunities or increased demand in job practices (Ghotbi et al., 2022; Gong et al., 2019; Park et al., 2020, qtd. in Chan, 2023). The amount of information available on the good, bad, and ugly of AI usage, as shown above, could explain students' awareness of its potential for discrimination and prejudice.

The truth is, students entering higher education are being introduced to new and more demanding ways of communicating, writing, researching and even thinking. And generative

AI tools can be strong allies in helping students navigate this new environment. One of the biggest lessons left by the 2020 pandemic is that online and hybrid learning in higher education can be very effective (Chan et. al, 2022). Incorporating advancing technologies and recognizing the benefits they can provide for enhanced learning experiences is not only important, but necessary in this technological age. For international students and other linguistically diverse students in the United States, generative AI technologies are argued to help with vocabulary expansion and writing skills, as well as ease anxiety in starting new assignments (Sullivan et. al, 2023, Hockly, 2023). Beyond that, according to a study conducted in 2023, with higher education students in Hong Kong, by Cecilia Ka Yuk Chan, showed a positive correlation between frequency of use and confidence in generative AI technologies. The study concluded that exposure to generative AI technologies and hands-on experience may help in enhancing students' understanding and acceptance of it (Chan, 2023). Chan's results can help better understand why participants in this study showed hesitancy in using generative AI tools. Lack of experience, guidance, and proper preparation in face of constant emerging data pointing to the downsides of generative AI technologies, can culminate in hesitancy to integrate these tools into the learning process.

Ultimately, it is important to note the recognizable benefits that generative AI tools can bring to enhance learning experience. However, this research proposes a more critical lens into how the interactions with new, knowledge-producing technologies can overlap or collide with existing structures of power, both in society and in education, that marginalize diverse students and negate their cultural identities rather than empower it.

Cultural Identity and Learning Experiences

The notable percentage of participants expressing discomfort in sharing their cultural identity, combined with a skepticism when it comes to the impact of one's cultural identity in the education journey, provides an interesting point of discussion on how students see their

own cultural identity as well as how it impacts their experiences. The contrasting responses on the study conducted, from students who self-declared White and the student who self-declared Hispanic and/or Latino(a), leads to an interesting inquiry of how different populations understand the concept of cultural identity and its impact on both social and educational environments.

The marginalization of diverse populations we see in society is very much the same marginalization that happens with diverse students within the classroom. According to James Cummins (1996) "Culturally diverse students are disempowered educationally in very much the same way that their communities have been disempowered historically in their interaction with societal institutions." (Preface) Naturally, from the perspective of a diverse student who is aware of this power disparity, the obvious desire is for cultural identity to be scrapped off completely, to not have any impact on one's experience. Ultimately, it is the desire for impartiality and equality. However, the creation of learning systems that eliminate traces of diversity and focus on mainstream ideas already exists and it doesn't lead to equality; instead, it further deepens inequality.

Connecting the answers from the study to existing literature, we see that, for Paulo Freire, education is a means for freedom, for marginalized and oppressed groups to be empowered and equitable in society. However, for that to happen, a critical education, composed of diverse perspectives needs to be implemented, where different stories and voices are heard. Aronowitz (2009), argues:

> "For Freire literacy was not a means to prepare students for the world of subordinated labor or 'careers', but a preparation for a self-managed life. And self-management could only occur when people have fulfilled three goals of education: self-reflection, that is, realizing the famous poetic phrase, 'know thyself', which is an understanding

of the world in which they live, in its economic, political and, equally important, its psychological dimensions." (p. ix)

Aronowitz's commentary on Freire's literacy shows one of the most important goals of education, which he calls: self-reflection. The knowledge of one's own environment, in a political, economic, psychological, and inevitably social dimension, includes, naturally, the knowledge of one's own cultural identity. As Giroux (2010), questions "whose interests does public and higher education serve? How might it be possible to understand and engage the diverse contexts in which education takes place?" (p.717) There is a crucial need for a more critical and culturally sensitive educational environment.

One practical example of how cultural identity is not properly integrated into the learning process is the teaching of "foreign languages". I use "foreign" in quotation marks, because many languages other than English are spoken regularly and by a great number of people in the United States (as shown in Figure 3.1, p.26); therefore, they shouldn't be considered foreign. (Cummins, 2005) In schools, the target group for learning second-languages are fluent English Speakers, while the goal for students who have a different home language is to improve their English and make them fluent speakers. The consequence of that is "schools successfully transforming fluent speakers of foreign languages into monolingual English speakers, at the same time as they struggle, largely unsuccessfully, to transform English monolingual students into foreign language speakers." (Cummins, 2005, p. 586).

Lily Wong-Fillmore (2005) observes that during the forming years of preschool, typically at the age of four or five, marks an important period when children are most receptive to language acquisition. During this formative stage, kids absorb the language they are exposed to, a phenomenon with significant implications for those from households where languages other than English are spoken. Wong-Fillmore notes a trend where, upon entering the school system, these children rapidly lose proficiency in their primary language. This

rapid shift, according to Wong-Fillmore, can be attributed to an educational curriculum emphasizing English fluency under the premise of better preparing language-minority students for their educational journey (Wong-Fillmore, 2005).

This phenomenon becomes a lens through which we can comprehend the influence of early education on secondary and higher education. From preschool, cultural identity is negated and silenced, which creates enduring patterns that persist through the following educational years. As students transition into higher education, they bring with them a complex baggage—both social and educational. Looking at these issues helps us understand the impact evolving technologies can have in the higher education learning process of diverse students.

Early education students' way of dealing with the complexities of interacting with AI technologies are very different from higher education students. Students from middle and high school for example, when presented with these tools in the classroom, are usually under close guidance from teachers. However, higher education demands a new level of autonomy from students, as well as a capacity for critical thinking when engaging with different learning tools, especially new technologies such as generative AI. Examining the patterns established from early education provides a deeper understanding into the challenges faced by students of fully integrating cultural identity into the learning experience. Beyond that, it is also a path to understanding student interaction with generative AI, as well as its impact on both their educational, cultural, and social journeys.

Education and Civic Life

When it comes to student's perceived impact of higher education on civic life, the pattern of answers observed in the study conducted seems to suggest that a significant percentage of participants (28%) does not see a strong correlation of influence between the

two. It is important to note that the term “citizen” (as used in the survey question), carries different connotations derived from both teachings and embodied experiences. Before diving deeper into the correlation between education, cultural identity, and civic life. It is important to discuss the intricacies of the terms “citizen” and “citizenship”.

According to the *Oxford English Dictionary*, a citizen is a “a legally recognized subject or national of a state or commonwealth, either native or naturalized” or “an inhabitant of a particular town or city” (Oxford University Press, 2024). Being a citizen carries legal attributes pertaining to what a person is allowed or not to do in a country as well as certain privileges a person considered a citizen holds. One of the most important aspects of these definitions, for the purposes of this research, is the section stating, “either native or naturalized”. As previously argued, the United States is one of the countries that hosts the highest number of immigrants in the world, which, consequently, leads many immigrants to follow the path of naturalization, or in other words, to become American citizens. In order to become American citizens, individuals must be culturally assimilated into the national culture. Ideological, cultural, and linguistic requisites for citizenship are essential for civic participation, as in any other nation-state. In the case of the United States, basic English literacy and a commitment to liberty, equality, justice, and human dignity are required (Banks, 2020).

It is important to know, however, that even though citizens share similar commitments and ideologies, the United States should not be considered a “melting-pot”, but rather, a mosaic of multiculturalism, where individuals hold several cultural identities simultaneously. According to Banks (2020), many of these identification groups are involuntary and ascriptive and the variables of race, ethnicity, social-class, language, region, and religion influence the concordance and collision of one’s behaviors and views towards

mainstream ideals (Banks, 2020). Therefore, citizenship is ultimately an intersectional space, unique to each individual, rather than a homogeneous ideal.

According to Banks (2020), schools, historically, help reinforce a sense of needed homogeneity, "the western education system focuses on helping students develop national loyalty, commitments and allegiance to the nation state and have given little attention to their need to maintain commitments to their local communities and cultures" (Banks, p. 139). Right now, the multifaceted and complex identity of a huge portion of American youth stands in the way of their recognition as true Americans. Being an "American" holds the weight of negating their local communities and foreign cultures. It is important to note that Banks' argument focuses on early education and adolescence, rather than higher education. However, the data gathered from the survey conducted showed that a significant portion of participants do not see their higher education experience as a relevant influence in their civic lives. The responses suggest that students enter the higher education environment with not enough critical literacy, which prevents them from recognizing patterns learnt throughout their learning years (i.e. mainstream ideas, white-washed history) and how it can lead to the repetition of those patterns.

Education, both in early years as well as higher education, should aid students in how to exist in their intersectionality, not only in understanding how to navigate themselves but also in relation to the broader social and civic space. Henry A. Giroux (2010) clarifies how Freire's views on education focused on its importance in shaping students as critical citizens:

> For Freire, pedagogy is not a method or an *a priori* technique to be imposed on all students but a political and moral practice that provides the knowledge, skills, and social relations that enable students to explore the possibilities of what it means to be critical citizens while expanding and deepening their participation in the promise of a substantive democracy (p. 716)

Education holds a pivotal role of influence in students' critical understanding of the world, of their place in it and their relation to others. Freire's theory is similar to Banks' concept of transformative citizenship education, which should "help students to understand their multiple and complex identities or the ways in which their lives are influenced by globalization, or what their role should be in a global world" (Banks, p. 37).

In higher education classrooms, populated by individuals from various cultural backgrounds, students are presented with an opportunity to autonomously navigate and understand generative AI tools to absorb and interpret knowledge. If the awareness of these technologies' potential to perpetuate biases, stereotypical discourses and discriminatory patterns isn't present, students continue to be exposed to a process of expedite cultural assimilation. By perpetuating biased and discriminatory content, these tools contribute to the reinforcement of societal inequalities and to the marginalization and oppression of diverse populations, which expands well beyond learning experiences and it impacts diverse communities' ability to fully integrate themselves into the civic environment, as integral parts of American society.

Ultimately, the marginalization of diverse students in the classroom has significant implications in their civic life. It can lead to diminished civic engagement, decreased trust in institutions, limited opportunities for leadership, and a weakened sense of belonging or as mentioned above, of their recognition as Americans. Marginalized students in the classroom reflect the marginalization of diverse populations in broader society, contributing to their underrepresentation in decision-making and perpetuating social inequalities. Instead, as Gutman (2004) argues, "the dominant culture of the nation-state should incorporate aspects of the immigrants' experiences, cultures and languages, as they would enrich the mainstream culture and help the marginalized populations to reach a more equitable and recognizable civic place" (Gutman, 2004, qtd. in Banks, 2020, p.132). In the classroom, addressing this

issue requires the incorporation of critical citizenship education into the curriculum, creating inclusive learning environments that include diverse identities, promote equity, and empower diverse students to actively participate in civic life. Ultimately, aiming to break the existing patterns of social inequality and marginalization and create a society where all populations feel empowered to lean into their diverse identities while fully participating and taking advantage of the benefits of being a citizen.

Chapter 7: Conclusion

The development of new technologies is always accompanied by critical discussions of their impact in the many spheres of society. The fast growth of generative AI systems could not have been different. In fact, it propelled discussions of a much deeper critical caliber, as its potential to revolutionize human-machine interaction is unprecedented. The utilization of Generative AI as learning tools, in both secondary and higher education classrooms has been growing exponentially. Its use and applications are varied, from chatbots, such as ChatGPT, that generate knowledge based on prompts and converse with students in a human-like manner, to tools that create original videos, images, sounds and code.

This research aimed to further a still highly unexplored discussion of how the use of generative AI tools in higher education classrooms have the potential to perpetuate the marginalization of diverse students, impacting not only their learning experience but their civic space in American society. The issues surrounding the societal impact of generative AI are still not being considered when discussing learning disparities and technology advancement. The ways in which this issue affects students with complex and overlapping cultural identities goes well beyond the classroom and it invites us to reconsider existing power relations, and social systems of inequality.

Understanding the underlying subjectivity present in the development and functioning of technology is crucial to enlighten the fact that technology is not neutral. It is created, coded, trained and implemented by people. Beyond that, it is mostly owned by particular groups of people and therefore it replicates selected points of view, preferences and prejudices. The technological “coded gaze” (Buolamwini, 2023), in other words, the biases embedded in coded systems, tend to create unfair outcomes that privilege a selected group of individuals and ideals. The outcome is that marginalized populations remain disempowered

and silenced. It is imperative to consider these issues when contextualizing the role and impact of generative AI tools within the educational landscape.

Different from early education or secondary education students, who are utilizing these tools under close guidance of teachers, higher education students are operating with a newfound level of autonomy over their own learning experiences, including the use of technology in learning. Based on my experience as an undergraduate student, graduate student, and university instructor, I've witnessed how higher education students are demanded an almost proficient level of literacy when it comes to technology. Research and learning depend heavily on digital tools and databases, as well as on the critical interpretation of what constitutes "good" and "bad" knowledge.

As this research showed, however, schools from early education fail to prioritize a critical education that focuses on promoting cultural identity, language diversity and civic responsibilities. Consequently, mainstream ideals and beliefs are perpetuated throughout the forming learning years all the way to higher education where, nowadays, emerging technologies with clear potential to perpetuate biases and prejudice are roaming the learning classrooms.

In order to better understand the student's perspectives, attitudes and behaviors towards these issues, this research conducted a study, which consisted of an anonymous, online survey with first year students of English 191 at St. Cloud State University. The answers gathered from the survey emphasized the need for further exploration in understanding the underlying dynamics that shape student attitudes and behaviors towards generative AI. The biggest trends suggest a level of hesitancy and in integrating generative AI tools into the learning process, specifically to aid in the completion of assignments as well as a lack of familiarity with the tools. On the other hand, respondents showed a clear awareness of generative AI tools' potential to perpetuate inequality in the form of biased and

prejudiced discourse. Probing beyond, answers were varied when it came to whether students are comfortable expressing their cultural identity in their learning environments as well as the impact of it in their higher education experiences. The focal point of this segment of the study was an answer, from a diverse student, expressing a desire for their cultural identity to hold no impact on their experience whatsoever, in other words, a desire for impartiality and complete equality.

In exploring the implications, it becomes imperative to consider whether the observed disparities in responses regarding the expression and impact of cultural identity might extend to the utilization of generative AI tools. The discomfort expressed by a subset of students could hint at broader issues related to inclusivity, potentially influencing the adoption and reception of technology, as individuals may harbor concerns about biases within AI systems that may impact diverse cultural expressions.

At last, the survey probed participants to reflect on the impact of their higher education experience into their civic lives, which confirmed mixed perspectives varying from the recognition of a high impact to the disregard of the connection of influence between the two factors. This last pattern of responses reinforces the necessity of a more critical, holistic, and inclusive understanding of cultural identity as well as the intersectionality between education, technology, and societal values. As we navigate this intersection, the insights from this study contribute substantially to ongoing conversations regarding the ethical use of AI tools in educational settings.

Ultimately, this research set out to answer a few different questions. First, when looking into whether generative AI is disempowering diverse students inside the classroom, this research concludes that while the disempowerment of these student populations is happening, the causes of it are much more complex than simply generative AI. Diverse student marginalization, discrimination and silencing is part of the education system, from

early to higher education, caused by the improper integration of diverse cultural identities and languages into the learning process. In this context, generative AI, having the potential to perpetuate discourses that reinforce these issues, can serve as a tool that helps further and deepen the existing disempowerment of diverse students; it cannot, however, be held as the ultimate villain and single cause and source of these problems.

When it comes to the degree in which diverse students are being demanded to negate their cultural identities when interacting with these technologies, this research concludes that there is a significant cultural negation starting from the early education years that significantly impacts students' perspectives in higher education. Both the existing literature and the study conducted help to better understand how the lack of proper integration of diverse cultural identities and the empowerment of language diversity in early educational experiences cripple students' ability to, later in their educational journey, critically engage with emerging technological tools such as generative AI.

Last, by looking at what the impact of diverse student marginalization in the classroom is to their roles in society, this research concludes that there is a significant and direct impact between learning experiences and civic life. The marginalization of diverse students leads to the underrepresentation of their voice and their stories in decision-making, perpetuating the cycle of social inequalities. Ultimately, it can lead to diminished civic engagement, decreased trust in institutions, limited opportunities for leadership, and a weakened sense of belonging. The education process should aid in the creation of a more equitable society and the study conducted helped better understand this pressing need of a critical and inclusive citizenship education, as well as more inclusive learning environments that affirm diverse identities and empower diverse students to actively participate in civic life.

These findings prompt a reevaluation of pedagogical approaches, emphasizing the necessity for technology integration that aligns with diverse student needs and values.

Recognizing these dynamics is imperative not only for students, but for educators, policymakers, and technology developers striving to ensure that AI systems help foster an inclusive learning environment. Moreover, they call for a holistic reconsideration of educational practices to address the voices and perceptions of a diverse student body, fostering an environment that is not only technologically advanced but also socially equitable.

The integration of generative AI as a learning tool within university classrooms has the potential to exacerbate language discrimination and further marginalize diverse student populations. Recognizing the inherent subjectivity embedded in the development of these tools, a reflection of existing power disparities within society, is crucial for informing more equitable utilization and integration strategies. This awareness is fundamental in cultivating a generation of students who can harness the benefits of AI while actively challenging and mitigating its potential negative impacts on cultural diversity and inclusivity.

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Appendix A

Study Recruitment Letter

Hello,

My name is Greici Alles, I am a masters candidate for the English Studies program at St. Cloud State University.

I am conducting a research study on the impact of generative Artificial Intelligence learning tools as an aggravator of inequality within university classrooms for linguistically diverse students.

To help me comprehend how linguistically diverse students interact with generative AI tools within university classrooms, I am hoping to recruit SCSU's English 191 students to answer a brief online survey.

Your participation in this study will require the completion of a brief online survey. This should take approximately 15 minutes of your time. Your participation will be anonymous and you will not be contacted again in the future. You will not be paid for being in this study. This survey involves minimal risk to you. The benefits, however, may impact society by helping increase knowledge about how new AI technologies are being used within university classrooms and are helping re-shape the learning landscape and therefore have the potential to further or hinder inequality of learning for different populations of students.

Your participation in this study is completely voluntary. You do not have to answer any question that you do not want to answer for any reason. You can change your mind and discontinue participation at any time.

I will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem you may contact me, Greici Alles at **greici.alles@go.stcloudstate.edu**

You can access the online survey here: https://pt.surveymonkey.com/r/XT5GYVH

Thank you!

Best Regards,
Greici Alles

Appendix B

Implied Consent Form

Hello!

My name is Greici Alles I am a master's student at St. Cloud State University.

You are being invited to participate in this research study about the impact of generative Artificial Intelligence learning tools within university classrooms. I am interested in finding out how the use of generative AI learning tools can serve as an aggravator of learning inequality for linguistically diverse students.

Your participation in this study will require the completion of the following online survey. This should take approximately 15 minutes of your time. Your participation will be anonymous and you will not be contacted again in the future. You will not be paid for being in this study. This survey involves minimal risk to you. The benefits, however, may impact society by helping increase knowledge about how new technologies being used within university classrooms are helping re-shape the learning landscape and promote more or less inequality of learning for different populations of students.

During this survey, you will be asked about languages spoken by you and your household, your familiarity and experience with artificial intelligence tools, your opinion on its potential to be biased and your experience with cultural identity in the higher education environment.

Your participation in this study is completely voluntary. You do not have to answer any question that you do not want to answer for any reason. You can change your mind and discontinue participation at any time. I will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem you may contact me, Greici Alles at **greici.alles@go.stcloudstate.edu.** Also, feel free to contact me after May 2024 to find out the results of this research, which will be part of my master's thesis.

The completion of this survey implies your consent to participate. By completing this online survey, you confirm that you have read this consent form, are a legal adult, and voluntarily agree to participate in this research study.

If you choose to participate, please complete the following survey and submit it.

Thank you!

Appendix C

Survey Questions

Q1: What is your race/ethnicity?

a) Asian
b) Black or African American
c) Hispanic or Latino/a
d) Middle Eastern or North African
e) Multiracial or Multiethnical
f) Native American or Alaska Native
g) Pacific Islander
h) White
i) Another race or ethnicity, please describe below:

Q2: Do you or anyone in your household speak a language other than English?

a) Yes
b) No

Q3: How familiar are you with generative Artificial Intelligence (AI) tools?

a) Very familiar, I can successfully use AI tools and the insights provided correspond successfully to what I need.
b) Somewhat familiar, I can use AI tools but the insights provided are not usually what I am looking for
c) Unfamiliar, I often have trouble getting useful information out of generative AI tools.

Q4: How often do you use generative AI tools (i.e. chatGPT, Knowji, Genei, etc.) to complete class assignments?

a) Very often
b) Sometimes
c) Rarely
d) Never

Q5: Have you personally experienced any negative effects of generative AI tools while using it for classroom assignments? If yes, please explain.

Q6: Based on your experience, do you think generative AI technologies have the potential to perpetuate cultural stereotypes or biases? Please explain your answer.

Q7: How much do you believe your university education impacts your role as a citizen?

a) High Impact
b) Medium Impact
c) Low Impact
d) No Impact

Q8: How important do you feel your cultural identity is in shaping your overall university experience? Please explain your answer

Q9: How comfortable do you feel expressing your cultural identity within the university classroom environment?

a) Very comfortable
b) Comfortable
c) Uncomfortable
d) Very uncomfortable

Appendix D

IRB Approval

INSTITUTIONAL REVIEW BOARD (IRB)

720 4th Avenue South AS 101, St. Cloud, MN 56301-4498

February 12, 2024

Greici Alles
Email: greici.alles@go.stcloudstate.edu

Faculty Mentor: Michael Dando

The Institutional Review Board has reviewed your protocol to conduct research involving human subjects.

Project Title: Generative AI and the challenge of equity and access for diverse students in university classrooms.

Your project has been: Approved

IRB PROTOCOL DETERMINATION: Exempt

SCSU IRB#: 60572796

Please read through the following important information concerning IRB projects .

The principal investigator assumes the responsibilities for the protection of participants in this project. Any adverse events must be reported to the IRB as soon as possible (ex. research related injuries, harmful outcomes, significant withdrawal of subject population, etc.).
The principal investigator must seek approval for any changes to the study (ex. research design, consent process, survey/interview instruments, funding source, etc) by completing an IRB Modification/RevisionequestForm:https://webportalapp.com/webform/irb_modification_request_form The IRB reserves the right to review the research at any time.

Feel free to contact the IRB for assistance at 320-308-4932 or email ResearchNow@stcloudstate.edu and reference the SCSU IRB number when corresponding for expedited response. Additional information can be found on the IRB website https://www.stcloudstate.edu/irb/default.aspx.

Sincerely,

IRB Chair:	IRB Institutional Official
Dr. William Collis-Prather	Dr. Claudia Tomany
Program Director	Associate Provost for Research
Applied Clinical Research	Dean of Graduate Studies