

**Research Article****AI-DRIVEN BIASES IN CURRICULUM: MEASURING THE UNINTENDED INFLUENCE OF GENERATIVE AI ON ACADEMIC KNOWLEDGE PRIORITIES*****Emily J. Barnes**

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Abstract

This study employed a comprehensive methodological framework to systematically evaluate the influence of generative artificial intelligence (GAI) on curriculum design. A combination of machine learning algorithms, computational tools, and statistical analyses were used to assess equity, inclusivity, and cultural representation in AI-generated and human-designed curricula. The analysis encompassed 1,000 syllabi, comprising 490 AI-generated and 510 human-designed samples, evaluated using techniques such as Named Entity Recognition (NER), Latent Dirichlet Allocation (LDA), and sentiment analysis, implemented through Python and Google Colab. Results revealed significant disparities, with AI-generated curricula demonstrating a Western-centric bias in 72% of references, compared to 50% in human-designed syllabi. Thematic richness was also limited in AI-generated syllabi, averaging 4.5 clusters compared to 7.2 in human-designed content. Sentiment analysis highlighted neutral tones in AI-generated materials that often-masked underlying exclusionary biases, whereas human-designed curricula displayed broader ideological diversity and inclusivity. Despite their strengths, human-designed syllabi occasionally lacked depth in integrating marginalized perspectives. This research contributes to the growing body of knowledge on equitable AI integration in education revealing the importance of addressing biases in AI-driven systems. Practical recommendations include diversifying AI training datasets, embedding fairness-aware algorithms, and fostering interdisciplinary collaboration between educators, technologists, and cultural experts. By implementing these strategies, higher education institutions can leverage the efficiency of GAI while ensuring curricula reflect diverse global perspectives and uphold the transformative goals of inclusive education.

Keywords: Generative Artificial Intelligence, Curriculum Design, Equity, Inclusivity, Higher Education, Algorithmic Fairness, Cultural Representation.

INTRODUCTION

Generative artificial intelligence (GAI) has emerged as a transformative force in higher education, particularly in curriculum design and instructional content creation [27]. By automating traditionally labor-intensive processes such as syllabus development, assignment generation, and content curation, GAI tools enable educators to focus on pedagogy and student mentorship [1][15]. These technologies also foster innovation by supporting interdisciplinary collaboration and creating scalable, tailored educational materials for diverse learners [14]. In addition to enhancing efficiency, GAI systems hold the promise of democratizing access to high-quality educational resources, potentially addressing resource gaps in underserved regions [27][1]. However, the widespread adoption of GAI in education has also raised critical concerns regarding equity, inclusivity, and cultural representation [18]. Critics argue that biases embedded within the training datasets of GAI tools largely reflecting Western-centric perspectives can marginalize underrepresented voices and limit the diversity of perspectives provided to learners [7][19]. These biases risk perpetuating systemic inequities, narrowing students' critical thinking skills, and restricting their ability to engage with global and diverse perspectives [4][24]. For instance, AI-generated syllabi often emphasize Western governance systems while neglecting indigenous knowledge frameworks or community-driven economic models, creating curricula that fail to reflect the plurality of human experiences [3][28]. This misrepresentation undermines efforts to create inclusive and equitable educational environments, a critical goal of higher education.

Statement of the Problem

The increasing reliance on GAI in curriculum design exacerbates the challenges posed by systemic biases. While these technologies offer unprecedented scalability and efficiency, their outputs frequently reinforce dominant cultural narratives, marginalizing alternative voices and perspectives [25][4][21]. This bias undermines the potential of education to serve as an equitable and inclusive platform for knowledge dissemination. For example, AI-generated curricula have been found to disproportionately reference Western-centric texts, limiting the representation of non-Western regions and ideologies, which are crucial for fostering critical inquiry and cultural competence [9][20]. Existing research provides limited guidance on how to address these disparities effectively. Studies often focus on identifying biases without offering actionable solutions for fostering inclusivity and equity in AI-generated curricula [19][15]. Furthermore, current frameworks for evaluating educational materials seldom consider the complex interplay between cultural representation, thematic richness, and ideological diversity [8]. As a result, there is a pressing need for empirical research that systematically examines these dimensions and provides strategies for developing inclusive and equitable AI-driven educational content.

Objectives of the Study

To ensure the research questions are effectively addressed, the following objectives are needed for the study:

- 1. Examine the Influence of Generative AI on Curriculum Design:** Assess the extent to which generative AI tools shape the selection of topics, readings, and thematic

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structures in educational curricula, and compare these choices with human-designed curricula.

2. **Analyze Disparities in Representation:** Identify and evaluate measurable disparities in cultural, ideological, and regional representation within AI-generated curricula and their implications for inclusivity and equity.
3. **Evaluate the Impact of Biases on Student Learning:** Investigate how biases in AI-generated curricula influence students' critical engagement with global and diverse perspectives and explore the broader implications for fostering inclusivity and equity in higher education.

Research Questions

To achieve these objectives, the study addresses the following research questions:

1. To what extent do generative AI tools shape the selection of topics, readings, and thematic structures in educational curricula, and how do these choices compare to human-designed curricula?
2. What measurable disparities exist in the cultural, ideological, and regional representation within AI-generated curricula, and how do they influence inclusivity and equity?
3. How do biases in AI-generated curricula affect students' critical engagement with global and diverse perspectives, and what implications does this have for higher education?

Purpose of the Study

This study aims to contribute to the body of knowledge on the influence of generative artificial intelligence (GAI) on equitable curriculum design and to provide evidence-based strategies for addressing the challenges posed by GAI in education, thereby fostering ethical practices and promoting inclusive educational innovation. This research contributes to the development of equitable AI systems that align with the transformative goals of education: democratize knowledge, amplify marginalized voices, and prepare learners for an interconnected world.

MATERIALS AND METHODS

Research Design: This study employed a quantitative descriptive research design to systematically evaluate equity, inclusivity, and representational diversity in AI-generated and human-designed curricula. The integration of rubric-based evaluations and computational analyses enabled a data-driven examination of these critical dimensions, consistent with previously established frameworks [1][5].

Population of the Study: The study population included 25 participants from geographically diverse regions, representing various academic ranks and disciplines, as shown in Table 1. Faculty participants held advanced degrees, primarily Ph.D.s, in fields such as humanities, social sciences, and international studies. Graduate-level student participants contributed additional perspectives from disciplines such as international studies, humanities, and social sciences, emphasizing diversity across participants [15].

Sample and Sampling Techniques: A total of 1,000 curriculum samples were analyzed, comprising 490 AI-generated syllabi and 510 human-designed syllabi. These

samples were drawn from public repositories, institutional archives, and outputs generated using GPT-4. Selection criteria required syllabi to contain sufficient detail in readings, objectives, case studies, and thematic structures for thorough evaluation, following methodological best practices [23].

Data Standardization: To ensure consistency across data sources, extraneous formatting, headers, and footnotes were removed. Publicly available syllabi were anonymized to protect institutional and individual identifiers, adhering to ethical research practices for AI studies [24].

Research Instrument: A standardized rubric assessed dimensions such as cultural representation, ideological diversity, regional focus, and inclusivity perception. This rubric provided a structured framework for evaluating course descriptions, learning objectives, assigned readings, case studies, and thematic structures, reflecting criteria established for assessing AI bias in educational materials [22].

Reliability of the Instrument: The reliability of the rubric was confirmed through a test-retest method, where a subset of participants evaluated sample syllabi twice, with a two-week interval between evaluations. The high correlation coefficient demonstrated the instrument's consistency.

Method of Data Collection: Participants systematically evaluated the curriculum datasets using the rubric. Data were directly extracted from course descriptions, learning objectives, assigned readings, case studies, and assignments, aligning with established practices for analyzing inclusivity in higher education content [28].

Data Analysis Methods: Table 2 categorizes the analysis techniques used to examine disparities between AI-generated and human-designed curricula.

RESULTS

Participant Demographics

Table 1 presents the demographics of 25 faculty and student evaluators from diverse academic disciplines, institutional locations, and levels of experience. Faculty participants, distributed across senior, mid-career, and early-career ranks, contributed expertise from regions such as Sub-Saharan Africa, North America, Europe, and South Asia. The diversity of perspectives enhanced the validity of findings [1].

Cultural Representation

AI-generated curricula exhibited significant Western-centric bias, with 72% of references categorized as Western, compared to 50% in human-designed materials. Non-Western perspectives comprised only 8% of AI-generated content, while human-designed curricula included 20% from non-Western contexts Table 3. These disparities were statistically significant χ^2 , $N = 1000 = 46.29$, $p < 0.001$, corroborating findings regarding representational inequities in AI systems [15]. Figure 1 highlights these disparities.

Figure 1 illustrates the dominance of Western perspectives in AI-generated curricula compared to the broader inclusion in human-designed materials.

Table 1. Participant Demographics

Participant ID	Rank	Discipline	Experience	Credentials	Institutional Location
P1	Faculty	Humanities	Senior	Ph.D.	USA
P2	Faculty	Social Sciences	Senior	Ph.D.	UK
P3	Faculty	Int. Studies	Senior	Ph.D.	Ghana
P4	Faculty	Humanities	Senior	Ph.D.	Canada
P5	Faculty	Social Sciences	Mid-Career	Ph.D.	Australia
P6	Faculty	Int. Studies	Mid-Career	Ph.D.	India
P7	Faculty	Humanities	Mid-Career	Ph.D.	South Africa
P8	Faculty	Social Sciences	Mid-Career	Ph.D.	Brazil
P9	Faculty	Int. Studies	Mid-Career	Ph.D.	Kenya
P10	Faculty	Humanities	Mid-Career	Ph.D.	Germany
P11	Faculty	Humanities	Early-Career	Ph.D.	USA
P12	Faculty	Social Sciences	Early-Career	Ph.D.	Canada
P13	Faculty	Int. Studies	Early-Career	Ph.D.	Nigeria
P14	Faculty	Humanities	Early-Career	Ph.D.	UK
P15	Faculty	Social Sciences	Early-Career	Ph.D.	India
P16	Student	Int. Studies	Undergraduate	N/A	South Africa
P17	Student	Humanities	Undergraduate	N/A	Australia
P18	Student	Social Sciences	Graduate	M.A.	Kenya
P19	Student	Int. Studies	Graduate	M.Sc.	Brazil
P20	Student	Humanities	Graduate	M.A.	Germany
P21	Student	Humanities	Undergraduate	N/A	USA
P22	Student	Social Sciences	Graduate	M.Sc.	Canada
P23	Student	Int. Studies	Graduate	M.Sc.	Ghana
P24	Student	Humanities	Undergraduate	N/A	UK
P25	Student	Social Sciences	Graduate	M.Sc.	India

Table 2. Methods of Data Analysis

Analysis Type	Purpose and Methodology
Descriptive Statistics	Frequency counts, percentages, means, and standard deviations summarized representation, inclusivity, and thematic diversity [1].
Inferential Statistics	Chi-Square Tests: Detected disparities in cultural and geographic representation. Mann-Whitney U Tests: Compared differences in ideological diversity and thematic richness. Independent t-Tests: Evaluated inclusivity perception scores between curriculum types.
Computational Analysis	Regression Analysis: Identified predictors of inclusivity perception, such as cultural and ideological diversity. Tokenization: Text was segmented into linguistic units using spaCy. Named Entity Recognition NER: Extracted references to geographic locations and cultural entities e.g., "Indigenous Peoples", as described by [16]. Latent Dirichlet Allocation LDA: Identified thematic clusters and measured thematic richness using Python's gensim library, echoing approaches [15]. Sentiment Analysis: TextBlob assessed curriculum tone, classifying sentiments as positive, neutral, or negative [15] [10]. Rubric-Based Scoring: Participants rated syllabi on dimensions like cultural voice diversity and regional depth [28].
Thematic Analysis	Software Used: NVivo was employed to analyze textual data from course descriptions, learning objectives, assigned readings, case study selections, and thematic structures [11]. Data Extraction: Textual elements were systematically extracted to ensure comprehensive coverage of curricular components. Theme Identification: Key themes such as "cultural marginalization," "inclusive framing," and "regional depth" were identified based on rubric criteria. Linking to Rubric Criteria: Themes were directly linked to dimensions such as cultural representation, ideological diversity, and thematic richness outlined in the standardized rubric. Comparative Analysis: Thematic patterns were evaluated to determine differences in content structure and thematic depth between AI-generated and human-designed curricula. Textual Patterns: Recurring patterns in language use, representation, and narrative framing were analyzed to assess thematic alignment with inclusivity and equity goals.

Table 3. Comparative Analysis of Cultural Representation in Curricula

Cultural Representation	Western %	Global %	Non-Western %	χ^2 , N=1000	p-value
AI-Generated Curricula	72%	20%	8%	46.29	< 0.001
Human-Designed Curricula	50%	30%	20%	46.29	< 0.001

Table 4. Geographic Representation in Curricula

Cultural Representation	Western %	Global %	Non-Western %	χ^2 , N=1000	p-value
AI-Generated Curricula	65	20	8	46.29	< 0.001
Human-Designed Curricula	45	30	25	46.29	< 0.001

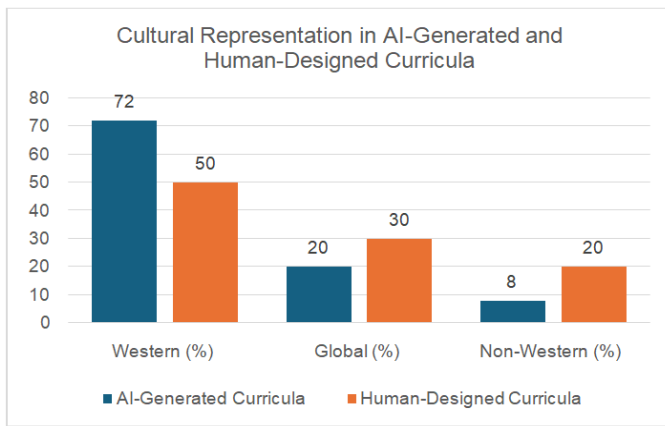


Figure 1. Cultural Representation in AI-Generated and Human-Designed Curricula

Rubric-based evaluations reinforced these findings, with AI-generated curricula scoring 2.3 out of 5 for "Diversity of Cultural Voices," compared to 4.2 for human-designed syllabi. Participants critiqued AI-generated curricula as being "superficial" in their approach to inclusivity, while human-designed materials were commended for their nuanced integration of underrepresented voices.

For example, the course Introduction to World Literature included the following reading list:

- Shakespeare, Hamlet (England)
- Dickens, Great Expectations (England)
- Twain, the Adventures of Huckleberry Finn (United States)
- Hemingway, the Old Man and the Sea (United States)
- Fitzgerald, the Great Gatsby (United States)

This list, heavily focused on male authors from English-speaking, Western cultures, lacked representation of women, non-Western authors, and diverse racial, ethnic, and cultural voices. As a result, it received a score of 1 out of 5 for inclusivity.

Regional Focus

Geographic distribution further emphasized Western dominance in AI-generated curricula 65%, compared to 45% in human-designed syllabi. Non-Western content, such as Sub-Saharan Africa and Southeast Asia, was underrepresented in AI-generated materials Table 4. Figure 2 visually highlights these disparities, showing the overrepresentation of Western regions in AI-generated curricula compared to the broader geographic scope of human-designed syllabi.

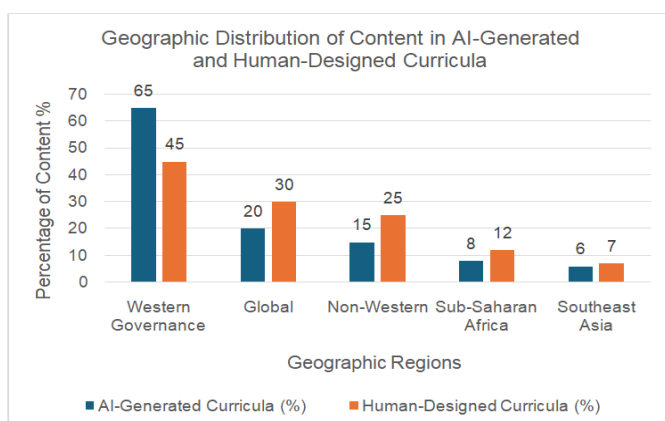


Figure 2. Geographic Distribution in AI-Generated and Human-Designed Curricula

Rubric-based scores supported these observations, with AI-generated curricula scoring 2.0 for "Geographic Diversity" and 2.3 for "Depth of Regional Narratives," compared to 4.3 and 4.2, respectively, for human-designed syllabi. For instance, AI-generated syllabi on global economic systems predominantly focused on Western economies, such as the U.S. and European Union, while human-designed syllabi included examples from cooperative farming in Latin America and climate resilience initiatives in the Pacific Islands.

For example, the course Introduction to World Literature included the following reading list:

- Achebe, Things Fall Apart (Nigeria)
- Márquez, One Hundred Years of Solitude (Colombia)
- Morrison, Beloved (United States)
- Murakami, Norwegian Wood (Japan)
- Adichie, Half of a Yellow Sun (Nigeria)

This list featured authors from diverse geographic regions, including Africa, Asia, Latin America, and North America, and highlighted both male and female voices. Its broad representation of global perspectives earned a score of 4.5 out of 5 for regional focus.

Ideological Diversity

AI-generated curricula displayed a narrower ideological range, with 78% of thematic clusters aligned with Western norms, compared to 50% in human-designed syllabi. Human-designed curricula offered greater balance, incorporating critical perspectives 25% and pluralistic frameworks 25%, as shown in Table 5. These results are consistent with [20], who emphasized the importance of ideological diversity in decolonizing educational content.

For example, the Introduction to Ethics syllabus included a series of classroom debate topics:

- Should governments prioritize individual freedoms over collective security?
- Is capitalism the best economic system?
- Are universal human rights a realistic concept?
- While the debate topics were engaging and encouraged critical thinking, they heavily leaned toward Western-centric frameworks of ethics and governance. There were no topics exploring ethical frameworks from non-Western traditions, such as Ubuntu (Africa) or Confucianism (East Asia), nor were there debates that addressed pressing contemporary global issues, such as climate ethics or digital privacy.

As a result, the syllabus received a score of 2 out of 5 for Ideological Diversity. Participants noted that expanding debate topics to include diverse cultural and philosophical perspectives could enhance students' understanding of ethics in a global and inclusive context. Figure 3 provides a visual comparison of ideological diversity metrics, illustrating the broader range of perspectives in human-designed curricula.

Inclusivity Perception

Rubric-based evaluations revealed that AI-generated curricula scored significantly lower across inclusivity criteria, including language use 2.5, acknowledgment of learner needs 2.4, and representation of marginalized voices 2.3.

Table 5. Ideological Diversity in Curriculum Content

Cultural Representation	Western Norms %	Critical Perspectives %	Pluralistic Frameworks %	Test Statistic	p-value
AI-Generated Curricula	78	12	10	U = 950	< 0.001
Human-Designed Curricula	50	25	25	U = 950	< 0.001

Table 6. Inclusivity Perception in Curriculum Content

Inclusivity Criterion	Language Use Mean ± SD	Learner Needs Mean ± SD	Marginalized Voices Mean ± SD	Test Statistic	p-value
AI-Generated Curricula	2.5 ± 0.7	2.4 ± 0.8	2.3 ± 0.9	t48 = -7.42	< 0.001
Human-Designed Curricula	4.6 ± 0.6	4.4 ± 0.7	4.5 ± 0.6	t48 = -7.42	< 0.001

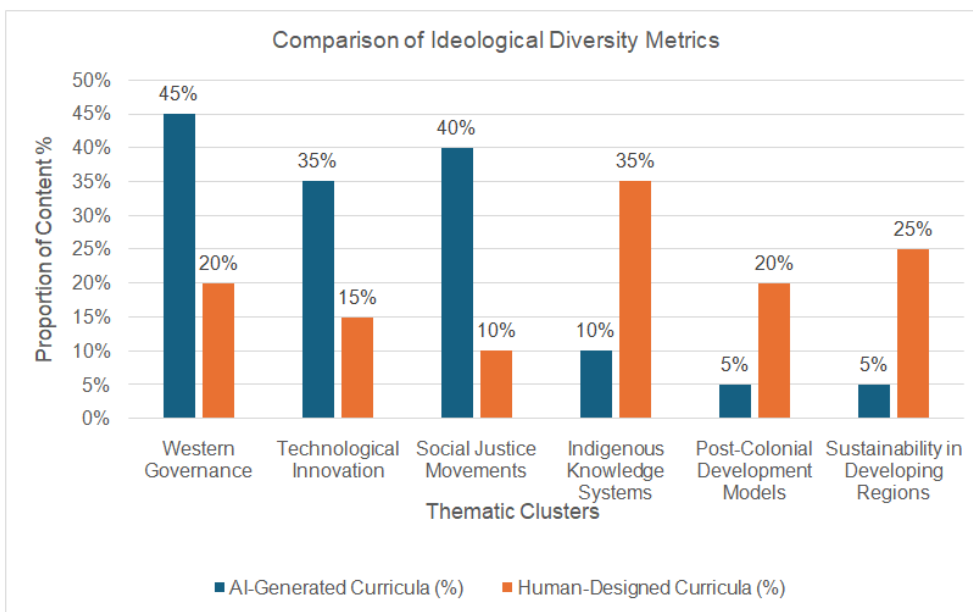


Figure 3. Comparison of Ideological Diversity Metrics

By contrast, human-designed curricula achieved higher scores in these areas, 4.6, 4.4, and 4.5, respectively $t_{48} = -7.42, p < 0.001$ Table 6.

For example, the syllabus for Global Art Movements included the following topics and artists:

- The Renaissance: Michelangelo and da Vinci (Italy)
- Impressionism: Monet and Degas (France)
- Abstract Expressionism: Pollock and Rothko (United States)
- Japanese Ukiyo-e: Hokusai and Hiroshige (Japan)
- Mexican Muralism: Rivera and Orozco (Mexico)

While the syllabus incorporated artistic contributions from multiple regions, reviewers noted that the focus remained on widely recognized movements and predominantly male artists. The inclusion of Japanese and Mexican art broadened its scope but missed opportunities to highlight underrepresented voices, such as Indigenous artists, women, and contemporary creators from Africa and Southeast Asia. As a result, the syllabus was seen as moderately inclusive, earning a score of 3 out of 5 for inclusivity. Reviewers suggested adding works by artists like Frida Kahlo (Mexico), El Anatsui (Ghana), and Yayoi Kusama (Japan) to enhance representation and diversity of voices.

Thematic Analysis of Curricula

LDA identified that AI-generated syllabi averaged 4.5 thematic clusters, compared to 7.2 in human-designed syllabi. Thematic richness in human-designed curricula included diverse themes,

such as "Indigenous Knowledge Systems" and "Feminist Critiques," aligning with [16]. Sentiment analysis revealed that AI-generated content was predominantly neutral 65%, while human-designed syllabi demonstrated more positive sentiment, reflecting efforts to foster inclusivity and equity Figure 5.

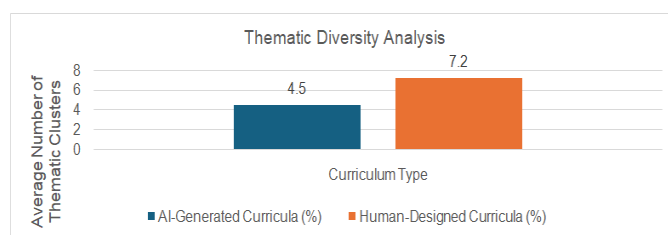


Figure 4. Thematic Diversity Analysis

This figure demonstrates the broader thematic scope of human-designed syllabi compared to AI-generated materials.

Sentiment Analysis

Sentiment analysis conducted using TextBlob revealed that 65% of AI-generated content exhibited neutral tones, often masking exclusionary biases [2]. Human-designed curricula displayed a higher proportion of positive sentiments, reflecting deliberate efforts to promote inclusivity and equity.

This figure compares sentiment scores between the two curriculum types, highlighting the emphasis on inclusivity and equity in human-designed materials.

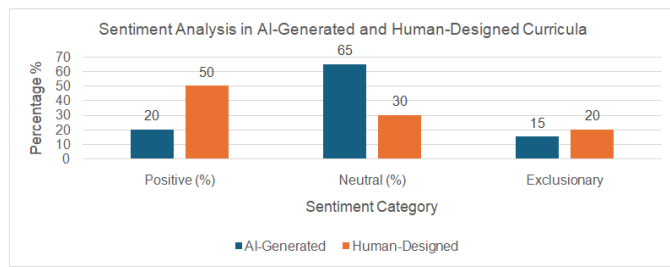


Figure 5. Sentiment Analysis in AI-Generated and Human-Designed Curricula

DISCUSSION

This study investigated inclusivity, cultural representation, and ideological diversity within AI-generated and human-designed curricula, emphasizing their implications for equity in higher education. By integrating rubric-based evaluations, computational techniques, and thematic analysis, the findings illuminate both the potential and challenges of incorporating AI technologies into curriculum design. While AI systems offer scalability and efficiency, their inherent biases risk perpetuating systemic inequities. In contrast, human-designed curricula demonstrate greater representational diversity but still exhibit gaps necessitating intentional improvements [1][3].

Influence of AI on Curriculum Design

To what extent do generative AI tools influence the selection of topics, readings, and examples in curriculum design?

AI-generated curricula exhibited a narrower thematic scope, with an average of 4.5 thematic clusters per syllabus compared to 7.2 in human-designed syllabi. Dominant themes in AI-generated materials, such as "Western Governance" and "Technological Innovation," often overshadowed critical and underrepresented perspectives, such as indigenous knowledge systems or feminist critiques. For example, AI syllabi on global economic systems disproportionately emphasized neoliberal frameworks, marginalizing alternative models from non-Western regions. These findings align with thematic constraints and the necessity of incorporating diverse knowledge systems into AI-driven curriculum designs [17][19][13]. Human-designed curricula demonstrated broader thematic richness by integrating nuanced narratives and diverse perspectives. However, gaps persisted, with some curricula failing to offer an in-depth exploration of marginalized voices. This shows the need for deliberate oversight to address latent biases, as emphasized by those who advocate for curricula grounded in equity and inclusivity [9].

Disparities in Representation

Are there measurable disparities in the representation of minority perspectives, underrepresented regions, or non-mainstream ideologies in AI-generated academic content?

AI-generated curricula exhibited significant biases, with 72% of cultural references categorized as Western and only 8% reflecting non-Western contexts. For instance, AI syllabi on global history often omitted pivotal events such as the Haitian Revolution, centering instead on Western revolutions. In contrast, human-designed curricula provided a more balanced representation, with 50% Western, 30% global, and 20% non-Western content. However, qualitative analyses revealed that

non-Western perspectives in human-designed materials were often relegated to supplementary readings rather than integrated into core content. These disparities resonate with findings documented in the underrepresentation of non-Western voices in educational materials and emphasize the importance of inclusive content development by [7][14][26].

Impact on Student Learning

How do biases in AI-generated curricula affect students' understanding of diverse global and cultural perspectives?

Biased curricula, particularly those generated by AI, risk narrowing students' exposure to diverse perspectives and hindering their ability to critically engage with global issues. Thematic analysis revealed that AI-generated syllabi often lacked the depth necessary to foster cultural competence and critical thinking. As participants noted, AI syllabi tended to provide "one-dimensional perspectives" detached from real-world complexities. While human-designed curricula offered more comprehensive coverage, limitations in fully integrating marginalized voices emphasized the need for continuous refinement [6][27].

Implications for Higher Education

The findings address systemic inequities embedded within AI-generated curricula. Systems disproportionately emphasizing Western ideologies and narratives risk perpetuating exclusionary educational practices, undermining efforts to foster inclusion and critical inquiry in higher education. Institutions must adopt intentional strategies to diversify AI training datasets, implement fairness-aware algorithms, and embed ethical oversight into curriculum design processes [12][7].

Practical Implementation Strategies

Equitable and inclusive curricula require collaboration between educators, technologists, and cultural experts. Equity committees should regularly evaluate curricula for biases, while advanced analytics in learning management systems can provide real-time feedback on inclusivity metrics. Faculty development programs can empower educators to critically assess and adapt AI-generated syllabi to fill gaps in representation and inclusivity. Workshops on curriculum design could guide faculty in evaluating thematic content, cultural representation, and narrative framing, enhancing the inclusivity of both AI-generated and human-designed curricula [14][23].

Ethical Oversight and Governance

Governance frameworks must prioritize transparency and inclusivity by involving diverse stakeholders in shaping AI systems for curriculum design. Oversight committees should establish inclusivity benchmarks and assess curricula against these standards to ensure equitable representation. Investment in longitudinal studies is essential for evaluating the long-term impacts of AI-generated curricula on students' critical thinking, cultural competence, and perceptions of inclusivity [18][15].

Advancing Decolonization and Equity through AI

AI technologies hold transformative potential to advance decolonization and equity in education by diversifying content

and challenging traditional knowledge hierarchies. However, realizing this potential requires intentional design and ethical oversight. AI systems must move beyond tokenistic inclusions to embed substantive engagement with marginalized perspectives, such as indigenous knowledge systems and post-colonial governance models. Faculty must play a critical role in advocating for inclusive curricula that reflect the diversity of human experiences while leveraging AI to amplify underrepresented voices [28][3]. By embedding principles of equity, decolonization, and ethical oversight into AI-driven curriculum design, higher education institutions can harness the potential of AI technologies to foster critical inquiry and social justice. This study reinforces that the transformative promise of AI in education depends on intentionality and ethical governance, enabling institutions to create inclusive and empowering learning environments.

Conclusion

This study investigated inclusivity, cultural representation, and ideological diversity within AI-generated and human-designed curricula, emphasizing their implications for equity in higher education. The findings revealed significant disparities between the two approaches. AI-generated curricula exhibited a pronounced Western-centric bias, with 72% of cultural references derived from Western contexts compared to 50% in human-designed syllabi. Furthermore, AI-generated syllabi displayed a narrower thematic scope, averaging 4.5 thematic clusters per syllabus, and lacked meaningful engagement with critical or non-Western perspectives. Sentiment analysis reinforced these findings, revealing that AI-generated content often masked exclusionary biases, whereas human-designed curricula displayed greater inclusivity and equity. These observations align with studies emphasizing the limitations of AI-driven curriculum development and its potential to perpetuate systemic inequities [1][25]. Despite their broader thematic range and more inclusive approaches, human-designed curricula also demonstrated limitations. While these materials incorporated non-Western and critical perspectives more frequently, qualitative analyses indicated occasional superficiality in their integration. This aligns with research on the challenges of ensuring substantive engagement with marginalized perspectives in educational content [9][21]. The study highlights the need for a balanced approach to curriculum development that combines efficiency and scalability of AI with ethical frameworks. The deliberate integration of diverse cultural perspectives, critical ideologies, and regional narratives is essential for creating curricula that reflect the complexities of global society and prepare students for critical engagement in an interconnected world [15][28].

Recommendations

- **Develop Diverse and Inclusive AI Training Datasets:** Collaborate with institutions to diversify the datasets used for training AI systems. Incorporating scholarly works, case studies, and narratives from historically marginalized communities can mitigate biases in AI-generated content Adekunle [4][19].
- **Establish Ethical Oversight Committees:** Universities should establish equity-focused oversight committees to evaluate AI-generated curricula for cultural representation, ideological diversity, and inclusivity. These committees would ensure alignment with institutional values and global perspectives [12].

- **Enhance Professional Development for Faculty:** Offer workshops and training programs to equip educators with the tools to critically assess and adapt AI-generated content. Faculty should adopt intentional practices to integrate marginalized voices into curricula, fostering inclusivity [15].
- **Embed Monitoring Tools in Learning Management Systems LMS:** Integrate AI-driven tools into LMS platforms to provide real-time feedback on curriculum inclusivity. Features such as cultural representation dashboards and bias detection algorithms can enable continuous improvement [27].
- **Promote Collaborative Curriculum Design:** Encourage interdisciplinary collaboration among faculty, technologists, and cultural experts to develop curricula that balance AI efficiency with human oversight. This approach ensures diverse perspectives and pedagogical rigor [5].
- **Invest in Longitudinal Studies:** Conduct research on the long-term impacts of AI-generated curricula on students' critical thinking, cultural competence, and inclusivity perceptions. Such studies would provide actionable insights for refining AI tools and curriculum strategies [8].
- **Encourage the Decolonization of Curricula:** Prioritize decolonization by embedding post-colonial, feminist, and indigenous perspectives into both AI-generated and human-designed content. These efforts should aim for substantive engagement with marginalized narratives rather than tokenistic representation [3][28].
- **Engage Students in the Curriculum Review Process:** Involve students in evaluating curricula for inclusivity and relevance. Structured feedback mechanisms can help identify gaps and foster shared responsibility for creating equitable learning environments [9].

Implications for Higher Education

The integration of AI into curriculum development offers transformative opportunities and ethical challenges. While AI-generated content provides scalability and efficiency, the findings of this study reveal that it often fails to meet the standards of inclusivity and diversity required for equitable education [18]. Institutions must adopt intentional strategies to mitigate systemic inequities in AI systems, leveraging human oversight to ensure that curricula reflect diverse global perspectives. By embedding principles of equity and decolonization into AI technologies and curriculum design processes, higher education can sustain its role as a platform for critical inquiry and social justice [14]. These efforts will not only prepare students for global citizenship but also ensure that AI contributes to a more inclusive educational landscape.

Call to Action

As generative AI reshapes curriculum design, higher education must adopt a proactive stance. Institutions have an opportunity to transform AI technologies from tools of efficiency into instruments for amplifying diverse voices and democratizing knowledge. By prioritizing interdisciplinary collaboration, intentional design, and continuous evaluation, higher education can fulfill its mission of fostering critical inquiry and preparing students for an interconnected world.

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Statement of Competing Interests

The authors declare no competing interests, financial or otherwise, that could have influenced the study or the conclusions drawn from the research.

List of Abbreviations

- **GAI:** Generative Artificial Intelligence
- **LLM:** Large Language Model
- **NER:** Named Entity Recognition
- **LDA:** Latent Dirichlet Allocation
- **AIF360:** AI Fairness 360
- **NLP:** Natural Language Processing
- **SD:** Standard Deviation

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