

Authentic Reality: Identifying and Correcting Implicit Bias in AI- Generated Media



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WHY

... diverse imagery is important in education (online or otherwise)

HOW

... we can identify problems in imagery for online education and correct them

The “Doll Study”



Mamie Phipps Clark and Kenneth
B. Clark.

Garland County Historical Society

- 1930s-1940s with over 250 Black children, ages 3-7

Sample questions:

1. Give me the doll that you want to play with.
2. Give me the doll that is a nice doll.
3. Give me the doll that looks bad.
4. Give me the doll that is a nice color.
5. Give me the doll that looks like you.

The “Doll Study”

Results:

- Majority preferred the white dolls
- Some would “refuse to answer the question or ... cry and run out of the room.”
- Concluded that Black children “became aware of their racial identity at about age three, and—simultaneously with their awareness of racial identity—acquired a negative self image.”



The “Doll Study”



1 of 4 dolls (2 black, 2 white) used in the studies.

Preston Webb, NPS

Results (cont.):

- Children internalize what they see around them, including things like toys and media, at a very early age
- In education, this can be internalizing interpretations like: This class is not for me, this school is not for me, this area of study is not for me, this profession is not for me, etc.; as well as this class/school/area of study is not for people like ____.
- Important to see yourself represented, and represented accurately and positively.

Almost 100 years later...

Everything old is new again!

- Subsequent tests have had similar results, even as recent as the 2010s
- AI image generators are trained on what already exists, which are influenced by existing societal biases

AI algorithms

allow machines to independently create an output based on datasets and instructions provided by humans.

Recognizing Potential Flaws in AI Algorithms

“Often, AI developers unintentionally introduce bias when they train these algorithms with incomplete or flawed information or their own societal bias” (AI Forward, 2023).

Sources of Bias in AI

Training Datasets

```
graph TD; A[Training Datasets] --> B[Algorithms]; B --> C[Human Influence];
```

Algorithms

Human Influence

(IBM, 2023)

Human Bias in AI

Implicit Bias “[U]nconscious preferences and stereotypes that can be embedded in algorithms due to biased training data or human input.” These preferences “can manifest in the form of favoritism or discrimination against certain racial or ethnic groups, perpetuating historical inequalities.”

Systemic Bias “Systemic bias in AI occurs when structural inequalities within the AI development process lead to biased outcomes.”

(AI Forward, 2023)

What is a *DEI Course Design Rubric*?



A mechanism for directing design decisions from a DEI perspective

What is DEI (Diversity, Equity, and Inclusion)?

DIVERSITY



EQUITY



INCLUSION



Why apply DEI principles to course design?

➤ Promote the accessibility of course materials

W3C®

WCAG

➤ Encourage a sense of community



➤ Help students feel connected to course materials



➤ Inspire students to see a future in allied health



How is the rubric used for course development?

Design Phase



Build Phase



QA Phase



How was the rubric implemented?

- **Train:**

- Faculty Subject-Matter Experts (SMEs)
- Curriculum and Instructional Designers (CIDs)
- Instructional Technology Specialists (ITS)
- Multimedia Specialists (MM)



Guidelines

Rubric Demo: Section 1

Section 1: SME-Authored Content

Criteria	Rating	Exemplary Text Examples
Word Choice and Demographics <ul style="list-style-type: none">Inclusive language recommended by APA is used<ul style="list-style-type: none">e.g. person-first and identity-first languageGender-neutral terms are usedWord connotation is appropriate	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	<p>People who are homeless [instead of “the homeless” or “homeless people”] typically lack reliable access to health care, healthy food choices, and general aid.</p> <p>Now let’s look at different theories in order to understand how negative behaviors by people who are or have been incarcerated [instead of “criminals” or “inmates”] can be a result of exposure to dangerous environmental conditions.</p> <p>Individuals over the age of 65 [instead of “the elderly”] are considered a “vulnerable population.”</p>
Use of Scenarios and Examples <ul style="list-style-type: none">Multiple perspectives are consideredReferences and examples are relatableDiverse first and last names are used	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	<p>Sally has just started working at the front reception desk of a healthcare facility. Her new boss Tanisha wants to introduce Sally at the next department meeting. Tanisha has asked Sally to create a PowerPoint presentation about herself...</p> <p>Dr. Gupta performed an anastomosis on the extrahepatic biliary ducts and gastrointestinal tract. Dr. Carrey assisted Dr. Gupta with this procedure. Which modifier would you add to report Dr. Carrey's services?</p>

Rubric Demo: Section 1, continued

<p>Implied Expectations of the Student Experience</p> <ul style="list-style-type: none"> • Expectations for student work are clear; language is intentional. • Written materials guide students toward “good” student behavior • Connections between concepts are clear 	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	<p>Answer the question in one well-written paragraph that includes a topic sentence and at least two relevant details or examples.</p> <p>This week you will learn how diseases affect different systems within the human body. Health Information Management professionals need to understand the pathophysiology of different conditions in order to accurately maintain and document health records.</p>
<p>Inclusive Tone</p> <ul style="list-style-type: none"> • Tone is encouraging in nature • Text is directed to the student by using the second person “you” 	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	<p>It can be confusing when trying to identify the principal and secondary diagnosis when you have a patient admitted with multiple problems. The key is to remember the importance of each diagnosis documented and the impact they have on the patient’s care.</p> <p>These characters will guide you to the tables, which will walk you through assigning the remaining four characters of the procedure code.</p>

Rubric Demo: Section 2

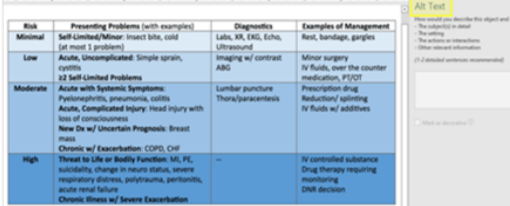


Section 2: Use of Images and Multimedia

Criteria	Rating	Exemplary Examples
<p>Portrayal of Healthcare Staff and Patients</p> <ul style="list-style-type: none"> Healthcare staff portrayed in videos and images are primarily women of color Patients, customers, clients, staff, vendors, etc. are diverse 	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	
<p>Videos Produced In-House</p> <ul style="list-style-type: none"> Live actors or narrators represent diverse demographics Animations of people represent diverse demographics 	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	

Rubric Demo: Section 3

2017
 profile
 1/4/20

Section 3: ADA and Web Accessibility

Criteria	Rating	Exemplary Examples
Accessibility of Materials <ul style="list-style-type: none"> Materials align with WCAG accessibility standards 	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	
Accessibility of Information (UDL) <ul style="list-style-type: none"> Information is conveyed in multiple ways Relationships between concepts are clear. 	<input type="checkbox"/> Exemplary <input type="checkbox"/> Present <input type="checkbox"/> Developing <input type="checkbox"/> Needs Improvement	<p>Information presented as written text and in video:</p>  

Link to the complete rubric: [DEI Course Design Rubric and Guidelines June 2022.docx](#)

DE&I Course Design Rubric and Guidelines, Table of Contents

Part 1: Demographic Groups	2
Part 2: UMA DE&I Course Design Rubric.....	3
Rubric Section 1: SME-Authored Materials	3
Rubric Section 2: Use of Multimedia	4
Rubric Section 3: ADA and Accessibility	4
Part 3: User Guidelines and Examples.....	5
Guidelines for Writers, Subject Matter Experts, and CIDs	5
Rubric Criteria: Word Choice and Demographics	5
Rubric Criteria: Use of Scenarios and Examples	5
Rubric Criteria: Implied Expectations of the Student Experience.....	6
Rubric Criteria: Inclusive Tone.....	7
Rubric Criteria: Portrayal of Healthcare Staff, Clients, Vendors, and Patients - Images and Video	8
Rubric Criteria: ADA and Web Accessibility	9
Guidelines for Instructional Technology Specialists (ITS).....	11
Rubric Criteria: Portrayal of Healthcare Staff, Clients, Vendors, and Patients - Images and Video	11
Rubric Criteria: ADA and Web Accessibility	12
Guidelines for Multimedia (MM).....	13
Rubric Criteria: Images of Healthcare Staff, Clients, Vendors, and Patients.....	13
Rubric Criteria: Portrayal of Healthcare Staff, Clients, Vendors, and Patients – Videos Produced In-House.....	14
Rubric Criteria: ADA and Web Accessibility	14
References.....	15

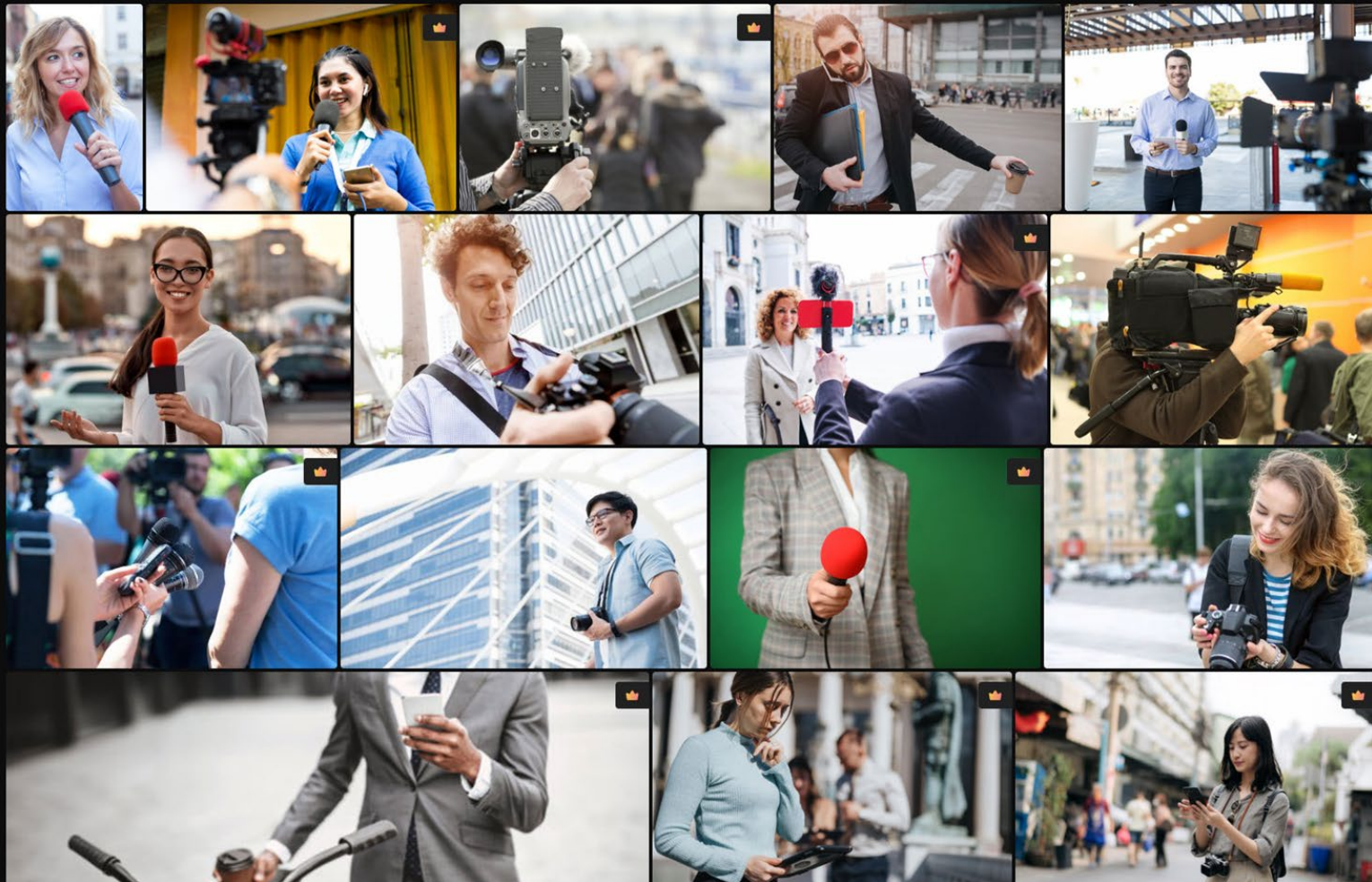
Example
123RF

“teacher”



Examples:
123RF

“reporter”



Examples: 123

“teacher” (AI)



Examples: 123

“reporter” (AI)



Examples:
Photoshop
“Diverse group
of students”



Examples:

Photoshop

“Diverse group
of students with
different body
types cartoon”



Examples:
Photoshop

“Student in
wheelchair
during physical
education class”



Examples:
Photoshop

“Diverse group
of students”

(improved even
in just a few
months!)



Examples: Canva

“Native
American
student with
service animal”



Examples:
Photoshop

“Native
American
student with
service animal”



Notes:

- Not always, but overall pretty good about gender diversity
- Usually mostly young people, skinny
- Tendency for generic groups to not include different body sizes or representations of disabilities
- “Disability” almost always gives images with wheelchairs, but various representations of a person with a disability can include things like Down's Syndrome, dwarfism, using walkers/braces/canes, hearing aids, service animals, etc.

Other notes:

- Realistic images often hit weird uncanny valley still
- Thoroughly look through images for errors!





Prompts

- **Conversational Prompts:**
 - E.g., “I need an image of students in a classroom.”
- **Structured Prompts:**
 - E.g., “Give me a 1:1 ratio photorealistic image of a diverse group of students in a bright classroom, sitting at desks.”
 - Can include giving it image(s) to use as a guide, just be careful not to pass student personal info/images (or yours, or other employees’, etc.)
- Both methods can work well (and can be used together); try both and see what works best for you!
- Also: You can keep trying with the same prompts! You’ll likely get different results every time.

- **DALL-E:**
 - OpenAI; currently free to use in ChatGPT and Microsoft's Copilot
 - <https://chatgpt.com/>
 - <https://www.bing.com/images/create>
(15 free/day)
- **Canva Dream Labs (500 free/month):**
 - <https://www.canva.com/dreamlabs>
- **Gemini (Google's Imagen):**
 - <https://gemini.google.com/>
- **Ideogram (Perplexity):**
 - <https://ideogram.ai/>

(Free) AI Image Generators

Sources

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- Webb, Preston. [Image of doll from Doll Study.] *National Parks Service*, 2014, <https://www.nps.gov/brvb/learn/historyculture/clarkdoll.htm>
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- AI Forward. [Building Inclusive AI: Strategies for Training Against Racism](#)
- Mondal and Lipizzi. [Mitigating Large Language Model Bias: Automated Dataset Augmentation and Prejudice Quantification](#)

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- Medium. [Artificial Intelligence Algorithms: All You Need to Know](#)
- IBM. [Shedding Light on AI Bias with Real World Examples](#)

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