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Assessing the Diversity of Passages in Dreamscape

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It is well known that the ability to see oneself positively reflected within one's educational experience has affirmational impacts on how students define who they are, who they believe they can be, and what they believe they can achieve (Gay, 2018, p. 15). This aligns with research that shows student achievement improves when curriculum represents diverse identities and experiences (Browman, 2011; Butler-Barnes, 2017; Cabrera, 2012; Carter, 2008; Dee & Penner 2016; Morell, 2013). Additionally, when students are given opportunities to learn about the contributions and knowledge systems of diverse groups they benefit by having their own ways of "thinking, doing, and being" expanded (Stuart Wells, Fox, & Cordova-Coba, 2016). Thus, learning about how to relate to various groups of people has the added benefit of promoting the key civic values necessary to a functioning society. This concept is elegantly summarized in the analogy of creating a curriculum designed to provide mirrors and windows. Mirrors offer learners a reflection of their own life experience, while windows offer learners a glimpse into the life experiences of others (Bishop, 1990).

Dreamscape combines a hyper-engaging game with a research-based adaptive learning engine that delivers reading comprehension content aligned with players' personal skill level. It is extremely popular with teachers, parents, and players, and has reached over 4.2 million users in 160 countries around the world. Shoelace[1], the innovative learning company behind Dreamscape, is committed to delivering best-in-class content that ensures all readers feel seen. In order to continue to lead in this area, they created a Diversity, Equity, and Inclusion (DEI) cohort in the summer of 2021.

The goal of the DEI cohort was to investigate the best approaches for the development of inclusive content, as well as audit existing content. The main tasks of the DEI cohort were to:

1. Evaluate *Dreamscape's* educational content using the Culturally Responsive Curriculum Scorecard (CRCS) developed by New York University's (NYU) Education Justice Research and Organizing Collaborative (EJROC) (Bryan-Gooden, Hester, & Peoples, 2019)

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[1] Formally known as Eyeread.

2. Identify and flag any culturally destructive passages for removal[2]
3. Identity passages that need further review if there was ambiguity or lack of sufficient prior knowledge on its appropriateness
4. Highlight key takeaways and determine next steps for improving the content along the CRCS framework
5. Collaborate and present team findings to other cohorts in order to disseminate key results and recommendations

The DEI cohort applied the NYU CRCS as a tool to assess the diversity, equity, and inclusion of the *Dreamscape* content using quantitative and qualitative measures. This framework was selected because it is an established, highly researched, and widely used framework for evaluating curriculum. Using this framework allows interested parties to evaluate curriculum using the same standard.

Assessing Representation

Through use of the CRCS, the auditors were able to tally which cultural and/or minority groups were represented and the distribution of the representation across the *Dreamscape* content. Additionally, the scorecard challenged auditors to not only consider *who* was represented in the content, but also *how* they were represented, which resulted in meaningful conversations that are not always easy to measure or reflect within quantitative data.

The scorecard encouraged the auditors to take a closer look at various forms of identities and how these identities were portrayed. Below are examples of the types of questions elicited by the scorecard:
- Are people of color only represented in negative or stereotypical contexts?
- Are people with disabilities only represented in negative or stereotypical contexts?
- How are people of low socioeconomic status represented in the content?
- What are examples from either the passages or from the auditor's own life experiences of culturally responsive representation?
- What are examples of culturally destructive representation?

The results of these questions (and the discussions they elicited), influenced how auditors ranked the passages, and where they determined content fell along a continuum that ranged from culturally responsive to culturally destructive. At the end of the process, auditors recommended actionable next steps to improve the content.

DEI Cohort Auditors

The CRCS recommends establishing a team of at least three auditors with diverse identities. The Summer 2021 DEI cohort consisted of three main auditors who were tasked with reviewing the passages, along with a representative from Shoelace who contributed to the discussions, helped connect the cohort with resources, and served as a liaison between the needs of the

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[2] It should be noted that this will be the second audit of Dreamscape content. An audit was done in 2020, focused on identifying any inappropriate content for removal.

cohort and Shoelace. All four cohort members were educators working as educational contractors, with auditors 1-3 being entirely new to the *Dreamscape* platform.

While all auditors were public school educators, they represented various backgrounds and had experience teaching a variety of grade levels. All teachers in the cohort had some level of familiarity with culturally responsive education. They had all led efforts in their classrooms, schools or communities aimed at promoting equitable education for all students. The DEI cohort also represented teachers from different racial, ethnic, and language backgrounds.

While the cohort was made up of diverse educators, the representation of the cohort was not inclusive of all groups. In the "Focus for the Future" section below, there are suggestions for other groups that could be included in future DEI cohorts.

Background information was collected about each member of the cohort and is provided in Table 1.

Table 1 - Summer 2021 DEI Cohort			
Auditor 1	**Auditor 2**	**Auditor 3***	**Shoelace Representative:**
- Woman - Straight - Hispanic - First generation American - Dual Language speaker (English + Spanish) - Interracial family - New York native - Former elementary school teacher - Former teacher in urban school district	- Woman - Straight - African-American - Pennsylvania native - K-6 certified elementary school teacher - Principal K-12 certification - Teacher in an urban school district	- Elementary school teacher - Teacher in an urban school district *Auditor chose not to provide other identifying information.	- Woman - Straight - White - New Jersey native - MS school technology and language arts teacher - Teacher in an urban school district

Methodology

In accordance with NYU EJROC's instructions to score "a sample of the larger curricula," auditors endeavored to score 500 of the reading comprehension passages available in *Dreamscape* (Bryan-Gooden, Hester, & Peoples, 2019, p. 5).

For the purposes of this project, the NYU CRCS criteria were consolidated into a spreadsheet template (linked here), which participants used to compile their ratings for the reading passages. Within the spreadsheet, participants provided evaluatory ratings for the following components:
- gender representation of the main character
- racial/ethnic representation of the main character
- what (if any) disabilities the main character portrayed
- relationship between the main character and the story's conflict
- the main character's educational attainment or socioeconomic status
- family structure
- the presence of insults, slights or snubs
- the presence of cultural references (i.e., traditions, language, religion, clothing, etc.)
- whether the passage encourages social justice and/or activism
- final score

It is important to note that the CRCS included other evaluatory sections that were not incorporated into this audit. More specifically, the CRCS recommends gathering data on the authors' racial backgrounds, as well as evaluating representation of the LGBTQ+ community. Participants did not track authors' racial backgrounds since the majority of the *Dreamscape* passages were authored by a single content writer (thus rendering an audit into the authors' backgrounds unnecessary). Shoelace was aware prior to the onset of this audit that their platform lacks explicit representation of LGBTQ+ characters. A future audit of all the content in *Dreamscape* will include these sections.

In addition to providing a score for each passage on the different diversity metrics, the auditors also provided a final score for each reading passage. They used a four-point rating scale to identify their overall reaction to the passage as either unsatisfied, unclear, satisfied, or very satisfied. Unclear was chosen if the content of the passage was largely devoid of any references to culture or diversity.

An expectation was established from the beginning of the summer that each auditor's honest opinion mattered as the objective was to determine an accurate assessment of the content's performance. The cohort was informed that their honest assessment would help identify areas of success and areas for improvement. Auditors were also encouraged to view differences in perspectives as key elements of using the scorecard.

Auditors conducted their reviews separately and privately, with content check-ins done only to track progress towards the team's completion goal. The cohort also met once a week to discuss questions, findings, and areas of uncertainty. Data was aggregated at the end of the project's completion.

Results

At the time of the audit, Shoelace offered 1,106 total published passages on *Dreamscape*. The auditors were presented with 500 of them. Each of the passages was independently rated by all three auditors, and were only included in this final analysis if all auditors completed the

scorecard. At the completion of the audit, it was determined that 448 of the 500 passages reviewed met the requirements of the scoring rubric. Thus, the final audit involved approximately 41% of the content available in *Dreamscape*.

One of the most frequent causes of disagreement between auditors was whether to label characters of uncertain background as "white" or "racially ambiguous." Auditor 2 was more likely to assign the label of "white," whereas Auditors 1 and 3 defaulted to "racially ambiguous." The tendency to regard characters as white until shown otherwise is common across all readers, not just the participants involved in this audit (M. Hester, 2021, personal communication). In other cases, the differences often reflected common conceptions around race and literature.

Another significant disagreement existed in the auditors' scoring of cultural presence. In this case, Auditors 2 and 3 identified fewer than 30 direct references to culture, while Auditor 1 identified 250+ references.

In the end, a passage was determined to meet a diversity characteristic if at least two of the three auditors agreed.

Diversity Representation

When it came to diversity representation, the auditors focused on five specific criteria:
- The ethnicity of the main character (not white, not ambiguous, not an animal/object)
- Family structure (not traditional)
- Low income or low education
- Presence of culture
- If the main character had a disability

Diversity Metric	# of unique passages	% of total passages
Ethnicity	58	12.9%
Family Structure	5	1.1%
Income/Education	9	2.0%
Presence of Culture	36	8.0%
Disabilities	3	0.7%
Total	88	19.7%

In total, 88 of the 448 passages (19.7%) represented at least one of those diversity metrics. Of these 88 passages, 21 of them contained two diversity metrics, and two passages contained three different diversity metrics (65 passages had only one).

An audit of curricula used in NYC public schools reveals that on average, approximately 49% of characters in school curricula and book lists are representative of diverse backgrounds (Aboulafia et al., 2020). At 19.7%, Shoelace's diversity representation is lower than the norm. This is largely due to the passages scored as either racially ambiguous (46%) or representing animals/inanimate objects (24%) . As mentioned before, racially ambiguous passages are often perceived by readers as white. This indicates a need for additional attention to diversity metrics.

Use of Potentially Negative Stereotypes

One of the concerns the auditors had, and that was addressed by the CRC scorecard, was whether or not diversity metrics were often paired with a potential negative stereotype. The scorecard addressed this in two ways:

- First, by asking the question if the main character was responsible for causing the problem.
- Second, by asking if the passage contained insults, slights or snubs about the main character.

Insulting language of any kind was included, not just racially-charged insults. For example, a character described as having "chubby arms" is included in these results as representative of insulting language. Limiting the presence of snubs or slights is highly recommended, not just from the perspective of a Diversity, Equity, and Inclusion audit, but also from the lens of Social Emotional Learning.

An area we were particularly interested in, was whether any of the passages with ethnic representation (58), also met the criteria for the causes problems or insults / slights / snubs. A total of five passages were identified, with one passage checking off both causes problems and insults. These passages represented 8.6% of the passages with ethnic representation, but only 3.3% of the total passages analyzed.

Potential Negative	# of passages with ethnic representation	% of passages with ethnic representation	# of passages	% of passages
Causes Problems	5	8.6%	10	2.2%
Insults / Slights / Snubs	1	1.7%	6	1.3%
Total	5	8.6%	15	3.3%

Critics claim that literary works, particularly works of classic literature, often portray nonwhite characters in a derogatory way (Hughes-Hassell & Cox, 2010). The content within *Dreamscape* offers a low likelihood of students encountering disparaging or stereotypical representations of nonwhite characters.

Satisfied vs Unsatisfied

Each passage was rated from unsatisfied to very satisfied. Overall, the auditors were satisfied with the vast majority of the passages read (both within the diverse collection and overall). Only three passages were rated as "Unsatisfied." Unfortunately, all three of them were found within the set of diverse passages. These three passages were removed from Dreamscape.

None of the passages that the auditors rated achieved a score of very satisfied. This was likely due to the average length of the passages within Dreamscape, which range from 1-2 sentences, to a few paragraphs. Given the brevity of the excerpts, the reading passages seldom provided any detail about the characters' cultural backgrounds. Our passages were also limited by being completely text based. The scorecard allows evaluators to use book covers, as well as any additional pictures within the book, as support for diversity. Adding images to Dreamscape passages would give more opportunity for short passages to show representation of diversity.

	# diverse passages	% of diverse passages	# of total passages	% of total passages
Unsatisfied	3	3.4%	3	0.9%
Unclear	18	20.5%	125	27.9%
Satisfied	62	70.5%	305	68.1%
Very Satisfied	0	0.0%	0	0.0%

Summary

While a significant amount of the content was identified as culturally unclear, that does not mean the content should be removed from the game. Auditors only rated 3 passages, or 0.9%, as "Unsatisfied."

Looking beyond racial representation, auditors also identified areas of need in regards to family structure, and representation of people with disabilities. Only 3 of the 448 passages, less than 1%, featured characters who are people with disabilities. Additionally, none of the passages analyzed contained passages featuring same-sex parents or foster/adoptive parents. As mentioned earlier, passages were not scored on LBGTQ+ identifiers, but based on the auditors' comments, there was little to no representation seen.

Limitations

Inability to Select Multiple Options Within a Category
At times, auditors expressed concerns about how to mark passages that fit many of the classifications given within a category. For example, when asked to select the family structure described in a story, auditors were given options including "single parent household" and "relatives living with the immediate family." These were presented as separate options, though,

and auditors noted that if a text existed that met both of those criteria, they would have been unable to label it with both indicators. Thus, the team believed the CRCS could be improved to allow auditors to select multiple categories when applicable.

The ability to select multiple options within a category would also be helpful in cases where a dynamic character changes across the course of a passage (such as by altering their socioeconomic status, educational attainment, how they are perceived by readers, etc.) or in cases where there are multiple main characters.

Unclear Main Character
In some cases, auditors reported it was difficult to identify a main character, which made many aspects of the rubric difficult to complete. Sometimes, the passages were too short for the auditors to get a clear sense of the character. For example, one of the passages reviewed was:
> *Peyton stared at her teddy bear. She was right–it was winking at her!*
The auditors also reviewed nonfiction reading material, which often had no clear main character. In those cases, auditors oftentimes even struggled to agree on a single main idea, which led to varied interpretations of the scorecard. Future rounds of DEI review should either eliminate nonfiction material or use an altered version of the scorecard for nonfiction texts.

Exploring Unique Perspectives

In listening to one another's unique perspectives and in having sometimes difficult, but important conversations around race, culture, and equity, members of the team expressed how their own views expanded. Indeed, part of the evaluative process, according to the scorecard, is that there is no right answer or wrong answer; individual auditors' ratings are based on their opinions and lived experiences. The diverse perspectives that arise from conversations is part of the process towards greater cultural responsiveness.

Colorism
For example, Auditor 2 highlighted sections that equated dark, black, or brown colors with negative connotations. As a member of the African American community, she expressed how this pervasive form of colorism (where all things dark and black are bad and light or white colors are good) implicitly bias people in favor of or against different skin tones. Her perspective was shared with the Curriculum Cohort and this in turn helped those members examine instances of colorism with a more critical lens, that they may have been hitherto unaware of without Auditor 2's perspective.

The Negative Side of Cultural Ambiguity
When the DEI team encountered ambiguity within a passage, such as instances where it was difficult to determine a character's race or background, the team reached out to the NYU EJROC for additional guidance. The team learned that in the presence of ambiguity, research shows that readers typically default to assuming that the character's race is white (M. Hester, 2021, personal communication). This was a key insight that team members were not aware of prior to conducting this evaluation and that has longstanding implications both in the context of

this project and in the educational field at large. True culturally responsive education cannot exist in ambiguity. Educators committed to making equitable change must commit to increasing the explicit presence of diverse voices.

Cultural Responsiveness: Ongoing Commitment to Learning & Growing
In its first iteration in 2017-2018, *Dreamscape* reading passages were intentionally written to be racially or culturally ambiguous. At the time, this goal was selected for its potential to appeal to a diverse audience. However, due to the research and impactful clarification the DEI cohort received, the Shoelace community learned of the need for a more explicit shift towards representation in its content. Through this process, a key goal for future iterations of Dreamscape reading passages was discovered.

Furthemore, the deep questions and conversations that emerged from the DEI team's work had impacts that were as valuable as the evaluation results. Auditors reported mindset shifts in how they viewed diversity and inclusion in other areas of their lives: whether it was gaining insight into a perspective different than their own, identifying the many forms of colorism, taking stock of which identities were represented, underrepresented, and overrepresented in their classroom libraries, or developing a clearer understanding of what it means to be culturally responsive.

Focus for the Future

A commitment to diversity, equity, and inclusionary initiatives will always be ongoing and iterative. Shoelace is dedicated to a long-term commitment of delivering content that ensures all readers feel seen as they improve their reading comprehension skills. With regards to the near future, the company has established the following targets and possible paths towards achieving each target.

Content Goals

Now that Shoelace has an idea of the diversity present within their passages, the next step is to increase representation across all categories, especially within those with low to almost no representation (such as characters with disabilities).

The first step will be to extend our audit to all the passages within *Dreamscape*. Going forward, all future passages added to Dreamscape will undergo a DEI audit. Passages that score highly on the various diversity dimensions will be prioritized for inclusion in the platform. The goal is to continually increase representation across categories so that all students have access to passages that reflect their lived experiences ("mirrors") and passages that provide insight into other cultures ("windows") (Bishop, 1990).

There are multiple paths for creating and accessing more diverse content. Some potential routes are recommended below:

1. **Use our assignments tools to allow educators to upload stories from their players and communities, bringing new voices to education content and curriculum.***
2. Partner with museums or other cultural institutions to include varied content.
    a. Example: passages from museum plaques, etc. could be added
3. Partner with colleges and universities, particularly creative writing undergraduate and graduate students, to write content.
4. Have a combination of passages where diverse characters or figures are represented in both universal contexts and also in culturally rooted contexts.
5. **Consider making some passages longer so that more cultural context can be evidenced (many of the current passages were ambiguous).**
6. Offer more passages that include social justice.
7. Create an internal content meter or tracker to clearly identify areas of need. Meter could update in real time as new content is added to the platform.
8. **Contract diverse authors.**
9. **Offer diverse, supporting images for shorter passages.**

* Dreamscape is piloting a User Generated Content feature that allows educators to create their own passages and questions. While Dreamscape will continue to diversify its content, with the range of ages and the numerous dimensions of diversity, having educators create their own content will allow them to tailor the game experience for their students' specific needs.

DEI Audit Goals

Based on the DEI Cohorts experience, it is recommended that Shoelace develops a scorecard that is more fitting to the types of passages and content found within its platform. This scorecard will be based off of the one used for this audit, while allowing for a bit more flexibility. The modified scorecard will be publicly available and shared with the NYU EJROC team [Update: this was completed in 2021].

Along with creating a new scorecard, it is recommended that Shoelace invests in hiring a DEI Leader that will be responsible for leading all DEI initiatives, developing future tools and helping to educate the entire company and community on these issues [Update: this position was added in February 2022].

One of the tasks the DEI leader will be responsible for is developing a larger auditing team. Having a sample size of only 3 auditors also allowed each auditor to have a strong impact on the final score. Increasing the number of auditors and the diversity among them would also assist with countering these effects. A larger DEI team, especially one with a rotating membership, would allow for more diverse representation across genders, ethnicities, abilities, occupations and more [Update: new DEI review cohort was recruited and are actively reviewing new content].

It is also recommended that all passages within Shoelace be audited (including those that were done for this audit). This will make sure that going forward, Shoelace has a complete

understanding of the content within its platform. Similarly, all new passages should also be audited before being added <mark>[Update: new DEI review cohort is actively reviewing new content]</mark>.

Transparency

It is important that this audit be seen only as the first step, and not the final step in Shoelace's work. On that note, making this paper, as well as any future findings public, will allow educators to have confidence in their commitment to this process, and to promote accountability.

Conclusion

In conclusion, Shoelace is dedicated to better understanding the scope of its content. Over Summer 2021, the company's first DEI audit identified areas of strength and areas of weakness within the *Dreamscape* curriculum. Based on the findings of the audit, Shoelace knows it has a long journey ahead in order to increase representation throughout its content. However, the audit gave Shoelace a starting point, which makes it possible for the company to now work towards its goal of equal representation.

In addition to determining future steps for content development, the audit also served as a beneficial professional development exercise for all participants. Auditors, as well as full-time staff from Shoelace, are better versed in topics surrounding diversity, equity, and inclusion.

Through this publication, Shoelace endeavors to showcase its commitments: to transparency into its educational content, to continued partnerships with educators, and to more diverse and inclusive learning experiences for all learners.

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