Mapping Discrimination in Berlin Universities: A Data-driven Approach and Sonification Analysis

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Abstract

Discrimination continues to be a persistent issue within educational institutions, including universities. This report presents a novel approach to understanding and mapping discrimination in Berlin universities. In the absence of official statistics, we conducted a comprehensive questionnaire survey to gather data on various forms of discrimination experienced by students. The collected data was analyzed and mapped using statistical and sonification techniques. Additionally, our employed sonification as a unique method generates a soundtrack that represents the discrimination data auditory. Our findings shed light on the prevalence and patterns of discrimination within the university context. The integration of mapping and sonification provides a multidimensional perspective on this complex issue, enabling a more immersive and impactful understanding of the data. The implications of our research highlight the urgency for universities to address and combat discrimination, fostering inclusive and equitable learning environments.

1 Introduction

Discrimination within educational institutions, including universities, poses significant challenges to the creation of inclusive and equitable learning environments. In this report, we aim to address the issue of discrimination in Berlin universities. Despite the absence of official statistics on discrimination, we conducted a comprehensive questionnaire survey to gather data on the various forms of discrimination experienced by students, teachers and employees of the campuses. This report presents our research approach, methodology, key objectives, and the significance of understanding and combating discrimination within the university context. [2, 1]

2 Methodology

To collect data on discrimination in Berlin universities, we designed a questionnaire survey that encompassed various dimensions of discrimination, such as the kind of discrimination, the chronical classification of the incident, the impact on the human being which experienced a discrimination incident, the recovery from the incident for the human being, the perception of possible repetitions of similar incidents and gender. The questionnaire was distributed across different faculties, student cafes and campuses. We collected both quantitative and qualitative data to capture the experiences and perceptions of discrimination. At the time this report was written, the questionnaire is statistically not representative enough with 27 respones. We plan to distribute the questionnaire till the semesters end to achieve a more substantial set of data for the purpose of this research. The collected data was analyzed using statistical techniques to identify patterns and correlations. Additionally, we employed techniques to achieve more differentiated mapping of the data to gain insights into the distribution of discrimination within the university campuses. Furthermore, our unique approach utilizes sonification which translates our data into sound, to create a soundtrack that represents the discrimination data auditory. Figure 1 is showing the utilized mapping of the gathered discrimination data for the sonification approach.

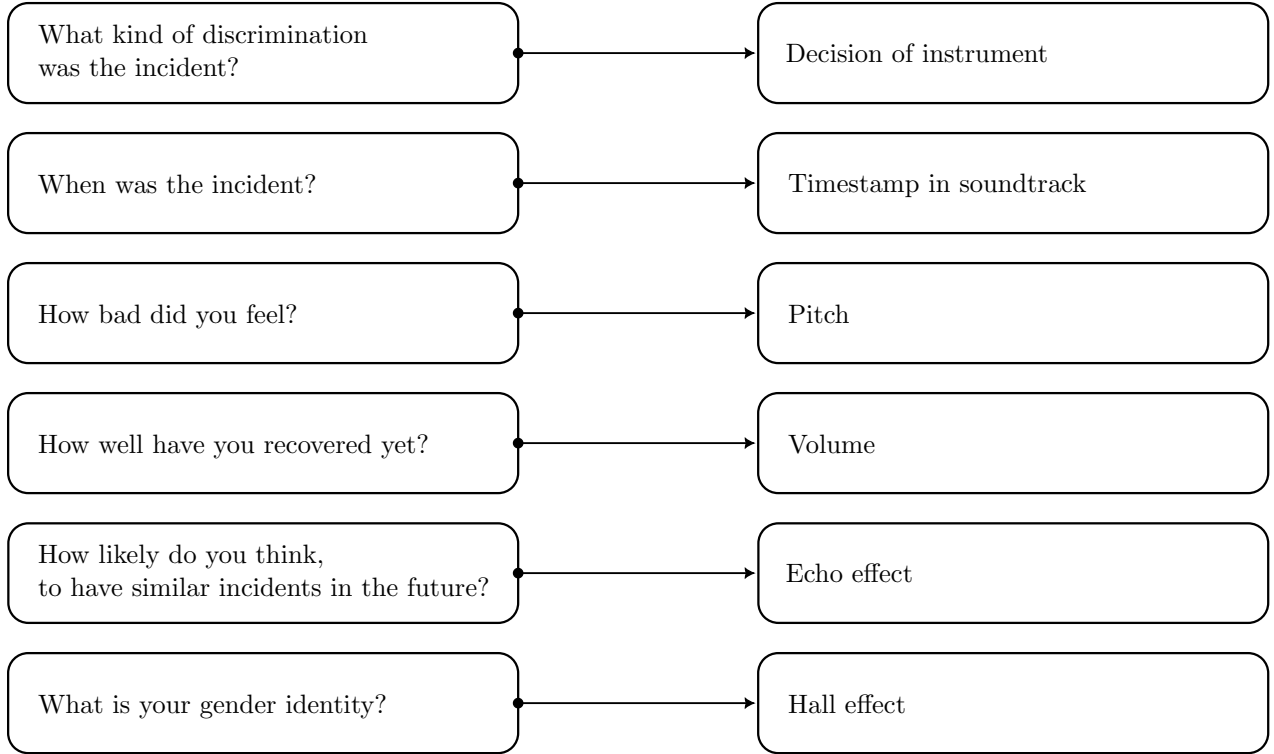| What kind of discrimination was the incident?	→	Decision of instrument
When was the incident?	→	Timestamp in soundtrack
How bad did you feel?	→	Pitch
How well have you recovered yet?	→	Volume
How likely do you think, to have similar incidents in the future?	→	Echo effect
What is your gender identity?	→	Hall effect

Figure 1: Mapping of the questionnaire data for the sonification approach

Sonification is the process of representing data through auditory stimuli, such as sound and music. It offers an alternative way of perceiving and understanding complex data sets. In our research, we used sonification to transform the collected discrimination data into a musical composition. Each aspect of the data, such as the type of discrimination and its intensity, was mapped to specific musical parameters, such as pitch, volume and effects. By listening to the generated soundtrack, one can gain an auditory representation of the discrimination patterns within Berlin universities. This approach adds a new dimension to the analysis and visualization of the data, enhancing the overall understanding and impact of the research findings [3].

3 Results and Analysis

The results of our questionnaire survey revealed at the time of the creation of this report just a glance of discrimination within Berlin universities. The analysis of the collected data are hinting various forms of discrimination, including racial bias, gender-based discrimination and employment relationship discrimination. The sonification analysis and technique offered a unique perspective. In the appendix we offer a similar approach to ours with publically available data of lunar crates to attain an understanding and to demonstrate how the technique works. Beside this report you may find a data table csv-file and a generated soundtrack wave-file regaring lunar crates. We are going to collect more data for the rest of this semester to achieve a statistically substantial and diverse soundtrack regarding of number of tones and composition, to enable a more immersive understanding of the magnitude and impact of discrimination by representing the discrimination data in an insightful auditory format.

4 Discussion

To ensure statistical representativity, we cannot discuss our results in a scientific sustainable way at this moment. For now we are just hinting on basis of several respones some insights. The findings shed light on the urgent need for universities to address and combat discrimination. The impact of discrimination in several cases within Berlin universities necessitates the development and implementation of proactive measures to

create inclusive and equitable learning environments. By mapping discrimination and employing sonification techniques, we are able to provide a multidimensional perspective on the issue, enhancing the understanding and awareness of discrimination's impact on students', teachers' and employees' experiences. The significance of fostering a culture of diversity, inclusivity, and respect within educational institutions will be underscored by our research by end of this semester.

5 Conclusion

In conclusion, this report presents a comprehensive analysis of discrimination in Berlin universities and an own approach of sonification in this context. Through a questionnaire survey, data analysis, mapping techniques, and sonification analysis, we developed techniques to underscore patterns of discrimination within the university context. The integration of mapping and sonification offers a unique and multidimensional approach to understanding and representing discrimination data.

References

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