MyProfessors: Mining Turkish Student Reviews

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Abstract
We introduce Hocalarim (MyProfessors), the largest student review dataset available for the Turkish language. It consists of over 5000 professor reviews left online by students, with different aspects of education rated on a scale of 1 to 5 stars. We investigate the properties of the dataset and present its statistics. We examine the impact of students’ institution type on their ratings and the correlation of students’ bias to give positive or negative feedback.

Keywords: student review dataset, exploratory data analysis, education system

1 Introduction

Different institutions have been publishing rankings for colleges and universities around the world every year. These rankings have remarkable impacts on applications, admissions as well as tuition fee policies. [1] Every ranking system considers a good number of objective factors such as citations per academic, student-to-faculty ratio and number of postgraduate students. There have been recent attempts to integrate student satisfaction as a measure, however, the number of early implementors are limited. At the time of writing, there are no ranking systems available for Turkish universities that take student satisfaction into account such as the UK University League Tables. [2] Most surveys completed at the universities are for internal use only, and not shared with the prospective students transparently. In the UK, in an attempt to solve the problems of anonymity and transparency, student satisfaction information has been started to collect with an annual survey of nearly half a
million students from different universities on behalf of the Office for Students. [3] Even with the independent surveying efforts, the personal experiences of students are recognised as a hard aspect to capture and claimed not to be fully reflected in the results. In the search for data to work with, we have discovered hocalarim.com [4], a website that allows Turkish students to anonymously rate their professors and write comments. Online review websites can become a great resource to uncover hidden knowledge about the learning experience. There are many factors such as one-star-trolling, spamming or even the popularity of the teachers (non-normal distribution of the data) that restrict our interpretation. Hence, in this study we do not attempt to provide any information about teachers’ ranking, rather aim to show students’ rating behaviour and biases. We examine the correlation between subjects and ratings, the impact of students’ institution type on their ratings, correlation of students’ bias to give positive or negative feedback.

2 Data Collection and Preprocessing

The website has a total of 175,978 profiles for high school teachers and university professors from different education institutions in Turkey. 11,928 registered users left 8156 reviews for them over fifteen years. These reviews were mined based on the subject list available on the website. We excluded the subjects which have less than 20 reviews and star-based ratings without any reviews. After preprocessing, the dataset included 5987 reviews. 3234 of them was for high school teachers, and the remainder 2753 was for university professors. We have constructed our dataset by five fields available on the website that were found convenient for the study of student expectations and experience. This includes out-of-five star ratings on easiness, understandability, recitation, accessibility and helpfulness. Average rating was calculated based on these given five fields. Overall sentiment of the review was determined based on the average rating where any score higher than 2.5 ($>$) was labeled as a positive review, and anything lower than 2.5 ($<$) was labeled as a negative review. The five main aspects students needed to rate was given below.

- Anlaşılılık (Clarity): Are lectures by the professor clear and understandable?
- Ders Anlatımı (Recitation): Are the lecturing style and material usage of the professor organized?
- Erişilebilirlik (Accessibility): Is the professor available for further support outside of classes?
- Yardımseverlik (Helpfulness): How does the professor approach his/her students?
- Kolaylık (Easiness): How easy are the assessments?
- Ortalama (Average): The final average score was calculated based on the five different aspects.
3 Exploratory Data Analysis

3.1 Review Lengths and Average Scores

The word counts shown in Figure 1 indicate that most of the comments contain around 5 words (20 characters∼). Figure 2 shows that both institution types have similar distributions. The only difference is that the majority of high school students’ reviews consist of short comments while university students have left longer comments more often than high school students.
Based on the overall sentiment score of the review, both positive and negative reviews tended to be one sentence comments (\(<= 25\) characters). Figure 3 also shows that once people started to reach a considerable word limit, they took their time to complete a detailed review. These reviews included mentions of old memories, comments on classes and professor’s teaching style.

![Figure 3: Review Length (Sentiment)](image)

Both institution types have much more five-star-reviews than any other star rating. There is also a tendency of high school reviews to be slightly less frequent in two, three and four-star-reviews and more frequent in one-star reviews when compared to university reviews.

![Figure 4: Average Score (Institution Type)](image)
The main factor that separates the average scores of the types of institutions is the frequency of extreme ratings. High school reviews are greater in number at the ends of the score spectrum whereas university reviews are more evenly distributed.

### 3.2 Density Analysis

![Graph showing density analysis for institution types.](image)

**Fig. 5**: Clarity (Anlaşılırlık) for Institution Types.  
Red=High School, Blue=University, Purple=Intersection

The clarity rating graph for the institution types follows the trends of the average rating. Both institution types have the greatest number of reviews with a rating of 5, while high school reviews are more extreme in density when it comes to either end of the distribution.

![Graph showing density analysis for institution types.](image)

**Fig. 6**: Recitation (Ders Anlatımı) for Institution Types.  
Red=High School, Blue=University, Purple=Intersection
The recitation rating graph in Figure 6 and the clarity rating graph in Figure 5 share a distinctly similar trend for both institution types. This implies a direct correlation between the clarity of the lesson and the recitation quality of the professor.

![Graph showing recitation and clarity ratings](image)

**Fig. 7:** Accessibility (Erişilebilirlik) for Institution Types. Red=High School, Blue=University, Purple=Intersection

A considerable change happens in the accessibility graph, where both institution types have higher amounts of reviews in the 2-4 star range compared to the recitation graph and the clarity graph. This indicates the existence of professors who are clear in their teaching but are unavailable outside the classroom for further support.

![Graph showing accessibility](image)

**Fig. 8:** Helpfulness (Yardımseverlik) for Institution Types. Red=High School, Blue=University, Purple=Intersection
The distribution of Easiness (Kolaylık) reviews is the most exceptional with the only median rating other than five. Both high schoolers and university students rated their educators at nearly 0.40 density with 3 stars. While both institution types have nearly the same number of one, two, three, and four-star-reviews -with a slightly higher density for universities-, high school reviews have over 0.43 density of 5-star-reviews while university reviews have it nearly at 0.25. In this regard, Kolaylık distribution is the only one where high school and university reviews diverge in a significant way.

Fig. 9: Easiness (Kolaylık) for Institution Types.
Red=High School, Blue=University, Purple=Intersection

Fig. 10: Five Main Aspects
Orange=High School, Blue=University
4 Conclusion

In this work, we presented the largest Turkish professor review dataset to date. [5] We explored its properties and statistics and explored possible implications. The overall sentiment of the dataset was positively biased which means that the number of students who wanted to leave a positive review to their professors was higher than their peers. High school students seemed to have a black-and-white experience with their professors as they voted frequently at the ends of the rating spectrum meanwhile university students considered giving intermediate votes more often. We also found that high school and university students may have different expectations from their professors. Most of the university students were suffering from inaccessibility to their professors, probably due to the lack of office hours and the general workload of the Turkish professors. There have been previous complaints in the past, where academic figures publicly stated that their colleagues are subjected to very intense teaching hours and even needed to offer up to four courses in one semester. This lack of support may also have impacted the easiness rating of the courses, where a significant divergence from the rest of the ratings was found. As students have no support available, they would be spending more time on their coursework and exam revisions. The clarity and the recitation ratings were found to be correlated in the analysis which shows that the organisation of the lecture materials and the lecturing style of the professors played an important role in the overall assessment of the learning experience. In future, we plan to work on the learning experience in vocational schools, differences between the state colleges and private universities and subject-based analysis of the five education aspects.
References

[1] Clarke, M.: The impact of higher education rankings on student access, choice, and opportunity. Higher Education in Europe 32, 59–70 (2007). https://doi.org/10.1080/03797720701618880

[2] The Complete University Guide: University League Tables 2022. https://www.thecompleteuniversityguide.co.uk/league-tables/rankings [Accessed: 29 Dec 2021]

[3] National Student Survey: About the NSS. https://www.thestudentsurvey.com/about-the-nss/ [Accessed: 29 Dec 2021]

[4] Hocalarim.com: Öğretmen ve Profesör Değerlendirme Sitesi. http://www.hocalarim.com [Accessed: 29 Dec 2021]

[5] Github Repository: Hocalarim Dataset. https://github.com/necmettinbera/turkish-stdnt-rev [Accessed: 29 Dec 2021]