Are older teachers more favored in DMM Eikaiwa?

Data based approach to English teachers in DMM Eikaiwa.

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Introduction

English is one of the biggest interest for Japanese. Some enjoy speaking in it as their hobby and others struggle to learn it to get promoted. Anyway, the best way to learn English is to talk in English every day.

Believe or not, there is a very powerful platform which enables us Japanese to have English conversations every day . That is "DMM Eikaiwa"(Eikaiwa = English Conversation in Japanese). DMM Eikaiwa is a web-based platform where users reserve their lessons to take 25 minutes Skype English conversation. Each user can take lessons any time once a day from any teacher they would like. The cost is quite cheap, which is around $60 per month!! (For an upgraded course to take lessons from native English speakers like American, British .etc. : around $140 per month).

In fact, I learned English in DMM Eikaiwa for more than 2 years and took so many lessons. One thing I was always surprised by is the diversity of

teachers regarding age, nationality, background, etc.

In this blog, I focus on the age of these teachers and analyze whether there is a trend related to it (e.g. younger teachers are more favored by students).

Here comes the power of data. I analyzed a data which I scraped from the official web site of DMM Eikaiwa. The data covers 2 types of information, one of which is teachers' profile (e.g. nationality, hobby, average evaluation score of one's lessons, hobbies etc.). The other is anonymous reviews by students for each lesson which includes rating scores(1~5) and review sentences (note: these reviews are posted voluntarily and not obligated).

There are more than 6000 teachers in DMM Eikaiwa, and anonymous reviews are more than 300000. You can also find the same teachers from the official web site of Engoo, which is an international version of DMM Eikaiwa (which is aimed at Korean, Chinese users), but I cannot assure that the profiles are totally the same. Regarding reviews, it is totally different because reviews written in Japanese are not readable for international users.

A matrix used in this blog to evaluate the popularity of teacher is the number of students who registered the teacher as their "favorite".

OK, so the questions I am seeking in this blog are :

> *Q1. How is the distribution of age of DMM teachers?*

> *Q2. Are older teachers more eager at teaching more lessons?*

> *Q3. Are older teachers tend to be favored more than younger teachers?*

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Q1. How is the distribution of age of DMM teachers?

Firstly, I visualize the distribution of age of teachers.

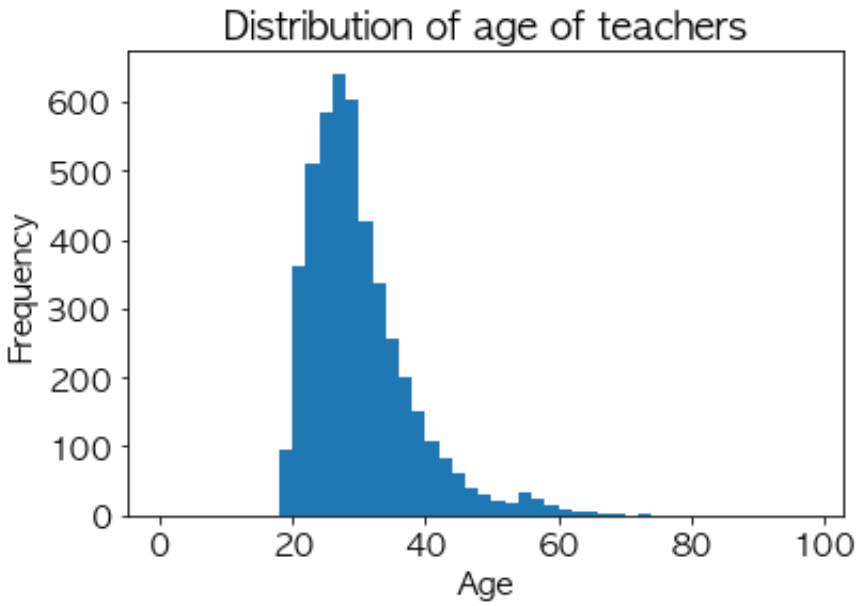


fig1 : How old are teachers?

The graph shows that there are many teachers in their mid-20s. This makes sense. DMM Eikaiwa delivers online lectures and it may seem to be an obstacle for an elderly person to be familiar with such online system. Aside to that, the youngest teacher is 18 years old, and the oldest is 74 years old.

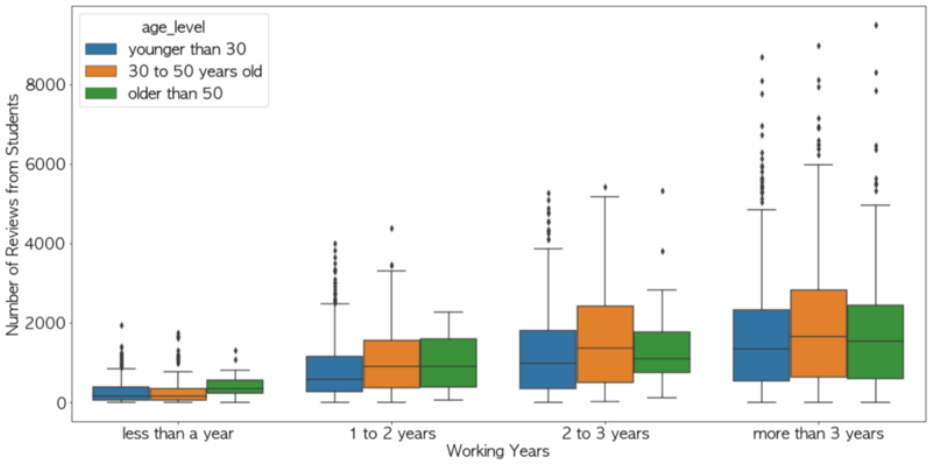
Q2. Are older teachers more eager at teaching more lessons?

Before digging into the last question, I will add some pre-knowledge on DMM Eikaiwa. In DMM Eikaiwa, each teacher can decide how many lessons at what time they would like to teach on daily basis. That is, lesson time option is displayed in the time schedule table of each teacher and each students reserve a lesson on first come first served basis. So what I can say from this is that if a teacher is reluctant to open lessons (e.g. in the case where a teacher is teaching in DMM as one's second job), the teacher "favorite" count would be less than teachers who delivers more lessons .

That is where my second question comes from. Before my ultimate 3rd question, I have to take a look at the bias which arises from the number

of lessons teachers delivers.

Since it was impossible to get the exact data about how many lessons or students each teacher has taught so far, I take a look at the number of reviews from students and use it as a matrix of the number of lessons the teacher has taught. That is, I assume that "The number of reviews from students is proportional to the number of lessons they delivered." The graph is also divided by the woking years in DMM Eikaiwa.

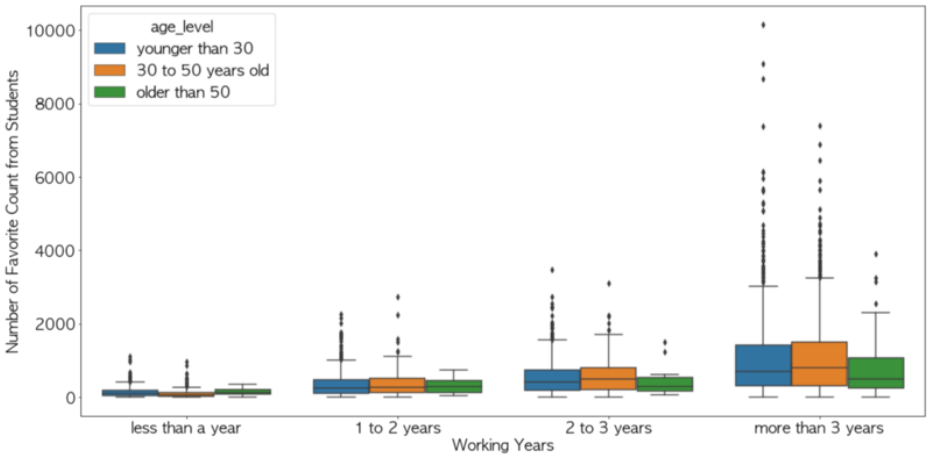


fog2 : Are older teachers tend to work harder?

Based on this graph, I can say that the number of lessons teachers deliver is not related with age level of teachers.

Q3. Are older teachers tend to be favored more than younger teachers?

Now I will answer my ultimate question. Are older teachers more favored than younger teachers? To answer this question, I visualized the relationship of age of a teacher and that teacher's "favorite" count by students.



Have older teachers earned more "favorite" from students?

From the conclusion from Q2, I can assume that the distribution of numbers of lessons delivered by teachers belonging to each of age levels are almost equal.

Based on this assumption, the graph tells a very interesting trend. Although most teachers are favored only by less than 2000 students, some teachers are favored by extremely many students. And these extremely popular teachers are more frequently found in younger age level.

I have to add that this does not directly lead to the conclusion that younger teachers are generally better at teaching. There are some possible reasons. This may be caused by ridiculous factor like younger male teachers are more favored because of their young good-looking appearance.

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Conclusion

In this article, I took a look at teachers in DMM Eikaiwa and especially focused on the age of teachers.

1. I visualized the distribution of age of teachers and found that most o teachers are in their 20s or 30s. The youngest is 18 and the oldest was 74 years old.

2. I then visualized the relationship between age of a teacher and how many lessons teachers have delivered so far. This did not show clear bias on the number of lessons a teacher have delivered occurring from the age level.

3. Finally, I looked at the relationship between age levels of teachers and the number of "favorite" from students. It was shown that some younger teachers are extremely favored, but aside from them, there was not found to be a clear difference in caused by age level difference in terms of popularity of teachers.

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Takeaway from this analysis

To tell the truth, I am not satisfied with this conclusion, I know that there are many points to be discussed more strictly like,

1. The assumption “The number of reviews from students is proportional to the number of lessons they delivered.” should be assessed.

2. The conclusion in Q2 "the number of lessons teachers deliver is not related with age level of teachers." should be justified statistically.

3. It should be assessed whether outlier teachers in fig2 (who has extremely many reviews) are equals to outlier teachers in fig3 (who earned extremely many "favorite"). If this is the case, the conclusion would be just saying that some young teachers are quite hard-working and that they get so many "favorite".

I don't deep into these points in this blog. Actually I was too optimistic about getting useful conclusion when I started this analysis. As is often said, designing is one of the most important steps of data analysis. I had to ponder what kind of conclusion I would like to lead to and predict if the data available is necessary for that. In this analysis, I could not obtain more detailed data (since teachers' data is very sensitive and it is not published), and I eneded up squeezing this desperate conclusion.