Contents

Topic

“2024 HKDSE Exam Results Analysis for Female Students' Performance”

The topic "Analysis of Female Students' Performance in the 2024 HKDSE" focuses on the academic achievements of female students in subject A (excluding Citizenship and Social Development) during the 2024 HKDSE. The aim of this analysis is to identify patterns in female students' performance across various subjects, highlighting areas where they excel compared to their male counterparts. Additionally, this study seeks to explore how the distribution of female students' grades, both strong and weak, influences their academic performance across different types of subjects.

Data description

The dataset contains 26 participants and their gender-specific score distributions, which range from level U to level 5**. It shows both percentage distributions and numerical numbers. Key data such as 'No. Entered', 'No. Sat', and 'Chinese Version%' demonstrate participation in the DSE tests. Notably, the 'All Category A subjects' data show that gender ratios are closely aligned across most subjects at various performance levels, implying that male and female students achieve at comparable levels.

To examine the data, ensure that 'No. Sat' equals the sum of 'Performance - 1+' and 'Performance - U', and verify that this sum totals 100%. Additionally, confirm that the percentage of lower levels is greater than that of higher levels.

Table description

To load the data before any transformations, I would first filter the 'type' column to retain only the percentage values, ensuring that all subsequent analyses utilize percentage data. Next, I would delete the columns 'No.sat,' 'Chinese version,' and 'No.entered,' as the number of attendees is not the focus of this analysis. I would also unselect the 'total' option in the gender column. To facilitate gender comparisons across different performance levels, I would pivot the gender data to create separate columns for 'female%' and 'male5+'. Additionally, I would combine the 'subject' and 'subject2' columns into a single 'subject' column and categorize the subjects accordingly before merging the queries for a cohesive dataset.

Custom column 1

The custom column 'gender_gap' is essential for analyzing performance differences between female and male students. It calculates the disparity in the percentage of students achieving level 5 or above across different subjects. A positive value indicates that female students outperform their male counterparts, while a negative value highlights areas where

males excel. This helps identify subjects where girls demonstrate a performance advantage.

DAX formula for this custom column:

```
Gender_gap5+ = '2024_HKDSE_analysis_of_results'[Female5+]-
'2024_HKDSE_analysis_of_results'[Male5+]
```

Custom column 2

The custom column 'lower_female_performance' is crucial for identifying the percentage of female students who score below level 3. Because the HKU admission requirement is 3322, I chose to use level 3 as the standard, and once it is lower than level 3, i.e. level 1, 2 and U, it will be included in the low performance. This data highlights areas where female performance may be lacking, allowing for targeted interventions to support improvement.

DAX formula for this custom column:

```
Low_female_performance =
'2024_HKDSE_analysis_of_results'[Female1+]-
'2024_HKDSE_analysis_of_results'[Female3+]+'2024_HKDSE_ana
lysis_of_results'[FemaleU]
```

Visualization 1

The visualization of the “sum of female students achieving level 5** by subject” since 5** is the highest grade of performance, so it is essential for analyzing high-scoring concentration among females. It calculates the percentage of female students attaining 5** in each subject, revealing which subjects have a higher number of high achievers.

Visualization 2

Analysing the difference in performance between girls and boys depends on the ‘sum of gender gap5+ by subject and category’ at level 5+. It shows in which subjects there is a large gender gap, indicating in which areas girls outperform boys. This orientation helps to identify the areas of strength of girls and helps to analyse the distribution of their grades.

Visualization 3

The pie chart visualizes the “sum total of low performance of girls by categories” and helps to identify the subjects in which girls are struggling. This chart provides a visual representation of the subjects that are more difficult for girls, which is crucial in analyzing the performance of girls.

Insight

The top 10 disciplines in the "Sum of Female 5** by Subject and Category" list are five sciences, four arts, and one business. This distribution illustrates female students' exceptional ability in a variety of fields.

In the “Sum of Gender_gap 5+ by Subject and category”, there are 15 subjects with positive performance indicators, indicating that girls have a higher proportion of 5 points or above in these subjects, with humanities subjects dominating. Although boys only outperformed girls in 11 subjects, indicating that girls have a wider range of abilities in different areas, the overall score for "all A subjects" still showed a slight negative gap of -0.6%, meaning that on average, although girls are good at more subjects, they may not have a deeper understanding of some subjects than boys, resulting in fewer people getting high scores. So while girls excel in many subjects, overall they still lag behind boys.

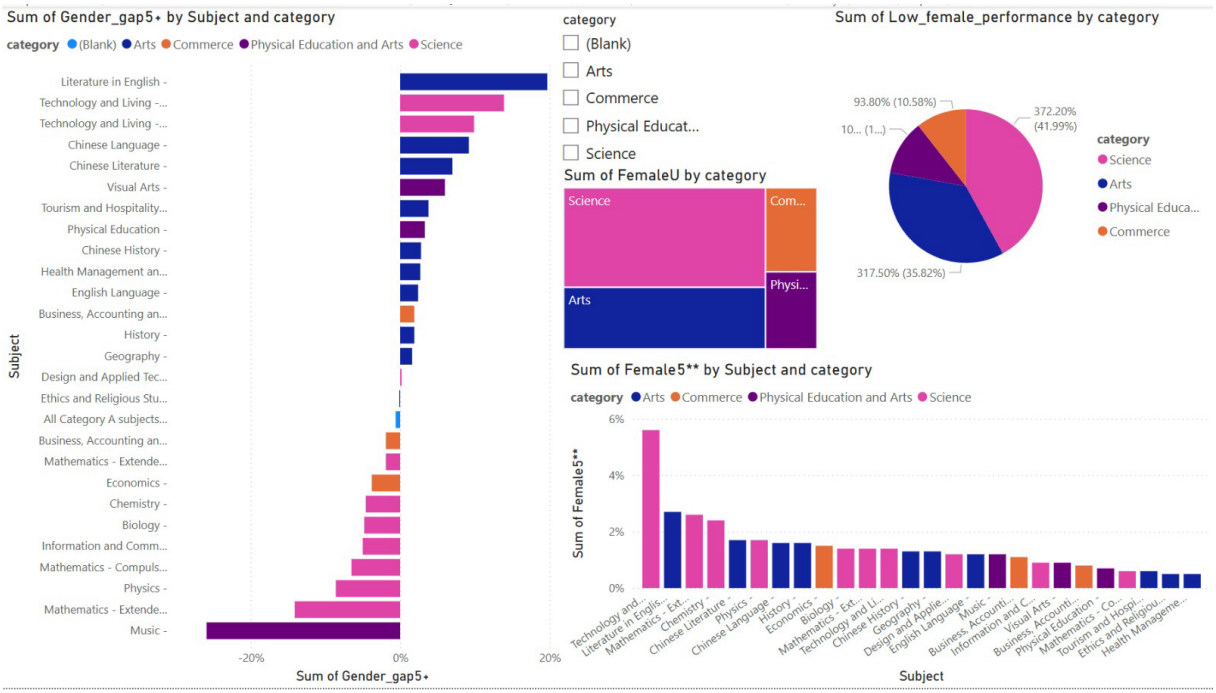
The data in "Sum of Low_female_performance by category" the majority of female students with poor performance focused on science disciplines. Although this is closely tied to the amount of scientific and arts subjects, it nevertheless indicates that nearly half of girls do poorly in science. Furthermore, the "Sum of Gender_gap 5+ by Subject and Category" reveals the most noticeable gender gap in science fields. Seven of the 11 subjects with a considerable number of high scores for males are science-related. This demonstrates that, despite many girls achieving excellent results in science topics, they remain at a disadvantage overall.

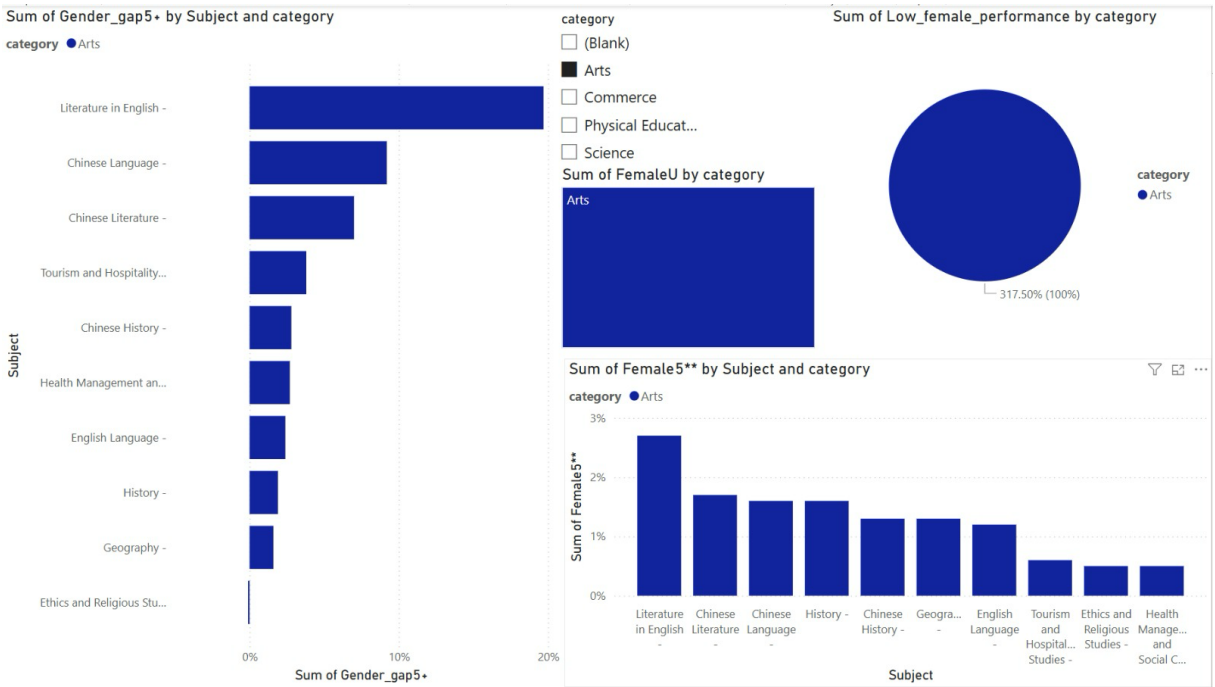
It is worth noticing that four of the top five subjects in "Sum of Gender_gap 5+ by Subject and Category" are likewise in the top ten of "Sum of Female 5** by Subject and Category," namely English Literature, Life Technology, Chinese Language, and Chinese Literature. This means that girls are more likely to perform well in these courses and achieve outstanding ratings.

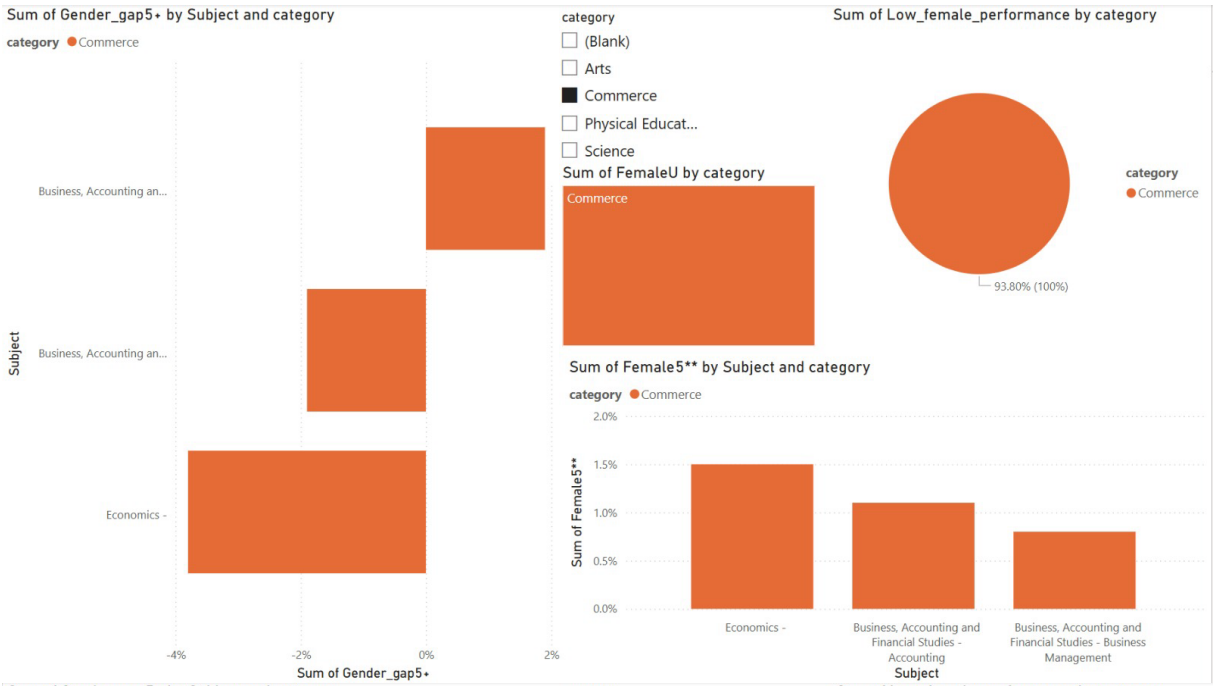
Overall, the data analysis revealed a wide range of abilities among female students across a variety of subjects, particularly in the humanities and some science areas. However, there is still a clear gender gap in science. Although girls perform well in some subjects, they still need to strengthen their understanding and mastery of science as a whole to improve their performance and competitiveness.

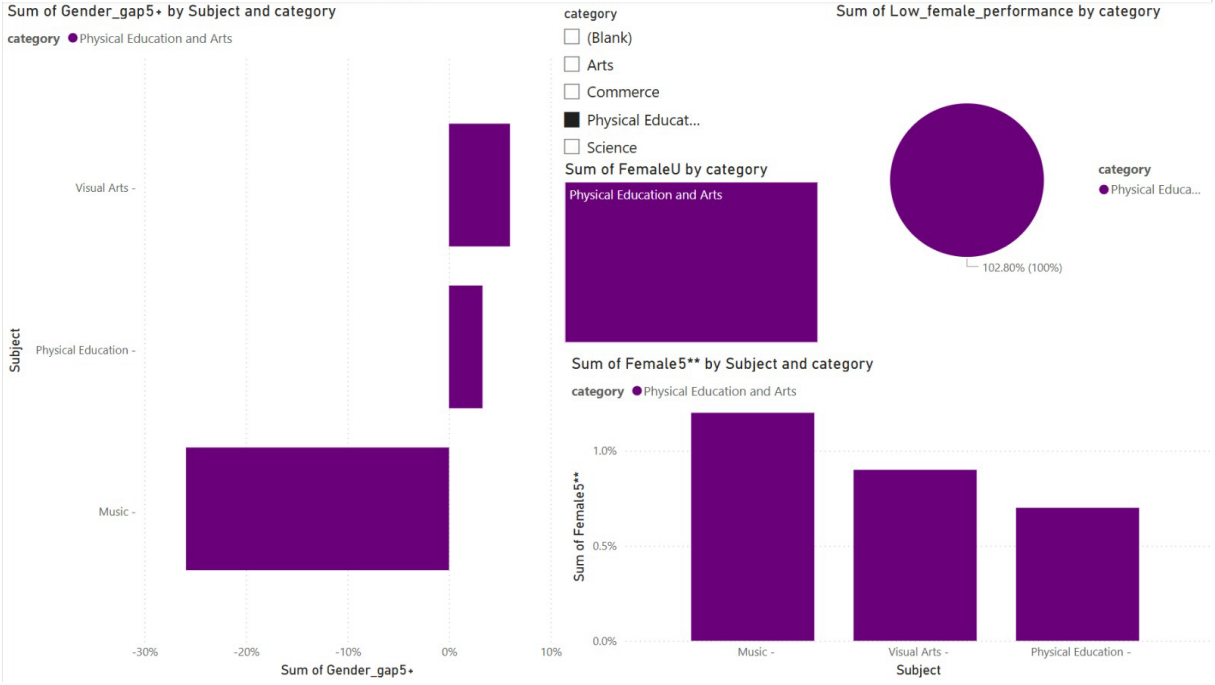
Reference

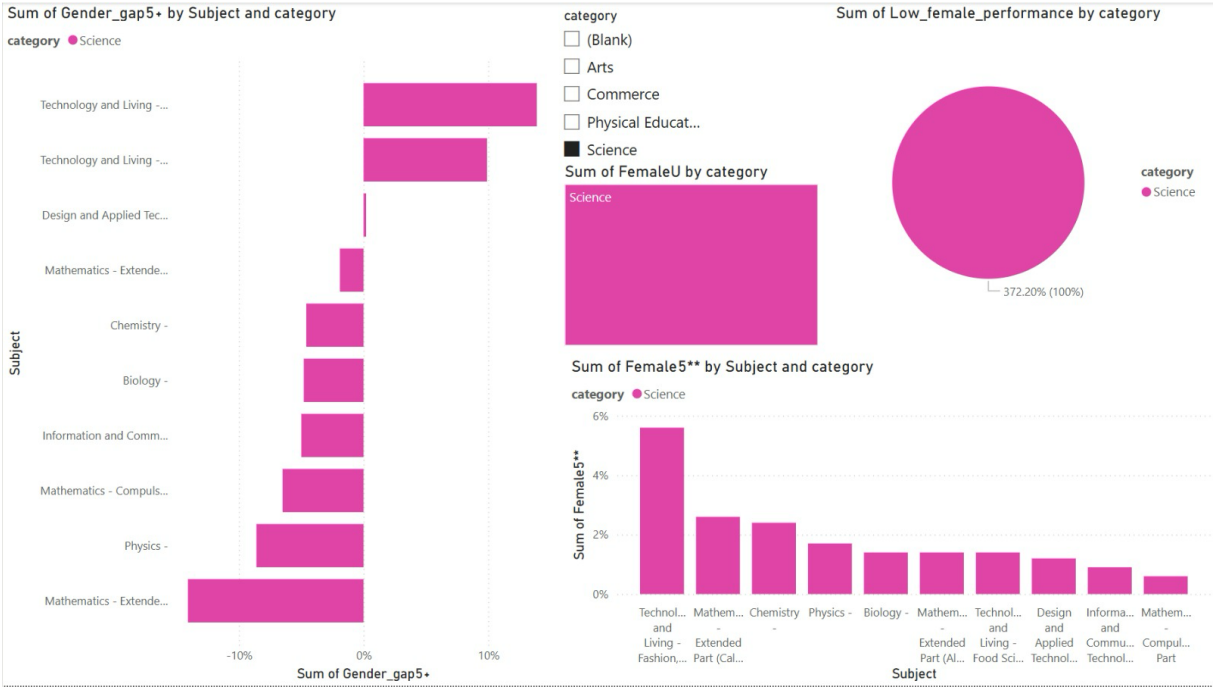
Appendix (Tables or charts)






Sum of Gender_gap5+ by Subject and category
category Commerce
Business, Accounting an...
Business, Accounting an...
Economics -
Subject
-4%
-2%
0%
2%
Sum of Gender_gap5+
category
(Blank)
Arts
Commerce
Physical Educat...
Science
Sum of FemaleU by category
Commerce
Sum of Low_female_performance by category
93.80% (100%)
category
Commerce
Sum of Female5** by Subject and category
category Commerce
2.0%
1.5%
1.0%
0.5%
0.0%
Sum of Female5**
Economics -
Business, Accounting and Financial Studies - Accounting
Business, Accounting and Financial Studies - Business Management
Subject


Sum of Gender_gap5+ by Subject and category
category Physical Education and Arts
Visual Arts -
Physical Education -
Music -
Subject
-30%
-20%
-10%
0%
10%
Sum of Gender_gap5+
category
(Blank)
Arts
Commerce
Physical Educat...
Science
Sum of FemaleU by category
Physical Education and Arts
Sum of Low_female_performance by category
102.80% (100%)
category
Physical Educa...
Sum of Female5** by Subject and category
category Physical Education and Arts
1.0%
0.5%
0.0%
Sum of Female5**
Music -
Visual Arts -
Physical Education -
Subject


Sum of Gender_gap5+ by Subject and category
category Science
Technology and Living -...
Technology and Living -...
Design and Applied Tec...
Mathematics - Extende...
Chemistry -
Biology -
Information and Comm...
Mathematics - Compuls...
Physics -
Mathematics - Extende...
Subject
-10%
0%
10%
Sum of Gender_gap5+
category
(Blank)
Arts
Commerce
Physical Educat...
Science
Sum of FemaleU by category
Science
Sum of Low_female_performance by category
372.20% (100%)
category
Science
Sum of Female5** by Subject and category
category Science
6%
4%
2%
0%
Sum of Female5**
Technol... and Living - Fashion,...
Mathem... - Extended Part (Cal...
Chemistry -
Physics -
Biology -
Mathem... - Extended Part (Al...
Technol... and Living - Food Sci...
Design and Applied Technol...
Informa... and Commu... Technol...
Mathem... - Compul... Part
Subject