ANALYSING EDUCATIVE COURSES

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1.1. Background

Educative, an education tech company, offers a range of courses in Web Development, Business Finance, Musical Instruments, and Graphic Design via online media. This analysis explores key insights within our course data to identify opportunities for revenue growth and improve overall course performance.

1.2. Business Problem

Educative faces a strategic challenge: how to increase revenue in the upcoming quarter. While there is an inclination to raise prices for Web Development courses, assuming their popularity, we need data-driven insights to guide this decision. Assessing the impact of a price increase on Web Development course subscribers and exploring alternative strategies to maximize revenue are the key questions guiding this analysis.

1.3. Objectives

- Explore subscriber trends to identify patterns in annual subscriber growth for all subjects.
- Assess subject performance through reviews, ratings, course duration and any impact on subscriber growth.
- Analyze pricing of each subject to pinpoint opportunities for optimization.
- Provide well-informed suggestions based on the analysis to increase overall performance and revenue generation.

2.   Methodology

2.1.   Data Cleaning

The initial step involved collecting raw data from Educative which was in separate subject files. Using Microsoft Excel, specifically Power Query for efficiency, I appended the various sheets into a single table to create a single dataset. Following that, this data was then cleaned.

The cleaning process included the following.

2.1.1.   Handling Blanks and Duplicates

To maintain the integrity of the data and prevent any misleading analysis, I identified and removed duplicates and blank records from the dataset.

2.1.2.   Ensure Consistency in Headers and Entries

To enhance clarity and maintain consistency across the dataset, I identified and addressed the inconsistency in subject titles. Specifically, I corrected the different format observed in the "Web Development" subject title, which initially appeared as "Subject: Web Development." This change aligned it with the standard format used for other entries in the subject column. Additionally, I made the headers clear and concise to facilitate ease of use and understanding.

2.1.3.   Other Transformations

Recognizing that the timestamps in the published date column was not going to be needed in my analysis, I created a new column to extract and store only the dates, ensuring a more relevant dataset. For similar reasons, I removed the URL column. Additionally, I introduced a 'free_or_paid' column to distinguish between free and paid courses based on their payment status which is referred to as the subscription plan. I successfully converted the ratings from a fractional scale out of 5 to a conventional whole number rating system.

2.1.4.   Summary on Top 20 Courses

To gain insights into the most subscribed courses, I organized information on the top 20 courses based on subscriber count.

	Top 20 Most Popular Courses By Total Subscribers					
course id	course_title	level	free_or_p	duration	published_date	
41295	Learn HTML5 Programming From Scratch	Beginner Level	Free	10.5	14/02/2013	
59014	Coding for Entrepreneurs Basic	Expert Level	Free	3.5	09/06/2013	
625204	The Web Developer Bootcamp	Beginner Level	Paid	43	02/11/2015	
173548	Build Your First Website in 1 Week with HTML5 and CSS3	All Levels	Free	3	08/04/2014	
764164	The Complete Web Developer Course 2.0	Beginner Level	Paid	30.5	08/03/2016	
19421	Free Beginner Electric Guitar Lessons	All Levels	Free	4.5	15/06/2012	
473160	Web Design for Web Developers: Build Beautiful Websites!	All Levels	Free	3	13/04/2015	
94430	Learn Javascript & JQuery From Scratch	All Levels	Paid	2	10/10/2013	
130064	Practical PHP: Master the Basics and Code Dynamic Websites	Intermediate Level	Free	6.5	19/07/2014	
364426	JavaScript: Understanding the Weird Parts	All Levels	Paid	11.5	12/03/2015	
238934	Pianoforall - Incredible New Way To Learn Piano & Keyboard	Beginner Level	Paid	30	07/08/2014	
756150	Angular 4 (formerly Angular 2) - The Complete Guide	Beginner Level	Paid	22	11/02/2016	
21386	Beginner Photoshop to HTML5 and CSS3	All Levels	Free	2	27/07/2012	
65330	Web Development By Doing: HTML / CSS From Scratch	All Levels	Free	1	25/09/2013	
405926	HTML and CSS for Beginners - Build a Website & Launch ONLINE	All Levels	Free	6	19/03/2015	
11174	Become a Web Developer from Scratch	All Levels	Paid	27.5	19/11/2011	
49798	Bitcoin or How I Learned to Stop Worrying and Love Crypto	All Levels	Free	8	20/04/2013	
314462	Quickstart AngularJS	Beginner Level	Free	1.5	22/11/2014	
128946	Learn Responsive Web Development from Scratch	All Levels	Free	4.5	09/12/2013	
289230	Learn and Understand AngularJS	Beginner Level	Paid	7	24/09/2014	

Figure 1- Top 20 Most Subscribed Courses

2.1.5. Pivot Tables

Collecting and organizing data based on key parameters, I summarized the extensive dataset using Excel's Pivot Table. This helped in a comprehensive overview for subsequent analysis.

2.2. Tools

In this analysis I made use of Microsoft Excel and Power BI, transitioning between these tools to leverage their respective strengths.

2.2.1. Microsoft Excel

Microsoft Excel was the primary tool for the data cleaning process and initial analysis, providing functionalities such as Power Query for efficient data collection, removal of blanks and duplicates, as well as performing other necessary transformations.

2.2.2. Power BI

In response to the CEO's preference for Power BI visualizations, I replicated the analysis in this dynamic tool. Power BI was instrumental in creating interactive dashboards and visualizations, enhancing the overall presentation of findings. Its interactive and visually compelling features complemented Excel's data processing capabilities.

3. Findings

3.1. Key Values

The analysis revealed that Educative's platform presents 3,672 courses spanning 4 subjects and 4 study levels, offering a total of 147,517 lectures with an average content duration of 4.1 hours per course. Providing a choice between free and paid subscription plans, the platform has attracted 11,760,483, approximately 12 million, subscribers who have contributed 574,595 reviews, yielding an average rating of 3.05. The courses are priced at an average of $66.12 with a total generated revenue from 20111 to 2017 as $881.16 million.

Key	Value
Total Courses Offered	3,672
Total Subjects	4
Number of Study Levels	4
Average Content Duration	4.1 hours
Number of Subscription Plan	2
Total Subscribers	11,715,835
Total Reviews	574,196
Average Rating	3.05
Average Pricing	66.10
Total Revenue	$881,674,940

Figure 2- Keys

3.2. Subscriber Trends Over Time

In analyzing the annual subscriber growth from 2011 to 2017, a consistent upward trend was observed until 2015, peaking at 3,475,324 subscribers. However, a marked decline in yearly subscribers occurred in 2016 and 2017 for all subjects. Business Finance displayed a steady curve from 2012 until its fall in 2017, while Graphic Design exhibited a fluctuating performance, peaking in 2015.
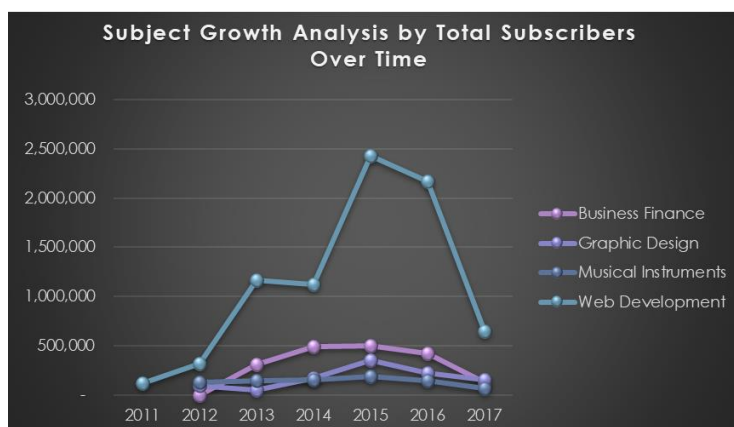

Figure 3- Subject Growth Analysis by Subscribers Over Time

3.3. Pricing Analysis

Another significant observation indicates that subscribers show sensitivity to pricing changes, especially in subjects with lower perceived value. 2017 with the marked decline had the highest average pricing across the years.
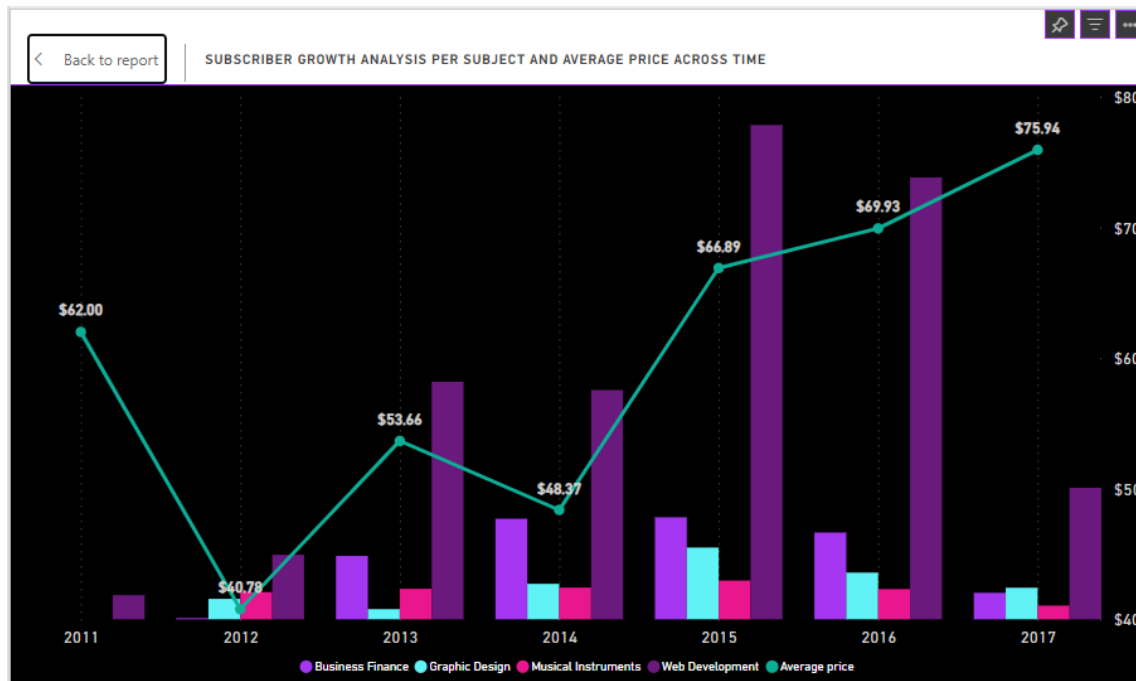

Figure 4- Subscriber Growth Analysis per Subject and Average Price Across Time

However, Web Development courses, though the most expensive, throughout the years attracted the highest number of subscribers. The inverse relationship between pricing and subscribers, particularly in 2017, calls for a strategic reassessment of pricing models to align with subscriber trends.
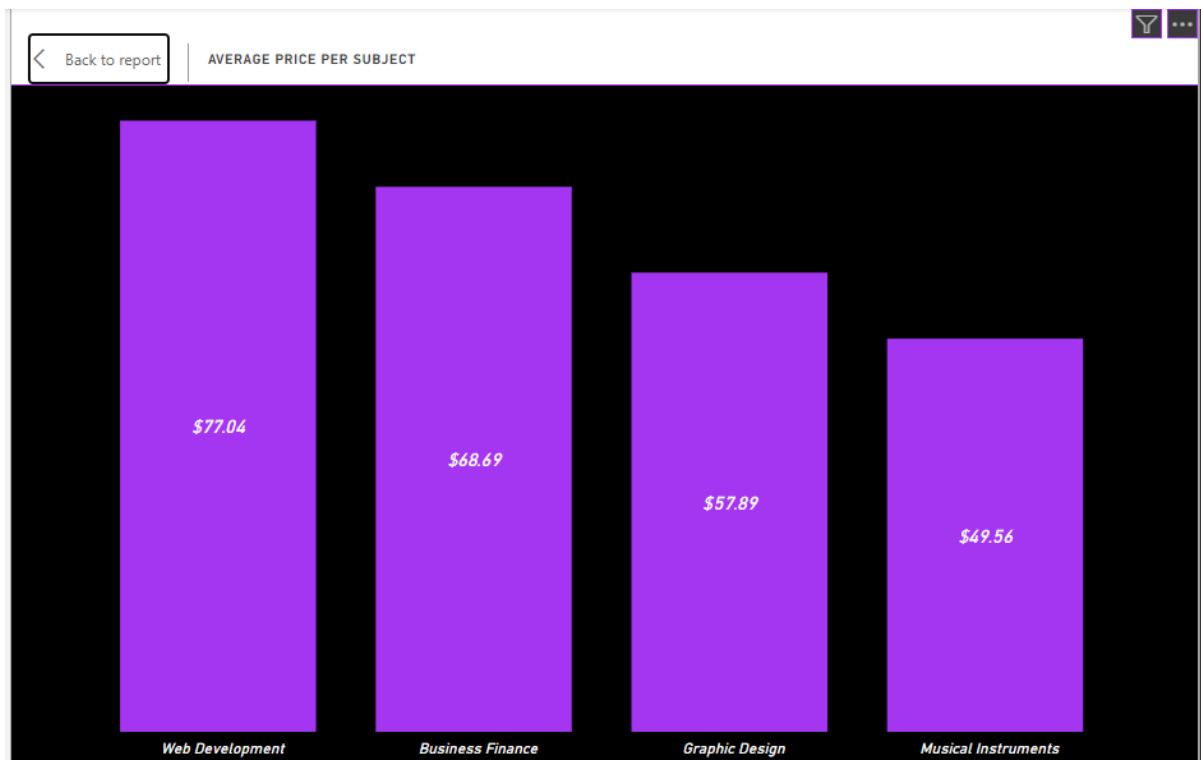
Figure 5- Average Price per Subject

3.4. Subject Performance

Web Development courses consistently outperform other subjects, exhibiting higher annual subscriber growth rates and generated revenue. The difference in course subscribers between Web Development and bottom-performing subjects is primarily attributed to the number of individual courses. Graphic Design and Musical Instruments have fewer subscribers due to a lower number of courses.

Figure 6- Total Courses Offered per Subject

The course ratings, however, tell a very different story with Graphic Design courses have high ratings compared to the other courses, especially the expert-level courses. Business Finance courses follow Graphic Design, before the popular Web Development courses, and then Musical Instruments courses.
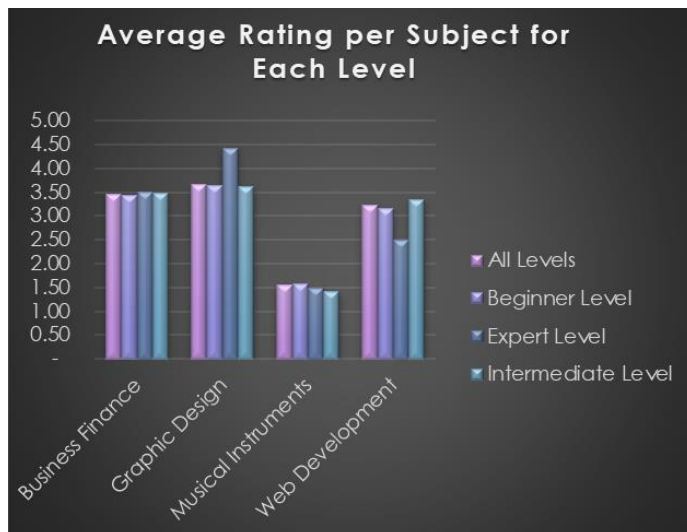

Figure 7- Average Rating per Subject for Each Level

The average duration of courses varies, with Web Development having the highest at 5.59 hours, followed by Graphic Design, Business Finance, and Musical Instruments. Web Development courses, with the longest average duration, indicate a commitment to comprehensive learning. Understanding the implications of course duration on engagement provides an opportunity to refine marketing strategies and attract a wider subscriber base.
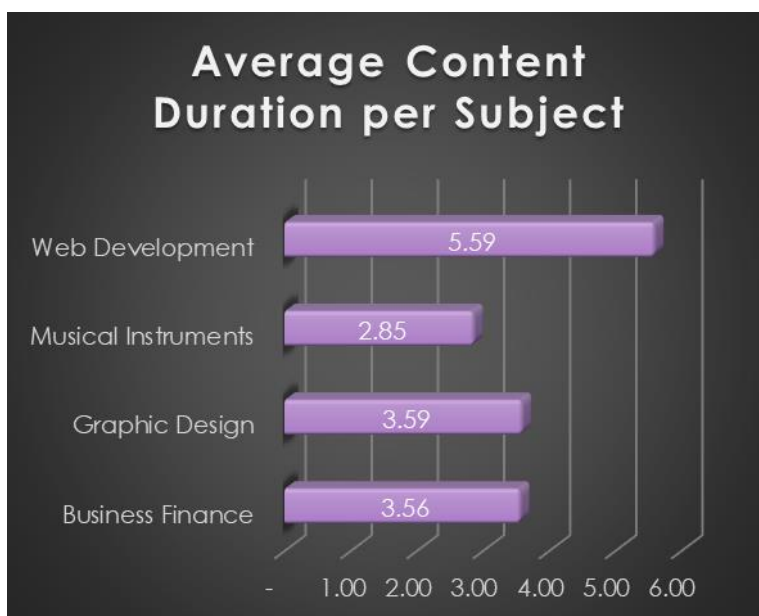

Figure 8 - Average Content Duration per Subject

4.1. Impact of Pricing on Subscriber Trends

Exploring the influence of pricing on subscriber numbers revealed a decline in 2016 and 2017, despite an uptick in average ratings. Changes in pricing trends in 2016, followed by a subsequent decrease in 2017, likely played a role in this subscriber downturn.

The significant drop in Web Development course subscribers post-2015 was attributed to a price increase aimed at offsetting a revenue dip. This adjustment, driven by the perception of Web Development having more subscribers, led to a surge in courses in 2015. This, in turn, caused a decline in perceived course quality, resulting in a decrease in the rating score compared to its previous level, while other subjects experienced an increase in ratings. The imbalance in prioritizing quantity over quality, coupled with a lack of market analysis and optimization strategies, led to market saturation in Web Development courses.

Subject Performance Analysis per Ratings Over Time					
Average of Rating ▼					
Subject ▼	**Business Finance**	**Graphic Design**	**Musical Instruments**	**Web Development**	**Grand Total**
2011				2.24	2.24
2012	2.48	2.70	2.15	3.13	2.73
2013	3.36	3.80	1.10	3.09	2.90
2014	3.42	3.82	1.47	3.11	2.92
2015	3.49	3.55	1.60	3.06	3.04
2016	3.39	3.68	1.47	3.34	3.05
2017	3.57	3.70	1.79	3.27	3.23
Grand Total	**3.45**	**3.65**	**1.54**	**3.21**	**3.05**

Figure 9- Subject Performance Analysis per Ratings Over Time

The decline in subscribers (*Figure 3)* can be traced back to the much focus on having many courses rather than making sure they were good quality. Elevated prices may have contributed to decreased affordability, further impacting the decline. Lower course ratings hint at potential quality concerns, likely stemming from course saturation.

4.2. Success Factors in Web Development Courses

Web Development consistently performs well, suggesting it has a winning formula. Examining what makes Web Development courses successful, we found that the number of courses influences how many people sign up.

Subject Analysis				
Subject	**Total courses**	**Total Subscribers**	**Total Reviews**	**Total Generated Revenue**
Business Finance	1,191	1,868,711	75,902	$123,735,315
Graphic Design	602	1,063,148	37,070	$76,983,170
Musical Instruments	680	846,689	31,724	$53,359,055
Web Development	1,199	7,937,287	429,500	$627,597,400
Grand Total	**3,672**	**11,715,835**	**574,196**	**$881,674,940**

Figure 10- Subject Analysis

Also, it offers more free courses as compared to the other subjects. So, replicating this by offering more courses in other subjects could attract a broader audience.
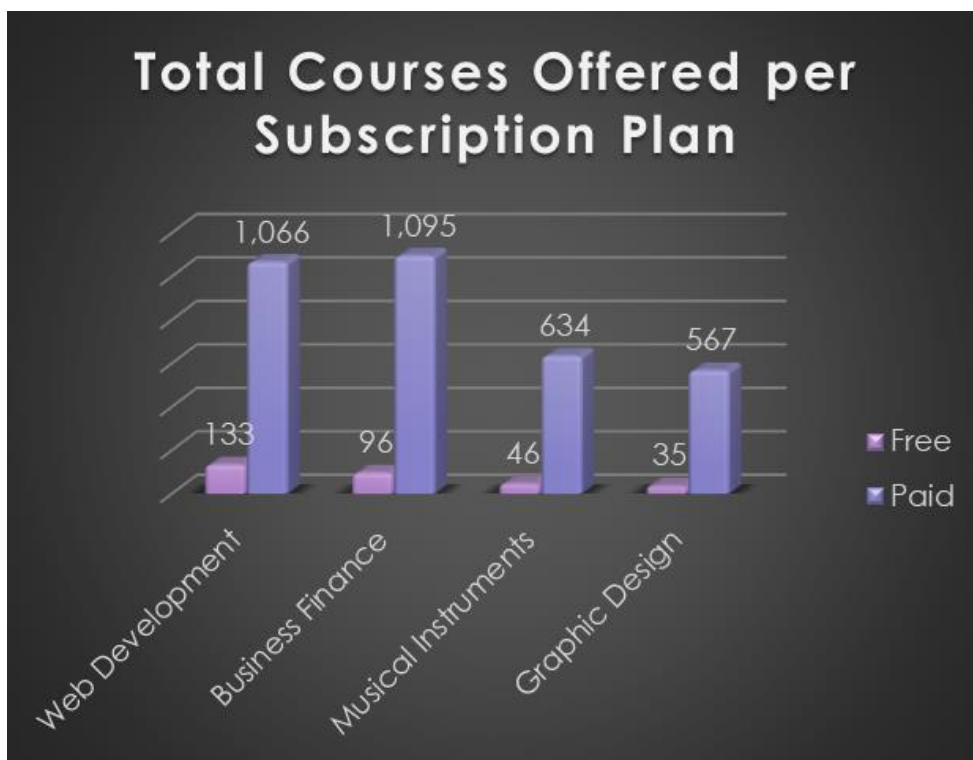

Figure 11 - Total Courses per Subscription Plan

4.3. Insights for Business Finance Courses

While Business Finance courses have comparable prices to Web Development, they attract fewer subscribers but boast higher ratings (Figure 7). This suggests that learners might lean towards free courses referencing the fact that web development is the subject with the highest free courses. (*Figure 11*) To increase subscriber engagement, lowering Business Finance course prices and gaining insights into learner interactions could be considered.

4.4. Optimizing Graphic Design Course Pricing

Graphic Design courses stand out with higher ratings. (Figure 7) This opens a chance for adjusting prices, especially for expert-level courses. Expanding and improving expert-level Graphic Design courses by increasing both the pricing and the number of courses could be a strategic move, given the positive link between expert-level courses and higher subscriptions. Ratings generally mirror customer satisfaction.

4.5. Elevating Subject Ratings with More Lecturers

Subjects with more lecturers consistently receive higher ratings overall. Investing in more lecturers, especially for Graphic Design and Web Development, could positively impact subject ratings.
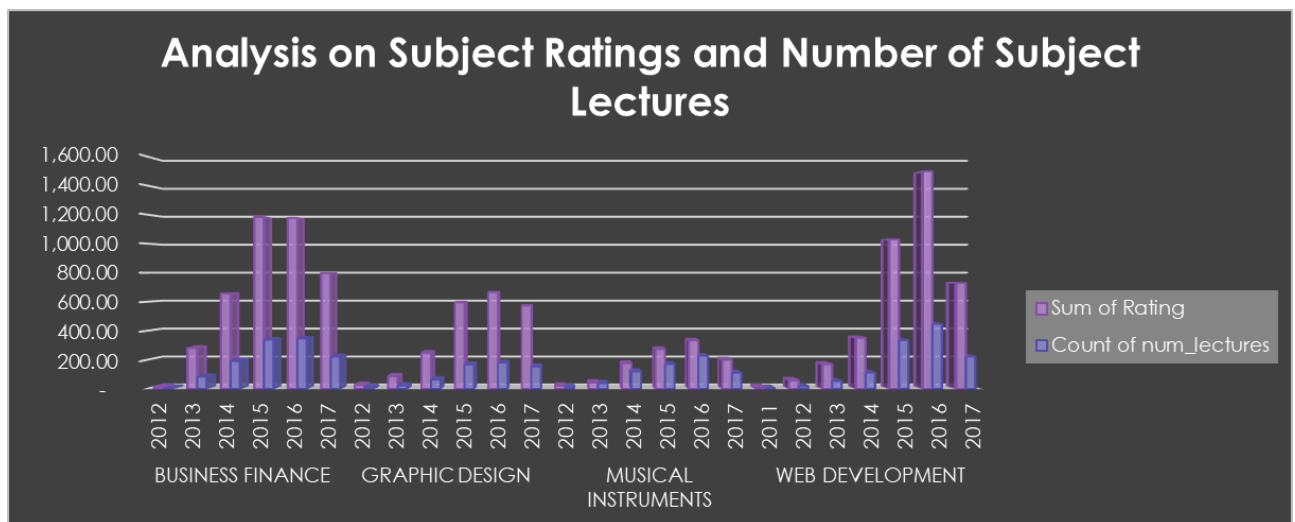

Figure 12 - Analysis on Subject Ratings and Number of Lectures

5.0. Recommendations

Based on the insights derived from the analysis, we recommend Educative consider the following to optimize revenue and improve course offerings

5.1. Web Development Strategy

- Emphasize quality improvements over price hikes to retain and attract subscribers.

- Conduct market analyses to identify gaps, tailor courses, and avoid oversaturation.

5.2. Pricing Optimization

- Adjust Graphic Design course prices, particularly for expert-level courses, based on market demand.

- Optimize Business Finance pricing to strike a balance between affordability and perceived value.

5.3. Strategic Investment in Lecturers

- Invest strategically in hiring more lecturers, particularly for Graphic Design and Web Development.

- Enhance course content and satisfaction by bolstering the teaching faculty.

5.4. Diversification Strategies

- Introduce new courses in trending topics or emerging technologies to diversify offerings.
- Explore partnerships with industry experts for specialized content, broadening the audience reach.

6.0. Conclusion

To address the strategic challenge of increasing revenue, it is crucial for Educative to prioritize quality in Web Development courses, avoiding reliance solely on price hikes. Implementing tailored strategies for each subject, including pricing adjustments and lecturer investments, will contribute to a more dynamic and competitive course catalogue. Continuous monitoring and adaptation based on market dynamics and learner feedback will be essential for sustained revenue growth in the upcoming quarter and beyond.

7.0. Reference

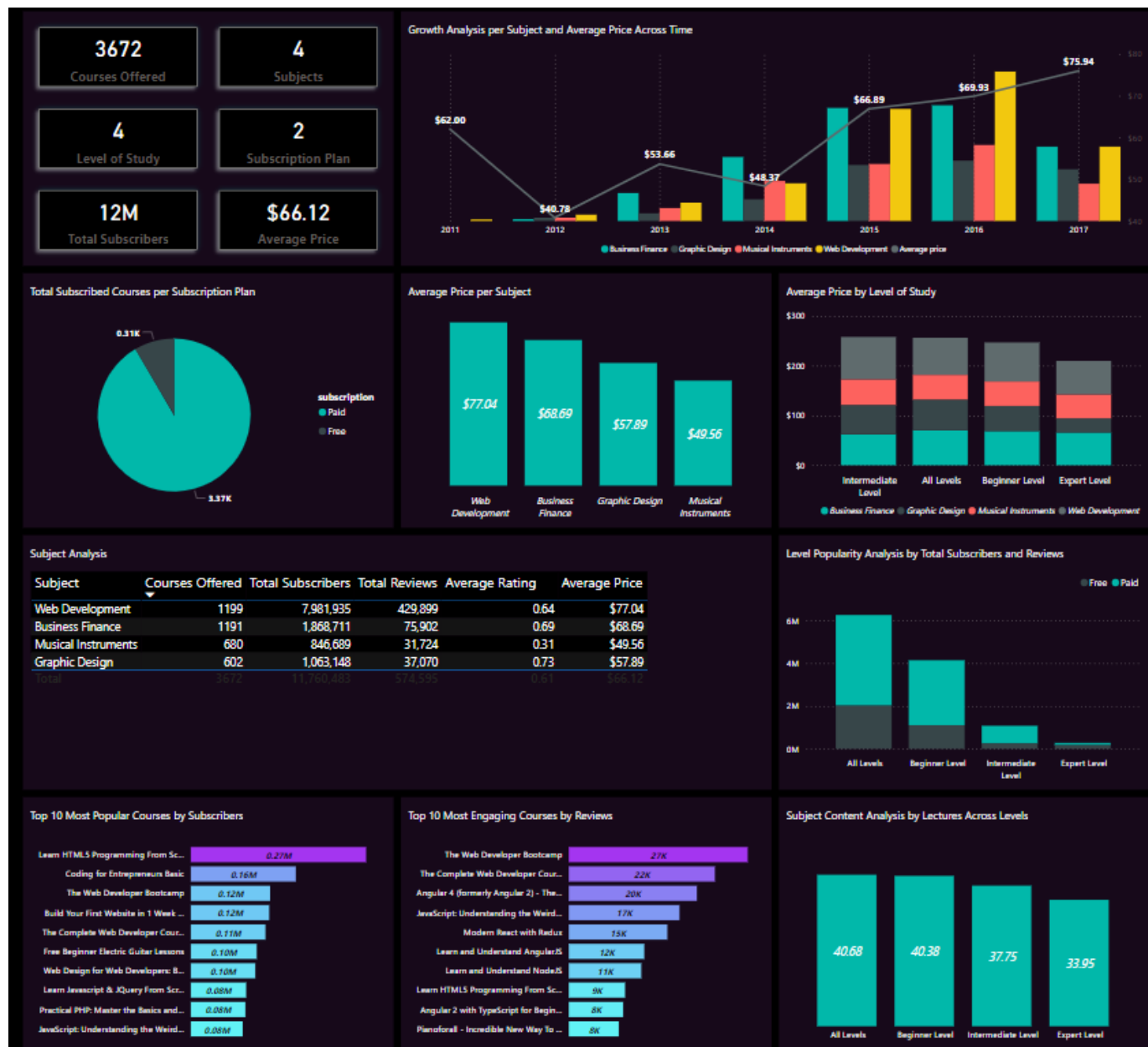- ➢ Link to Power BI report on the course data analysis
- ➢ Link to Power BI Dashboard
- ➢ Link to Excel Dashboard

Figure 13 - Power BI Dashboard