Enhancing Education through YouTube as a Platform

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Abstract: There has been a transformative role of YouTube in enhancing education, revolutionizing the traditional learning landscape. YouTube is not only a platform to watch, share and comment on videos but also a place for teachers and learners to communicate with each other from different corners of the world. Therefore, it becomes important for the creators to know more about the usage patterns of people from various age categories. The researcher emerges a questionnaire and applies it to various individuals.

Key Words: YouTube, Learning, Enhancing Education

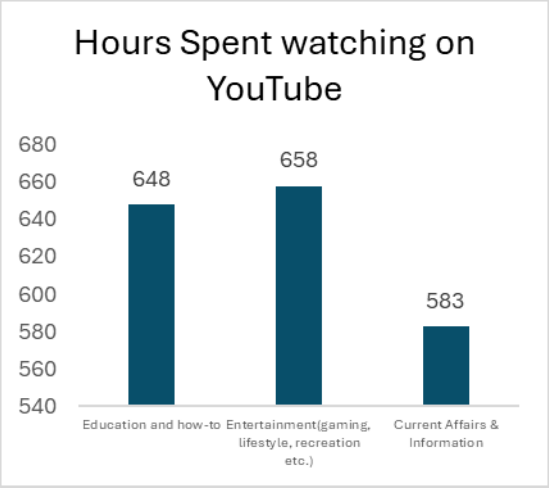
I. INTRODUCTION

In today's world education is not limited just to classrooms but has transcended its boundaries beyond them. With the advent of streaming platforms entertainment, learning has become more accessible, engaging, and tailored according to various trends. Ever since COVID-19, remote learning has become renowned and is preferred by various students and even professionals. YouTube, being a platform with millions of educational videos, freely accessible to everyone, has become an extremely useful resource for many people. Unlike conventional educational institutions, YouTube provides the flexibility to learners to delve deep into their subject of interests explore the topics at their own pace. YouTube also fosters a sense of community where like-minded people can connect with each other and share their information and insights to people all around the world. This study was conducted with the aim of gathering insights on the pattern of usage of YouTube by different people for learnings and what do they feel about overall experience while using the same. To gain insight into how individuals use YouTube for educational purposes, a questionnaire was developed based on certain preferences and criteria's important to individuals.

The independent variables include hours spent on YouTube, type of content mostly consumed, whether quality of content and credibility is important, the device used, satisfaction level from the interface and recommendations and paid services, duration of videos and how does this compliment their learnings. The dependent variable is the assistance of YouTube in enhancing the educational information of consumers. Sample of 342 respondents was collected using convenient sampling method to arrive at conclusions. The data collected was analyzed with the help of Spearman's Rank Correlation Coefficient, ANOVA Tests, Regression Analysis and Histograms and Charts.

II. FACTORS AND STATISTICS

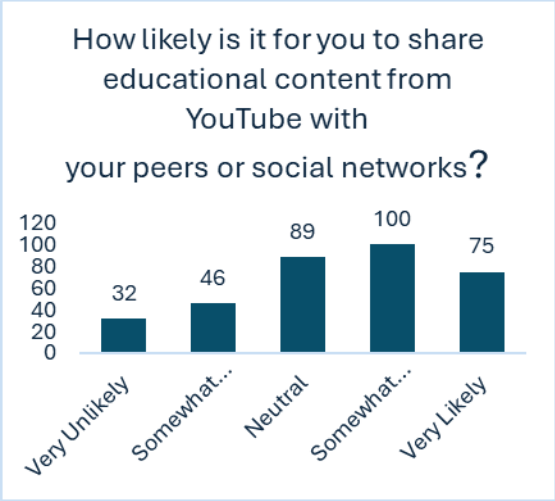
A frequency distribution shows how often each different value in a set of data occurs. A histogram is the most commonly used graph to show frequency distributions. It looks very much like a bar chart, but there are important differences between them. This helpful data collection and analysis tool is considered one of the seven basic quality tools.



The chart is plotted based on the summation of what kind of content the individuals consume on a daily basis from a scale of 1-3 where 3 refers to highest consumption and 1 being the least.

1. Entertainment (658): As it carries the highest weightage, consumption of media and communication has proven to be one of the most essential activities that people do in their routine. It is among other options, like watching films, TV shows, playing video games, listening to music, and other recreational activities.
2. Education (648): Weights of educational items closely followed entertainment. It can be argued that the viewers also privilege in educational activities but to a smaller degree in terms of time and attention. For instance, activities like learning by attending classes, reading educational materials, taking courses or skill-building activities.
3. Current Affairs (583): However, major news items are still emphasized but are given less importance than entertainments or educational programs. This infers that people do spend less time along with the engagement to catching news and more focus to remain updated with the events and the society issues. Overall, gathering information about the trending things would be still a bit important, but not as much like previous experience which usually education and entertainment comes first for people.

In general, this finding seems to indicate that people give more importance to entertainment and education, rather than being informed for off-the-cuff news. This might be because there is more of an emphasis on leisure and human growth than one puts on learning what is happening in the world at large.



The information looks at attitudes of individuals towards sharing educational or informational content from YouTube to their peers. It shows various reactions, where nearly 52% chose “somewhat likely” and “very likely” when asked about sharing the content. This suggests reasonable openness and interest to spread knowledge among the given social media audience which is a positive sign for further worldwide distribution.

Consequently, the fact that some individuals are marked within the "Very Unlikely" and the "Somewhat Unlikely" categories means that a small proportion of people do not want to show their subjective experiences or lives. Discovering the reason behind these attitudes and addressing the questions that come with the minds of people forms a solvent approach to devise successful strategies that aim to encourage sharing of this educational content and make it more effective.

This observation from Category "Neutral" is an indication that people might not be totally sure of the content they want to be part of. This category may be affected by various aspects like relevance and quality. If the doubts and the perplexities of this group are the main roadblocks for more popular practice, the solution of these problems could be a crucial factor in encouraging the idea of sustainable resource sharing. Content creators and tutors can use this in an advantageous position by generating engaging as well as meaningful educational content that would be sharpened at sharing within social networks. This way, they will more likely have their content spread within communities.

While the positive sharing sentiments in the "Somewhat Likely" and "Very Likely" domains can be exploited, strategies should be implemented that target sharing habits by promoting and rewarding such behaviors. Such recommendations could be, for instance facilitating the use of sharing tools, putting social proof signs, or providing bonuses for the idea of distributing.

III. KARL PEARSON’S CORRELATION

In correlation analysis we study the connection or the relation between two or more variables. If two variables vary in such a way that the change in one variable is accompanied by changes in other

variables, then these variables are said to be correlated.

Karl Pearson's Correlation Coefficient	
How satisfied are you with the recommendations provided by YouTube?	
How much has YouTube complemented your learnings/education?	
covariance(X,Y)=	0.477386
Karl Pearson's Correlation Coefficient	0.428477

The coefficient of correlation, which is 0.428, implies a moderate positive correlation between how well individuals think that YouTube helps them in their learning/education and how satisfied they are with the YouTube recommendations.

Moderate Positive Correlation: A result of a co efficiency of 0.428 implies that there is a positive trend between these two variables (the contribution of YouTube to the learning process and the satisfaction with the YouTube content or recommendations).

Complementary Learning: It shows the link whereby those who suggest that YouTube is a significant ingredient in their success and education also like the suggestions furnished by the platform. Thus, YouTube shows content that is useful for users and corresponds to their desires, and it is common that users will spend more time on such videos and show interest to watch them.

User Satisfaction: The satisfaction that users have with YouTube's recommendations seems to be impacted by how YouTube is helping users in the learning process. Those who see YouTube as a window for the learning process are typically eager to learn more and get suggestions from YouTube about what they need or may be interested in. This approach will, of course, lead their satisfaction to higher levels.

Room for Improvement: Although there is a positive correlation with the correlation coefficient of 0.428, the rate of correlation is still lower compared to many other cases. The low rate can be because of reasons like changing preferences of individuals as YouTube only focuses on similar content and where you have existing views. The problem can also be clickbait and misinformation or improper refinement by YouTube's algorithm.

Individual Variability: Contrarily, we see a movement towards the understanding that the individuals that are served better by YouTube as a learning platform tend to have greater positive views of the recommendations as well. However, taking into consideration the individual differences is crucial. It does not mean that all the users of YouTube use the service only for learning ends. Several of them might be interested in a plethora of content which might make them satisfied, or otherwise, with the recommendations.

To summarize, the discernible association points out the positiveness of YouTube's influence as an educational tool in terms of user satisfaction with the recommendations. However, making sure the content feed is diverse and the algorithm of recommendations is improved continuously would yield the experience and satisfaction of users better.

Karl Pearson's Correlation Coefficient	
How much does YouTube enhance your learning experience compared to traditional/modern educational resources	
How much has YouTube complemented your learnings/education?	
covariance(X,Y)=	0.716323
Karl Pearson's Correlation Coefficient	0.551663

The above picture shows correlation between how better YouTube is compared to traditinal educational sources and how much has YouTube complimented the learnings of a person.

Here is an analysis of what this correlation might suggest:

Moderately Strong Positive Correlation: What is portrayed through the correlation coefficient is the powerful and important relationship that holds between the time that individuals spend on YouTube for their academics/learnings and whether this is more effective than the conventional educational system like classrooms.

Complementary Learning Effectiveness: The crucial body expression here shows that those who find YouTube educational content beneficial for themselves, especially those where complex information is simplified by experts clearly believe that YouTube helps them more than other methods.

Preference for YouTube's Learning Experience: Many students consider YouTube as an essential part of their learning experience as it provides them with curated playlists on a plethora of topics and offers

them an engaging way of gaining knowledge. With various choices of experts to choose from on the platform which is not possible in the traditional learning system makes YouTube a better option for students as per the survey and its inferences.

People who rely on YouTube as a supplementary viewing would give them a positive idea about the site's effectiveness in aiding their total learning process. It signifies that YouTube is playing the role of an ideal librarian to be sorted by books of knowledge that you have never read.

Consideration of Context: Although the strength of the link is high, we need to also give due attention to the fact that learning in the general case happens under varying circumstances and individuals are not alike. For some learners, YouTube will not meet all their needs and requirements, depending on the type of subjects that are covered and the student's own learning preferences and learning goals.

Overall, the moderately strong positive correlation signifies that YouTube's ability to prompt learning is related to its capacity to supplement and improve the total learning experience as compared to the traditional learning resources.

IV. REGRESSION

Regression in finance, investing and many more other areas is a statistical instrument aiming at finding out the strength and the character of the relationship between one result variable (known by the letter Y) and a set of independent variables.

AGE (X)
YouTube Uasge(in hrs) (Y)

Regression Statistics	
Multiple R	0.15271938
R Square	0.02332321
Adjusted R Square	0.02045063
Standard Error	1.08611176
Observations	342

This regression analysis ought to give us the knowledge regarding the relationship between variables, that are age(x) and for how many hours is used consumed(Y)

Multiple R: Also known as the multiple correlation coefficient, its sign indicates the direction of the relationship, while the size of the coefficient determines the strength of the relationship. This means that it is close to 0.153 indicating almost positive link between them.

R Square: This is the coefficient-of-determination which is the percentage of variance of the dependent variable which is dependable to the independent variable(s). This rate is equal to 0.023, meaning that only about 2.3% of the variance in the dependent variable is explained by the independent variable. This shows exceedingly small predictive power.

Adjusted R Square: This is a type of R Square that has been corrected for the number of variables in the model. It is considered for linked models with many variables. It does have an equivalent R square value of 0.020 signifying similar weak explanatory power.

Standard Error: The amount by which the forecast differs from the actual outcome. This is simply the average distance of the values from the regression line. For instance, if the observed number is 1.0026, then model's predicted output will be 1.086 indicating that the actual value will be, on average, 1.086(approx.) units away from the prediction.

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	9.577792 24	9.57779224	8.119258674	0.004646679
Residual	340	401.077179	1.17963876		
Total	341	410.654971			

	Coefficients	*tandard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.5140085	0.17320608	14.5145512	1.74614E-37	2.173318081	2.85469892	2.17331808	2.85469892
Age	-0.01796989	0.00630648	-2.84943129	0.004646679	-0.030374521	-0.00556525	-0.03037452	-0.00556525

Regression Equation YY= a + bX	X
2.14562582	15.5
2.03780649	20.5
1.87607751	26.5
1.79521302	35.5

In the above diagram, the coefficient of age(X) is -0.0179 indicating a weak but statistically notable negative relationship between age and time spent on YouTube. It means that as people get older, they tend to watch less content on YouTube.

The p-value (0.0046) <0.05 shows that the relationship is statistically significant.

V. LIMITATIONS

Karl Pearson's Correlation: It only defines the linear relationship between the variables. It is affected by extreme values of two variable values. Computation of Pearson's coefficient is sometimes cumbersome.

Regression: Regression analysis assumes linearity, independence, and constant variance, which may not always be held in real-world scenarios. Models can be overly complex or too simplistic if not carefully

tuned. When Independent variables are of high correlation it becomes difficult to determine the impact on other variables and if there are extremes it may lead to inaccurate conclusions.

Histogram: Histograms may become a problem for variables that are not continuous or discrete. It is wrong to equate central tendency of the data by using only one measure such as the mean, it is simplifying the data. The deficiencies of limited memory bring difficulties in managing big data. Histograms are still an indispensable tool for plotting the data distribution patterns.

VI. CONCLUSION

By collecting and analyzing the data, we aimed to achieve the following objectives:

- For what content YouTube is used the most.
- Other objectives of using YouTube other than entertainment.
- How better or worse is YouTube as a platform for learning compared to traditional methods.
- How do factors like quality, services, duration etc. affect the efficacy of the platform.

Most individuals (79%) say that YouTube has complimented them a lot for complimentary resources, expert knowledge, understanding complex topics and learning more about current affairs. Out of these 55% are likely to share the content with their peers increasing the consumption of these videos.

- Most individuals who are using laptops for YouTube mostly watch educational videos.
- While the quality of content is important for most viewers, 37% do not check the credibility of the sources they are viewing.
- As individuals get older, they tend to watch less content on YouTube.
- As a lot of individuals feel that content on YouTube has become more engaging, many have a neutral opinion on how much duration should be, however due to time constraints 60% of people feel that duration is particularly important for them.

VII. RECOMMENDATIONS

- A respondent may select options without reading the question or not fully understanding it to get done with form filling.
- It is also possible that the person may not answer truthfully due to strong opinions. This may affect the integrity of the data collected.
- There is also a possibility of the questionnaire not reaching the concerned people.

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