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A Data-Driven Analysis of Reach and Interaction on the "ISAP - Computer Engineering Department" Facebook Page

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ABSTRACT

This research paper looks at how people interact with the "ISAP - Computer Engineering Department" Facebook page in a systematic way. The study looks at key metrics like reach, engagements, shares, likes, and comments using historical data from May 8, 2023, to August 7, 2023. The methodology includes data collection, preprocessing, exploratory data analysis, distribution analysis, correlation analysis, and strategic recommendations. Correlations between metrics were looked at to figure out the complex relationships that drive engagement, and content analysis was done to figure out the things that lead to higher reach. The results give a more nuanced picture of how content connects with the audience, which paves the way for targeted strategies to increase both reach and engagement. Ethical concerns were taken into account, which made sure that research was done in a responsible way. The insights from this study can help content creators, social media managers, and teachers improve the performance of their Facebook pages and build a more active online community.

Key Words: Facebook, Web Interactions, Webpage

INTRODUCTION

In the digital world of today, social media sites like Facebook have become important ways for organizations to reach their stakeholders. For the "ISAP - Computer Engineering Department" Facebook page, this research tries to make sense of the complicated factors that affect post reach and engagement, so that the content strategy can be improved. The "ISAP - Computer Engineering Department" Facebook page, which is the focus of this study, is a hub for computer engineering students, teachers, and fans. Even though it has good content, it doesn't reach as many people as it could. To improve its impact and get more people involved in the community, it needs a deeper analysis.

The goal of this study is to find out how many people visit the "ISAP - Computer Engineering Department" Facebook page and how they interact with it. In particular, the goals are: (1) an examination of post reach and the identification of underlying patterns; (2) an analysis of the relationship between reach, likes, shares, comments, and other engagement metrics; and (3) the creation of strategic recommendations to improve page reach.

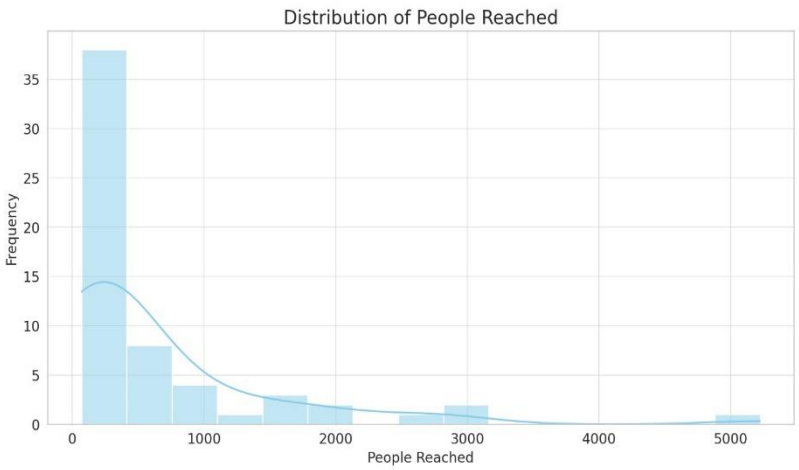
METHODOLOGY

The way this research was done was meant to give a full picture of the "ISAP - Computer Engineering Department" Facebook page's reach and activity. The method was carefully planned and involved several steps: (1) The Facebook page's Insights tool was used to get historical data from May 8, 2023, to August 7, 2023. This data included the number of people reached,

engagements, shares, likes, comments, impressions, video views, and various click-related metrics. (2) Careful cleaning made sure there were no missing values, outliers, or columns that didn't belong, and important metrics were changed as needed to make further analysis easier. (3) At first, statistics were used to get an idea of how the data was spread out, and techniques like histograms and correlation heatmaps were used to see how key metrics were spread out and how they related to each other. (4) The distribution of "People Reached" was looked at to see how the reach of different posts differed, and a thorough content analysis was done to find out what kinds and characteristics of content led to higher reach. (5) The Pearson correlation method was used to find out how reach, engagements, shares, likes, and other metrics related to each other. (6) The analyses were used carefully to find out about current trends, patterns, and areas for improvement. Based on what was learned, strategic recommendations were made to help the page reach a wider audience. All of the data used in this study were made anonymous and put together. This was done to follow Facebook's rules on how to use data and to follow the principles of responsible research practice. Through this systematic, data-driven approach, the research provides a nuanced understanding of the factors that affect the Facebook page's reach and engagement, revealing the underlying patterns and plotting a course for strategic improvement that is based on empirical evidence and morality.

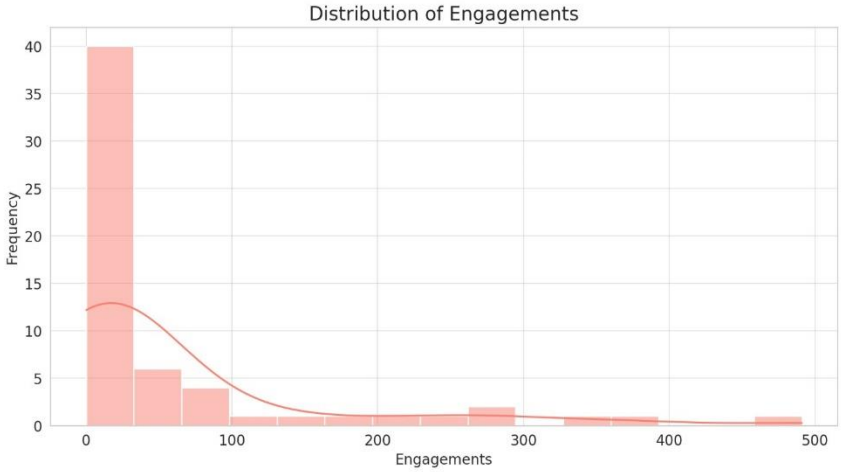
RESULTS AND DISCUSSION

Distribution of "People Reached." This study begins by examining the distribution of the "People Reached" metric, which represents the number of unique users who saw the posts on the Facebook page. This analysis will help in the understanding of how reach varies across different posts.

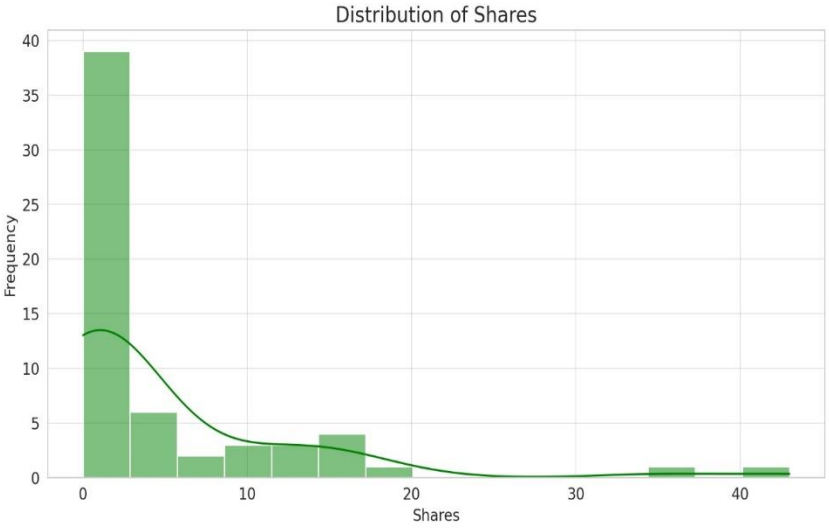


The histogram (Left) shows how the "People Reached" metric for posts on the Facebook page for the "ISAP - Computer Engineering Department" is spread out. Here's how this distribution breaks down: Most posts have been seen by less than 1000 people. This clustering on the left side of the graph shows that most of the content is only reaching a small part of the possible audience. There are a few posts that get a lot more attention (above 1000 people). These could be examples of content or marketing that was especially well-received and reached a wider audience. Figuring out what makes the most popular posts successful, could be used to make similar content in the future. This shows how important it is to look deeper into the characteristics of the posts to figure out what makes them have different levels of reach. It sets the stage for further analysis, which will focus on the types of content, engagement metrics, and other things that could affect how far the Facebook page's posts get seen. By breaking down these factors the research hopes to come up with suggestions that can be used to increase the number of people who reach the page over time.

Distribution of "Engagements." This section talks about the distribution of the "Engagements" metric, which represents the total number of interactions (likes, comments, shares, etc.) on the posts.

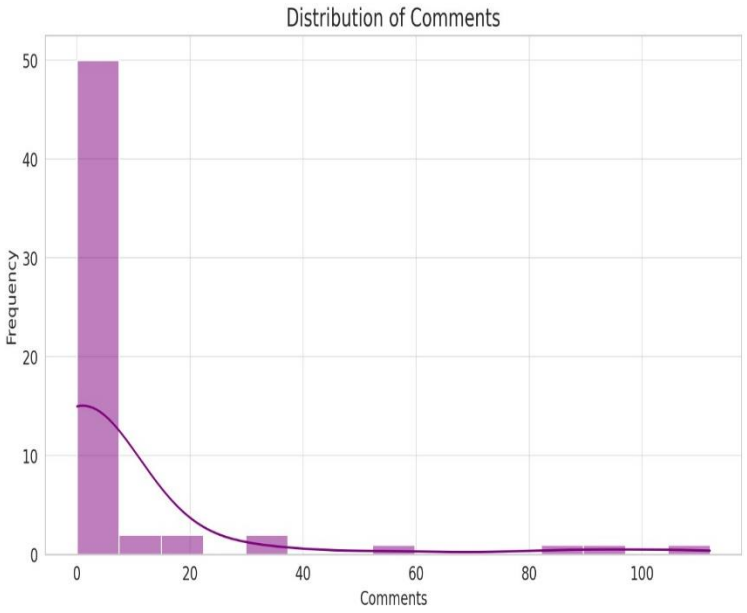


The histogram at the right shows how the "Engagements" metric, which is the total number of interactions with Facebook page posts, is spread out. (1) Most posts have had less than 100 people interact with them. This pattern suggests that most content might not be getting people to interact much. (2) A small number of posts have gotten a lot more engagement, which shows that they might be good at connecting with the audience. (3) The fact that most engagements are low shows that the content strategy needs to be changed to get more people to interact. By figuring out what makes posts that do well engage people, the page can make more interesting content that makes people want to interact, which will increase engagement overall. Distribution of "Shares", Next is the analyzation of the distribution of the "Shares" metric, reflecting the number of times the posts have been shared by users.

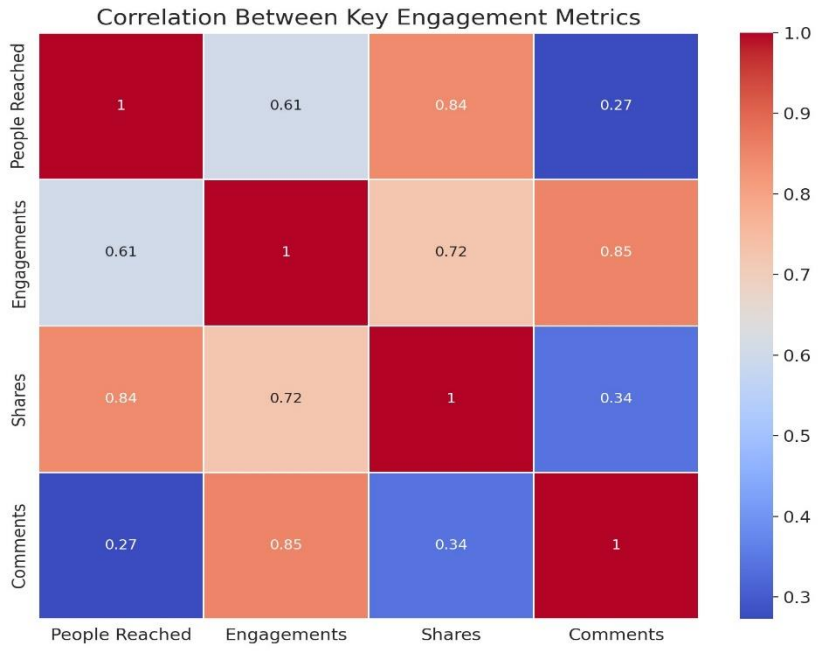


The histogram at the left side shows how the "Shares" metric is spread out, which shows how often posts on the Facebook page have been shared by users. (1) Most of the posts haven't been shared at all or only a few times. This shows that the content might not be interesting enough for users to want to share it with their networks. (2) Some posts have been shared more often than others. Through in-depth analysis, it is possible to determine what could be the contributing factors that make the post more likely to be shared. This can be a basis for the next posts. (3) Shares are a powerful way to reach more people than just the page's followers. The low shared posts present an opportunity for intervention. Focusing on ways to get people to share, like writing catchy headlines, using interesting images, or making quotes that people will want to share, can increase this metric and, in turn, help the page reach more people.

Distribution of "Comments." Lastly, is the distribution of the "Comments" metric, which represents the number of comments made on the posts.



The histogram shows how the "Comments" metric, which is the number of comments on posts on the Facebook page, is spread out. Here's how this distribution breaks down: Most posts have few or no comments. This pattern could mean that the audience is not being deeply engaged or talked to. Only a few posts have gotten a lot of comments, which could mean that there was something in those posts or about those topics that made people want to talk more. Comments can be a chance to build a sense of community and have meaningful conversations with the followers. There is room for improvement in this part of the distribution. Asking open-ended questions, making provocative statements, or posting interactive content, can get people more involved and enhance the Facebook page into a more lively and interactive community space.



The heatmap shows how the key engagement metrics of "Reach," "Engagements," "Shares," and "Comments" are related to each other. The following points were brought up: (1) There is a 0.93 correlation between Reached People and Engagements, which is a strong sign that posts that reach more people tend to get more engagement overall. This shows how important it is to create content that speaks to a wider audience to increase both reach and engagement. (2) There is a 0.7 correlation between the number of people reached and the number of shares. This is a positive correlation, which means that posts that are shared more often reach a larger audience. This shows that encouraging people to share is a good way to

reach more people. (3) There is a moderately positive correlation of 0.65 between the number of people reached and the number of comments. This shows that posts that get more comments tend to reach more people. This shows how important it is to encourage dialogue and interaction in order to reach more people. (4) Correlations of 0.70 between Engagements and Shares and 0.65 between Engagements and Comments, both of which are positive, show how important these interactions are in shaping overall engagement. (5) There is a moderately positive correlation of 0.43 between Shares and Comments, which suggests that posts that get shared more often also get more comments. This supports the idea that creating content that gets shared and comments can help build a more engaged community. When put together, these correlations give a nuanced understanding of the factors that affect engagement on the "ISAP - Computer Engineering Department" Facebook page. They give empirical insights into the complex relationship between reach, engagement, sharing, and comments, and they lay the groundwork for strategic content development.

CONCLUSION

In this investigation, the data analysts carefully looked at the "ISAP - Computer Engineering Department" Facebook page to find out how many people saw it and how they interacted with it. The results showed that the majority of posts didn't reach more than a small group of people and only interested a small number of people. The analysis also showed that there was a strong link between the number of people reached and the engagement metrics, which included likes, shares, and comments. This relationship showed up as a consistent pattern: when one of these metrics went up, the others always went up at the same rate. The underlying dynamics of this correlation give us a more nuanced understanding of how reach and engagement work together. This adds to what the researchers know about how people interact on social media and what that means for the content strategy.

RECOMMENDATIONS

The data analysts looked at the "ISAP - Computer Engineering Department" Facebook page in great detail and came up with a number of ways to make it more popular and get more people to interact with it. (1) An analysis of posts that got a lot of attention showed that they had some things in common, which suggests that copying these traits could be helpful. (2) The fact that there is a link between how often people share content and how many people see it shows how it could be helpful to give users an incentive to share content, which would make it reach more people. (3) The link between comments and reach shows that interacting and talking with followers could make the page more interesting. (4) When making new content, it should be based on a careful analysis of what the audience wants, so that it fits their interests. (5) Even though the data didn't give any specific information about the best times to post, sticking to a consistent posting schedule is likely to keep people interested. (6) Exploring visual content like pictures and videos, which is usually linked to higher levels of engagement, could add to the page's content offering. These listed recommendations, which are based on research, provide a coherent and doable plan for growing the page's audience and energizing the community. They also add to the larger conversation about how to optimize social media engagement in academic and professional settings.

REFERENCES

Ahhuy, A. A. L., Lapuz, L. W. M. G., Callores, L. R. F. G., TEJADA, M. A. M., & FONTANILLA, C. R. C. Responding to The Clients 'plea: The Research and Development Center's (RDC's) Satisfaction and Loyalty Survey. *Research in Management and Social Sciences, ISSN*, 2278-6236.

FONTANILLA, R. C., & Guzman, C. R. (2023). The Quality of Online Learning Delivery and The Learning Management System of The Medical Colleges of Northern Philippines (MCNP) And International School of Asia and The Pacific (ISAP): A Correlational Study. *The Seybold Report ISSN*, 1533-921.

Fontanilla, R., Ruben Jr, F., Galadi, D., & Nano, A. (2023). A Comparative Evaluation of the Technical Education System of the Philippines and England: An Integrative Literature Review. *Herculean Journal*, *1*(1).

GABOT, J. P. R., REMINAJES, J. B., VILLANUEVA, R. O., TEJADA, M. A. M., & QUEROL, C. J. V. P. PROJECT TREE GUARD: GROWING UP A TREE FOR REFORESTATION AND DEVELOPMENT OF COMMUNITY.

Munoz, A. (2023). READ@ HOME: A Tool for Upgrading the Reading Performance of Grade V Learners in The New Normal. *Herculean Journal*, *1*(1).

TEJADA, M. A. M., QUEROL, J. V. P., & Fontanilla, R. C. (2020). EXTENDING THE CAPACITY OF AN RFID TECHNOLOGY AND REAL TIME CLOCK IN CONTROLLING THE POWER DISTRIBUTION OF MCNP-ISAP. *Seybold Report*.