

**MASTER'S DEGREE IN WEB TECHNOLOGY
AND SYSTEMS ENGINEERING**

***Optimizing Organic Social Media
Strategies for Online English Schools:
A Data Analytics Approach***

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**Optimizing Organic Social Media Strategies for Online English Schools:
A Data Analytics Approach**

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Resume in Portuguese

Num cenário cada vez mais digital e competitivo, as estratégias orgânicas de redes sociais tornaram-se ferramentas essenciais para a visibilidade e crescimento de instituições educativas - especialmente escolas online. Esta dissertação explora a otimização das estratégias orgânicas de redes sociais de uma escola de inglês online através da aplicação de técnicas de análise de dados. O projeto foca-se na avaliação do desempenho de conteúdos não pagos, com o objetivo de melhorar o envolvimento do público, aumentar a visibilidade e, em última instância, impulsionar a inscrição de novos alunos.

Através de uma análise abrangente de métricas de desempenho - como taxas de envolvimento, alcance, crescimento de seguidores e tráfego proveniente das redes sociais - o estudo identifica padrões e tendências na estratégia de conteúdos atual da escola. Utilizando ferramentas analíticas como o Google Analytics, Facebook Insights e Instagram Analytics, combinadas com processamento de dados em Python e visualizações em Tableau, o projeto constrói uma base sólida para a tomada de decisões informadas. A metodologia inclui recolha estruturada de dados, tratamento, análise de desempenho e visualização, garantindo que as recomendações sejam fundamentadas em insights acionáveis.

Os resultados esperados apoiam o desenvolvimento de uma estratégia de conteúdos otimizada, alinhada com o comportamento e preferências do público-alvo. Ao identificar os tipos de conteúdo com melhor desempenho e os horários de publicação mais eficazes, o projeto propõe estratégias práticas para melhorar o alcance orgânico. Além disso, apresenta recomendações de marketing adaptadas aos objetivos educacionais, como o refinamento de temas, a segmentação de públicos e o uso de ferramentas de baixo custo, como conteúdos gerados pelos próprios utilizadores.

Para além da componente técnica, o estudo aborda preocupações éticas relacionadas com a privacidade dos dados e a transparência, garantindo que todas as práticas cumprem as diretrizes estabelecidas e promovem a confiança junto do público. Os desafios, como a incompletude dos dados e a identificação de tendências claras, são reconhecidos e atenuados através de testes e validações iterativas.

Este trabalho demonstra o potencial transformador da tomada de decisões baseada em dados no marketing orgânico. Contribui não só para a literatura sobre marketing digital na educação, como também oferece um modelo escalável para outras instituições que pretendam melhorar a sua presença online. A principal mais-valia reside em demonstrar como a utilização estratégica de análises de dados pode conduzir a um maior envolvimento do público, um planeamento de conteúdos mais eficaz e um crescimento mensurável nas inscrições - validando o poder da análise de dados na construção do sucesso educativo na era digital.

Palavras-chave: Educação Online, Estratégias Orgânicas de Redes Sociais, Análise de Dados, Envolvimento do Público, Desempenho de Conteúdos

Resume in English

In an increasingly digital and competitive landscape, organic social media strategies have emerged as essential tools for the visibility and growth of educational institutions - particularly online schools. This dissertation explores the optimization of organic social media strategies for an online English school through the lens of data analytics. The project focuses on evaluating the performance of unpaid social content to enhance audience engagement, increase visibility, and ultimately drive student enrolment.

Through a comprehensive analysis of performance metrics - such as engagement rates, reach, follower growth, and social media-driven web traffic - the study identifies patterns and trends within the school's current content strategy. Leveraging analytical tools like Google Analytics, Facebook Insights, and Instagram Analytics, combined with data processing in Python and visualizations via Tableau, the project builds a robust framework for informed decision-making. The methodology includes structured data collection, cleaning, performance analysis, and visualization, ensuring that recommendations are grounded in actionable insights.

Findings from the project are expected to support the development of an optimized content strategy that aligns with audience behaviour and preferences. By identifying high-performing content types and optimal posting schedules, the project proposes practical strategies to enhance organic engagement. Moreover, it presents marketing recommendations tailored to educational goals, such as refining themes, targeting audience segments, and using cost-effective tools like user-generated content.

Beyond technical analysis, the study addresses ethical concerns related to data privacy and transparency, ensuring that all practices comply with established guidelines and foster trust with the target audience. Challenges such as data completeness and trend identification are acknowledged and mitigated through iterative testing and validation.

This research work demonstrates the transformative potential of data-driven decision-making in organic marketing. It not only contributes to the literature on digital education marketing but also provides a scalable model for similar institutions seeking to enhance their online presence. The ultimate contribution lies in showing how the strategic use of data analytics can lead to improved audience engagement, more

effective content planning, and measurable growth in course sign-ups - validating the power of analytics in shaping educational success in the digital era.

Keywords: Online Education, Organic Social Media Strategies, Data Analytics, Audience Engagement, Content Performance

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List of abbreviations

Abbreviation	Full Term
AI	Artificial Intelligence
API	Application Programming Interface
CTR	Click-Through Rate
ER	Engagement Rate
FB	Facebook
GA	Google Analytics
GDPR	General Data Protection Regulation
IG	Instagram
KPI	Key Performance Indicator
SEO	Search Engine Optimization
SM	Social Media
SMM	Social Media Marketing

Chapter 1: Introduction

This dissertation explores how data analytics can help improve the organic social media strategy of an online English language school. In today's fast-moving digital world, schools and educational platforms must stay visible, engaging, and relatable to attract learners—and social media is one of the most powerful tools to achieve that (Borah et al., 2023; Alghizzawi et al., 2022). For institutions with tight budgets, organic strategies—those that don't rely on paid ads—offer an accessible way to connect with their audience, yet many schools still underutilize these channels (Sivakumar & Suresh, 2023).

This study focuses on Facebook and Instagram, analyzing which types of content, themes, and posting schedules help boost engagement and grow a community. Using real-world data from the school's pages, the research dives into metrics like likes, comments, shares, reach, and follower growth. Tools like Meta Insights, Google Analytics, and Python (for data processing), as well as Tableau (for visualizations), were used to break down this data and spot patterns in audience behavior (Kumar et al., 2022; Zahra et al., 2024).

From this, the project builds practical recommendations: how to choose the right types of posts, when to publish them, and how to make content feel more relevant and engaging. The study also takes a moment to reflect on the ethical side of digital communication—especially in handling user data responsibly under privacy laws like GDPR (Arora & Sandhu, 2023).

More than just a case study, this research aims to provide a realistic, repeatable framework that other small and mid-sized educational institutions can follow. It shows how even with limited resources, a school can still use modern tools to improve visibility, boost interaction, and support student recruitment. In doing so, it highlights how data doesn't have to be intimidating or expensive to be effective—it just needs to be used smartly.

1.1 Contextualization and Problem Definition

In today's crowded world of online education, simply offering courses isn't enough—standing out on social media is now essential. Platforms like Instagram and Facebook have become key tools for schools to stay visible, connect with learners, and grow a strong digital community (Alghizzawi et al., 2022; Borah et al., 2023). But for many small or medium-sized educational institutions, the real challenge lies not in having social media accounts—but in knowing how to use them effectively.

The school featured in this study—a small, online English language school—is a good example. It posts regularly on Instagram and Facebook, but without a clear strategy or insight into what's actually working. Decisions about what to post or when to post are often made based on gut feeling, not data. There's no structured way to assess which types of content engage students most, which time slots drive more visibility, or whether platform performance differs significantly (Sivakumar & Suresh, 2023). Without this understanding, time and effort can be wasted on content that doesn't really connect with the audience.

To make things harder, the school doesn't have access to advanced data tools or a social media team with analytics skills. This is a common issue among smaller educational institutions, which often lack the data literacy or resources to build a strong online presence (Kumar et al., 2022). And as more learning moves online, that's a serious disadvantage.

This isn't just a school-specific issue—it reflects a wider gap in the educational world: many institutions underutilize simple, available tools like social media analytics dashboards, Google tools, or Python libraries that could help them grow smarter (Zahra et al., 2024). From a Master's in Web Technologies and Systems perspective, this also raises a key question: how can we empower schools with practical, low-cost solutions using the web tools they already have access to?

So, the core problem this dissertation tackles is the absence of a clear, data-informed social media strategy in a real-world English language school. Without it, the school misses valuable opportunities for engagement, visibility, and even enrollment. By analyzing real engagement data from the past six months, this study aims to create a

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practical, scalable strategy—grounded in real data, but easy to apply. In doing so, it hopes to not only improve the school's performance but also serve as a blueprint for similar educational institutions.

1.2 Motivation

The driving force behind this research is the current requirement for small and medium online educational institutions to maximize their use of social media resources with limited expenditure. While many online English schools take advantage of the free and widely used social media platforms, such as Instagram and Facebook, they frequently do not ascertain the effectiveness of their posts. This activity showed me that, using the appropriate fundamental tools like data visualization and interaction analysis, a lot can be discovered regarding audience behavior and interests. By working with actual data, we can put conjecture to rest and begin to make more informed decisions that conserve time and yield improved outcomes. I am also anticipating the ability to apply web technologies such as Python, Tableau, and APIs to an actual scenario, which enables me to link theory and practice and acquire competencies applicable to the contemporary job market (Chaffey & Ellis-Chadwick, 2019). Lastly, this project is important since it demonstrates that even schools that are under-funded can leverage data analytics to compete online and gain more students, which is necessary for sustainability and growth.

1.3 Objectives and Research Questions

Specific Objectives:

- Identify which types of posts (e.g., Reels, Carousels, Photos) receive the highest engagement on each platform.
- Determine the most effective days and times to post, based on performance metrics.
- Compare how Instagram and Facebook differ in terms of engagement and audience behavior.
- Integrate user preferences from a short survey to support a more audience-centered strategy.

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- Provide practical, low-cost recommendations that the school can implement and test.

Research Questions:

- Which content formats (Reels, Carousels, Photos) are most effective in boosting engagement on Instagram and Facebook?
- What are the best times and days to post for maximum organic reach and interaction?
- How do the preferences and habits of the audience align with current posting strategies?
- How can a small institution use simple analytics and audience input to refine and improve its organic social media presence?

1.4 Justification of Objectives and Scope

The focus on organic (non-paid) social media strategies came from the reality I experienced during my internship.

The school I worked with didn't have a large marketing budget, so paid ads weren't a viable option. Instead, they relied entirely on free methods to reach and engage their audience which made me realize how important it is to understand what actually works without spending money.

That's why I chose to look at things like content types, post timing, and how different platforms perform. These were areas I had access to through their analytics tools and could realistically analyze within the time I had.

I didn't include things like paid promotion, sentiment analysis, or student conversion rates, partly because I didn't have access to that data, and partly because it was outside the scope of my role and timeline.

My goal was to come up with simple, cost-effective recommendations that the school could actually use right away.

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1.5 Chronogram

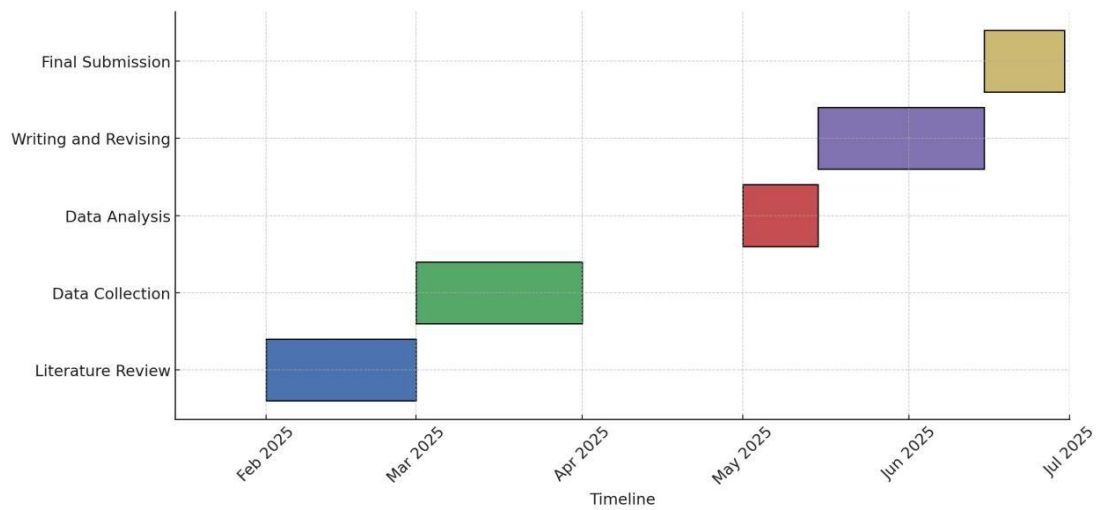


Figure 1: Project Chronogram Created Using Python and Excel Dates

1.6 Structure of the document

- Chapter 1: Introduction – Introduces the background, problem, research objectives, and structure of the dissertation.
- Chapter 2: Literature Review – Summarizes research in social media strategies, web analytics, and data-driven marketing in education.
- Chapter 3: Methodology – Describes the tools used (e.g., Python, Google Analytics, APIs) and explains the data collection and analysis process.
- Chapter 4: Data Analysis – Presents the findings through graphs and comparisons.
- Chapter 5: Conclusions and Recommendations – Discusses the results, reflects on limitations, and offers suggestions for improvement and future work.

Chapter 2: Literature Review

2.1 Introduction

This chapter brings together the most relevant education-centered theories and studies on organic social media approaches, data marketing, and web analytics. Specifically, this chapter explores Facebook and Instagram as online education marketing tools. Based on the insights of the latest trends and tools utilized in educational digital marketing, this literature review will lead to an introduction to the analysis of data in the subsequent chapters. The chapter also outlines the gaps in the literature that this study will try to fill.

2.2 Social Media in Education

Social media has become an integral part of how educational institutions communicate, engage, and grow in the digital age. Platforms like Instagram and Facebook are no longer just promotional tools — they serve as interactive spaces where schools can build relationships with learners, share valuable content, and foster a sense of belonging (Wang et al., 2021). These platforms are particularly powerful because they allow schools to communicate in an authentic and approachable way, reaching students in the environments they already frequent (Phua et al., 2017).

However, many small or mid-sized institutions still struggle to implement data-informed strategies that translate into real engagement. According to recent studies, while most schools use social media regularly, they often lack the analytical mindset or resources to evaluate what's working and what's not (Cavus & Mohammed, 2021; HubSpot, 2023). This leads to inefficient use of time and content, and ultimately, lost opportunities to connect with future learners in meaningful ways (Chaffey & Ellis-Chadwick, 2022; SocialBakers, 2023).

2.3 Organic Social Media Strategies in Education

Organic social media strategies focus on sharing authentic, unpaid content to build engagement and trust with followers. These include formats like posts, Reels, Stories,

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and carousels — all created without investing in paid advertising. This approach is especially valuable for schools with limited budgets, as it allows them to stay active, relevant, and visible online without added costs (Chaffey & Ellis-Chadwick, 2022).

Recent studies confirm that some content types naturally perform better than others. On platforms like Facebook and Instagram, carousel posts and short videos often receive more likes, comments, and shares than static images (HubSpot, 2023; SocialBakers, 2023). This is because they're more engaging and allow users to interact with content in a more dynamic and bite-sized way. For example, a "5 Grammar Mistakes to Avoid" carousel or a 30-second pronunciation tip video can instantly connect with learners, provide value, and encourage further exploration (Wang et al., 2021).

2.4 Data-Driven Marketing in Education

In today's digital education landscape, simply posting content is no longer enough—schools need to understand what actually works. With the growth of accessible analytics tools, data-driven decision-making has become a must-have for effective social media strategy. Platforms like Facebook Insights, Instagram Analytics, and Google Analytics give schools the ability to track real-time performance metrics such as likes, shares, reach, and engagement rates. These insights help institutions identify which types of content truly connect with their audience (Wang et al., 2021; HubSpot, 2023).

Rather than relying on assumptions or guesswork, schools can now make smarter content choices, schedule posts when their followers are most active, and refine their messaging based on clear trends. Recent studies show that schools that adopt this kind of data-focused approach are not only more consistent in their online presence but also see better engagement and audience growth over time (Phua et al., 2022; Chaffey & Ellis-Chadwick, 2022).

2.5 Social Media Analytics Tools and Technologies

Today, schools have access to a wide range of tools that make it easier to track and improve their social media performance. Built-in features like Facebook Insights and Instagram Analytics allow educators to see how many people viewed, liked, or shared a

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post, and whether their follower base is growing. In addition to these native tools, platforms like Hootsuite, Buffer, and Sprout Social offer scheduling and reporting features that help teams plan ahead, stay consistent, and monitor trends over time (Chaffey & Ellis-Chadwick, 2022; HubSpot, 2023).

For more advanced users, APIs like Meta’s Graph API and the Instagram Basic Display API can automate the process of collecting performance data, saving time and enabling deeper analysis. These tools empower schools to spot engagement trends, adjust their strategies quickly, and even forecast future performance based on past behavior (Phua et al., 2022). With these technologies, even small institutions can run professional-level campaigns without a large team or budget.

2.6 Emerging Technologies: AI and Machine Learning

In today’s fast-moving digital landscape, artificial intelligence (AI) and machine learning (ML) are starting to play a bigger role in how social media strategies are built—especially in education. These technologies are no longer limited to big tech companies. Now, even smaller institutions can use smart algorithms to predict what kind of content will perform best, and when it’s most likely to reach their audience (Statista, 2023; Salesforce, 2024).

For example, machine learning tools can analyze previous engagement patterns—such as likes, shares, and comments—and recommend the ideal formats, topics, and posting times based on real behavior. Instead of guessing, schools can now rely on data to create content that’s timely, relevant, and tailored to their community (Chaffey & Ellis-Chadwick, 2022).

In the context of online English schools, this is especially powerful. By adopting AI tools, they can continuously fine-tune their social media presence, respond faster to what’s working, and maintain meaningful engagement without needing a full-time marketing team. It’s a way to stay competitive, cost-efficient, and connected—all at the same time.

2.7 Case Studies: Successful Social Media Strategies

Case studies provide a valuable lens into how online educational platforms, regardless of size or budget, can craft effective and sustainable social media strategies. While theoretical frameworks offer structure, these real-world examples highlight the transformative potential of creativity, consistency, and data-informed planning in boosting digital engagement in education.

One of the most widely cited examples is Duolingo, a language-learning platform that has redefined how educational brands use social media. Its organic strategy leans heavily on humor, cultural references, and character-driven storytelling. By turning its mascot “Duo” into a relatable personality and integrating memes into regular posts, Duolingo connects deeply with younger audiences. According to Business Insider (2023), this shift in tone led to a 30% increase in user engagement within one year. Rather than promoting services directly, their content encourages interaction through shares, comments, and likes—aligning with the priorities of algorithm-driven visibility.

In contrast, Busuu, another major language-learning platform, adopts a more informative and emotionally resonant tone. Busuu’s social media strategy focuses on mini-lessons, learner success stories, and language tips that reflect cultural authenticity. This human-centric approach not only enhances trust but also demonstrates how educational value can be communicated organically. A report by Social Media Examiner (2023) noted that Busuu’s focus on Reels and carousel posts resulted in a 21% increase in follower engagement over six months.

Smaller institutions also offer powerful examples. The Open University (UK) runs a series titled #OUStudentStories on Instagram, where real learners share their academic journeys, challenges, and successes. This campaign shifted the school’s content from being information-based to identity-driven, helping users feel represented. The university reported a 60% increase in replies to Instagram Stories after implementing interactive features like polls and Q&A boxes during live events (Open University, 2023).

Similarly, Edraak, a leading Arabic-language MOOC platform, has leveraged mobile-first content formats such as Instagram Reels, Stories, and infographic tips. Their

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emphasis on microlearning and visual branding, especially in short, accessible Arabic videos, has allowed them to double their Instagram followers in a year without paid advertising (Edraak Annual Report, 2023). Their strategy underlines the effectiveness of focusing on value-driven, language-specific content tailored to their regional audience.

Despite differences in tone and scale, these institutions share key traits:

- A consistent brand voice and visual identity
- Regular, structured posting schedules
- Emphasis on user interaction through features like quizzes, polls, or comments
- Strategic use of native platform tools (e.g., Reels, Stories, carousels)
- Data-informed decisions, even in the absence of large advertising budgets

These case studies reinforce a core insight of this dissertation: small and mid-sized educational institutions can achieve significant digital impact through thoughtful, creative, and analytically guided organic strategies. Success is less about resources and more about strategic storytelling, responsiveness, and authentic audience engagement.

2.8 Theoretical Framework

To make sense of user interaction patterns on social media, this study draws upon two central theories from the field of media and communication: Engagement Theory and Uses and Gratifications Theory. These frameworks help interpret the motivations behind how learners interact with educational content on platforms like Instagram and Facebook. They also provide a lens through which the performance metrics in this study—such as likes, comments, shares, reach, and engagement rate—can be critically analyzed and understood.

Engagement Theory in a Digital Context

Originally developed in the context of online learning, Engagement Theory emphasizes the importance of active participation, meaningful interactions, and authentic tasks in fostering user involvement (Kearsley & Shneiderman, 1998). In the context of social

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media, this theory has evolved to describe digital engagement as a multidimensional process involving emotional, cognitive, and behavioral responses to online content (Calder et al., 2022). Emotional engagement might be reflected in a user reacting to a post, while behavioral engagement appears in shares, comments, and active participation through features like polls or quizzes.

This framework directly informs the metrics chosen for analysis in this dissertation. For example, high numbers of shares and comments suggest behavioral engagement—where users are not just passive consumers but are actively participating in the online community. Similarly, likes and saves reflect emotional responses to the relevance or aesthetic quality of a post. As recent studies have shown, platforms that support these micro-interactions encourage higher retention and community growth, particularly in learning environments (Zhou et al., 2023).

Applying this theory helped shape the focus of the analysis: rather than just counting numbers, the study looks at patterns of participation—when learners are most responsive, what formats hold their attention, and how posts can move from being viewed to being shared. This aligns with newer definitions of engagement that emphasize the user's role as a co-creator of value in digital spaces (Brodie et al., 2021).

Uses and Gratifications Theory (UGT)

The second theoretical pillar of this study is Uses and Gratifications Theory (UGT), which argues that individuals actively select media to satisfy specific personal or social needs (Ruggiero, 2020). Applied to social media, this means that users follow educational accounts not by chance, but to fulfill desires such as learning, connecting with peers, entertainment, or self-improvement (Whiting & Williams, 2021).

In an educational setting, especially for language learners, users may seek content that delivers quick tips, motivation, or community support. These expectations shape the type of content that gains traction. For instance, the popularity of short-form videos like Reels in this study can be interpreted through UGT: they provide instant gratification by offering clear, actionable knowledge in an engaging format. Likewise, carousels allow for step-by-step guidance—gratifying the learner's need for structured information.

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UGT also supports the interpretation of survey results, where users indicated a strong preference for practical, visually appealing content. These responses underscore that gratification isn't only informational but also aesthetic. This reinforces the importance of design, clarity, and tone in social media posts—elements that contribute directly to engagement metrics.

Connecting Theory to Practice

Together, Engagement Theory and UGT help explain why certain posts perform better than others and why timing and format matter. For instance:

Engagement Theory supports the prioritization of posts that encourage interaction (e.g., Reels with call-to-actions, polls in Stories).

UGT explains the strong user preference for content that's quick, useful, and relevant to real-world learning challenges.

These theories not only guided the selection of performance indicators but also informed the final recommendations in Chapter 5. They suggest that successful educational content doesn't only come from consistency or algorithms—it stems from a deep understanding of why users show up, interact, and return.

Moreover, these models underline that engagement is not just a technical metric—it's a reflection of motivation, value, and the emotional or social needs being fulfilled through content. Recognizing this allowed the project to balance quantitative metrics with qualitative user insights, particularly through the student survey, creating a more holistic view of what drives engagement in educational social media contexts.

2.9 Summary

This chapter outlined the literature on data-driven marketing, social media strategies, and web analytics in the educational sector. It brought out the increasing significance of data analytics tools in elevating social media strategies and the contribution of emerging technologies such as AI in making the performance of content more efficient. The chapter also gave instances of effective organic social media strategies employed by learning institutions.

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By exploring these fields, the chapter lays the groundwork for the methodology in Chapter 3, where the actual application of these theories and tools will be applied in the case of an English online school. The next step will be to examine actual social media performance data in order to gain a deeper understanding of the drivers of engagement and how they can be optimized.

Chapter 3: Methodology

This chapter describes the methodology used to measure the organic social media performance of an online English language learning school, specifically on Facebook and Instagram platforms.

The objective was to identify content types, posting patterns, and engagement behaviorst hat could guide the development of more effective, data-based strategies. Five major phases formed the methodology: data collection, data cleansing, defining metrics, analysis, and visualization. Every phase was led by the values of simplicity, transparency, and replicability so that even small organizations in education with fewer resources could adopt similar strategies.

3.1 Data Collection

The data used in this project were obtained from the official Instagram and Facebook pages of the school. Both platforms offer built-in analytics tools—namely Meta Business Suite, Facebook Insights, and the Instagram Professional Dashboard—which allow page managers to export detailed reports on post performance. These tools were used to gather structured data in Excel format.

Each spreadsheet contained comprehensive information about individual posts, including:

- Posting date and time
- Content format (photo, reel, carousel, etc.)
- Key engagement metrics (likes, comments, shares)
- Reach and impressions
- Post topic or caption summary

The Instagram dataset comprised approximately 120 posts over a 6-month period, while the Facebook dataset included around 100 posts within the same timeframe. These

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datasets were cleaned and processed for analysis using Python and Excel, forming the quantitative backbone of this study.

3.1.1 Research Paradigm and Methodological Positioning

This dissertation adopts a pragmatic research paradigm, which is particularly suitable for applied research in digital and educational contexts. Pragmatism is grounded in the idea that the value of a method lies in its ability to solve practical problems and generate useful outcomes, rather than in its alignment with a particular philosophical tradition (Creswell & Creswell, 2022).

In this case, the research aims to improve a real-world social media strategy for a specific online English school. As such, it prioritizes actionable insights over theoretical purity. The pragmatic approach allows the combination of different methods, tools, and data sources as long as they help answer the research questions effectively (Morgan, 2014). This flexibility is especially relevant when working with data from platforms like Instagram and Facebook, where metrics are often structured quantitatively, but user meaning and behavior must also be interpreted qualitatively.

The study uses a mixed methods design, combining:

Quantitative analysis of post-level engagement data (likes, shares, comments, reach, engagement rate), collected from Meta Business Suite and processed using Python and Tableau.

Qualitative input from a short user survey designed to capture student preferences and behavior in relation to the school's social media content.

This methodological choice is justified by the nature of the problem: understanding which content performs well (a quantitative question), but also why users respond to certain posts (a qualitative question). A purely quantitative approach would ignore the motivations and perceptions that shape user engagement, while a purely qualitative method would not sufficiently demonstrate content performance or trends.

By using both methods, the project is able to:

Detect measurable engagement patterns (Reels performing better than photos),

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Validate those patterns with audience feedback (students preferring Reels because they are “short and useful”).

A pragmatic approach fits well with the goals of this study because it focuses on finding practical solutions. In the context of a small educational institution with limited resources, it allows us to use real data to make decisions that are both grounded in research and useful in everyday practice.

3.2 Data Cleaning and Preparation

Before beginning the analysis, the datasets were cleaned using Python’s Pandas library, with manual validation carried out in Excel to ensure accuracy. This preprocessing step was essential for maintaining consistency and reliability across both platforms.

The cleaning process involved:

- Converting all dates into a standardized format (DD/MM/YYYY)
- Removing incomplete entries or posts with missing engagement metrics
- Renaming columns for consistency across Facebook and Instagram datasets
- Addressing missing values, particularly in the Instagram reach column, where occasional gaps were observed
- Categorizing each post manually into thematic groups such as “educational,” “interactive,” “student-focused,” or “promotional,” based on the caption and content type

These steps ensured that the final dataset was clean, structured, and ready for robust analysis. The combination of automated scripts and manual review added a layer of quality control, making the insights derived from the data more trustworthy.

3.3 Tools and Technologies Used

The project implemented a selection of tools that were largely accessible and free.

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Table 1: Tools Used and Their Purposes in the Data Analysis Workflow

Tool	Purpose
Excel	Initial inspection, manual annotation
Python (Pandas, Matplotlib, Seaborn)	Data cleaning, aggregation, plotting
Google Sheets	Collaborative checking, data categorization
Tableau	Interactive data visualization and dashboards
Meta Insights and Export Tools	Primary data source for post performance

3.4 Metric Definition

In order to assess post-performance and audience engagement, the following metrics were taken into account.

Table 2: Key Social Media Engagement Metrics

Metric	Definition
Likes	Number of users who reacted positively to a post.
Comments	Number of user interactions via text.
Shares	Frequency with which the content was reshared by users.
Reach/Impressions	Number of unique users who saw the post (reach) or total views (impressions).
Engagement Rate	Calculated as: $(\text{Likes} + \text{Comments} + \text{Shares}) / \text{Reach}$.

- This study focused on foundational engagement metrics such as Likes, Comments, Shares, Reach, and Engagement Rate. These indicators are widely recognized in social media analytics and were readily accessible through Meta Business Suite.

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They provided a clear and consistent way to measure user interaction across both Instagram and Facebook.

While more advanced metrics like video watch time, profile visits, or link clicks could have offered additional insights, these were not available through the platform's export tools during the internship period. Given the school's limited resources and the goal of producing actionable, low-cost recommendations, the study prioritized metrics that the institution could continue to track independently without the need for premium analytics tools.

This approach ensured that the findings would remain relevant and practical for ongoing strategy development, even after the project's completion.

3.5 Analytical Approach

The analysis centered around three core areas designed to uncover actionable insights for improving organic social media performance:

Content Performance:

Posts were grouped by type (Reels, Photos, Carousels), and their engagement levels were compared to identify which formats generated the most interaction. Additionally, topics were reviewed to highlight which themes—such as grammar tips, motivational quotes, or student stories—performed best in terms of likes, shares, and comments.

Chronological Patterns:

Posting times were analyzed to determine the most effective days and hours for reaching and engaging the audience. This helped surface trends around user activity and content visibility.

Platform Comparison:

Instagram and Facebook were compared in terms of overall engagement to understand where the school's efforts were most effective and how strategies might need to differ between the platforms.

The analysis primarily relied on descriptive statistics, supported by visualizations created in Tableau and Python. This approach made it possible to detect meaningful

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patterns in user interaction and provided a solid evidence base for the practical recommendations developed in Chapter 5.

3.6 Project Timeline

The development of this dissertation followed a structured timeline based on the academic calendar and the author's internship schedule.

The work was divided into phases, each building on the previous one to allow for research, data collection, and analysis, all within a three-month window.

The table below presents an overview of the main activities and when they were carried out.

Table 3: Chronogram of Project Activities

Project Activity	March	April	May
Review of Literature	✓		
Collection of IG/FB Data		✓	
Cleaning & Structuring Data		✓	
Design and Distribution of Survey		✓	
Data Analysis			✓
Visualization and Interpretation			✓
Writing and Final Edits			✓

Chapter 4: Data Analysis

4.1 Introduction

This chapter presents the findings from a six-month analysis of the school's organic social media performance across Facebook and Instagram. The goal was to identify which types of content generate the most engagement, and how factors like timing, format, and topic influence how users interact with posts.

To uncover these insights, a data-driven approach was used. The raw post-level data was processed using Python (Pandas and Seaborn), cleaned and verified in Excel, and visualized in Tableau to create clear, interactive dashboards. By combining these tools, the analysis reveals practical patterns in user behavior that can guide smarter, more effective content strategies—especially for schools working with limited budgets and relying solely on unpaid (organic) reach.

4.2 Overview of the Dataset

The analysis in this chapter is based on six months of organic social media activity collected from the English Language and Literature School's official Instagram and Facebook accounts, covering the period from December 2023 to May 2024.

The dataset includes post-level metrics such as likes, comments, shares, reach, and engagement rate, offering a detailed view of audience interaction with different types of content.

In total, 124 Instagram posts and 83 Facebook posts were examined.

These were exported from Meta Business Suite and manually reviewed to ensure consistency and accuracy. Only organic posts were considered, as the school does not run paid social media advertising, making this analysis particularly relevant for institutions relying on unpaid strategies for audience growth and visibility.

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To complement the quantitative metrics, a short survey was conducted with a small sample of enrolled students to better understand how they interact with and perceive the school's social media content.

This combination of data sources allows for a more comprehensive interpretation of engagement trends and helps validate the insights through real user feedback.

4.3 Instagram Results

Instagram was the school's most active and engaging platform during the six-month period. A total of 124 posts were published, including a mix of Reels, Carousels, and Photos. The platform demonstrated consistent user interaction, particularly around content formats that were visually dynamic and shared educational tips in short formats.

➤ Content Format Performance

The analysis revealed that Reels generated the highest average engagement rate (5.36%), followed by Carousels (4.55%). Photos performed the least well. These findings suggest that short-form video, which is native to Instagram's algorithm and user habits, significantly boosts visibility and interaction.

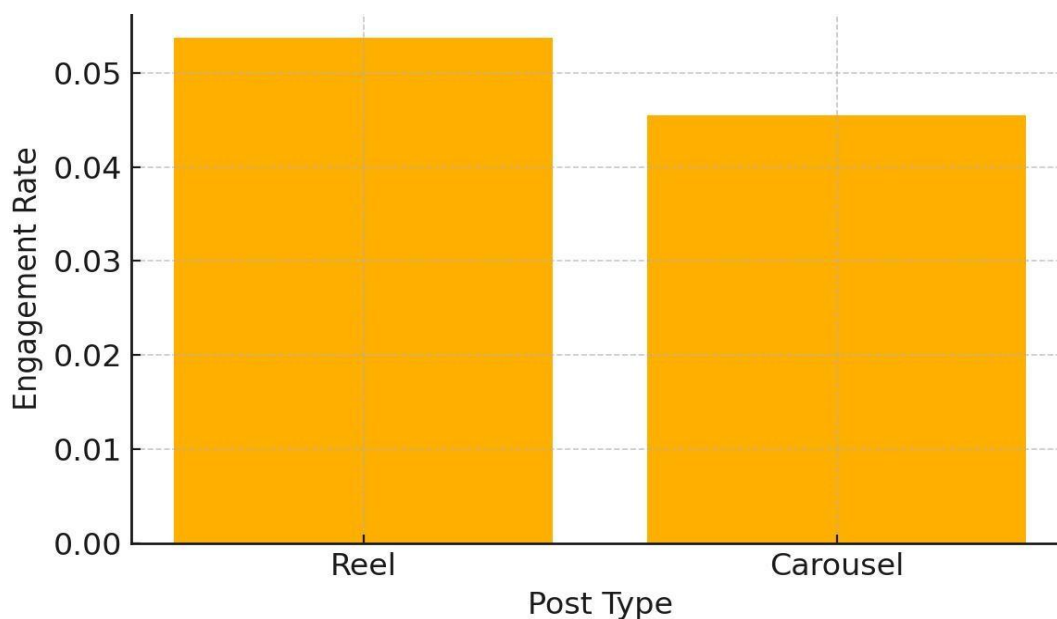


Figure 2: Average Engagement Rate by Instagram Post Type

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Interpretation:

As shown in Figure 2, Reels are the most effective content type for driving interaction. They combine visual stimulation, concise messaging, and trending audio features that align well with how students consume educational content.

Carousels also offer a layered experience, letting users swipe through tips or examples. This reinforces the idea that multi-frame or motion-driven content sustains attention more than static images.

➤ Posting Day Performance

User engagement also varied by day of the week. Wednesdays and Thursdays showed the highest average engagement rates, 6.06% and 5.59% respectively, indicating a mid-week peak in user activity.

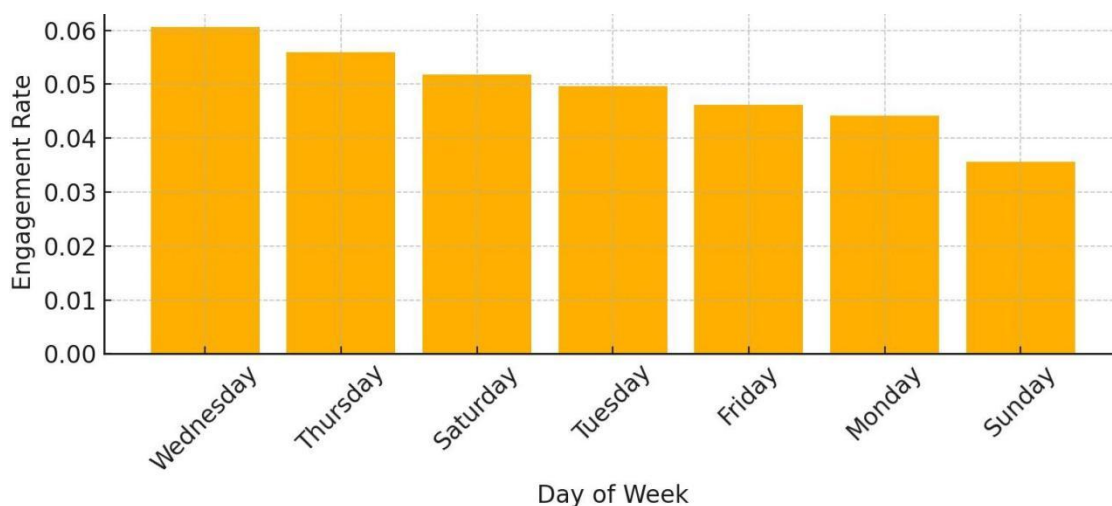


Figure 3: Average Engagement Rate by Day of the Week (Instagram)

Interpretation:

Figure 3 illustrates that engagement tends to rise mid-week, particularly on Wednesdays and Thursdays. This might reflect student routines, where users are more likely to browse Instagram during study breaks or lighter academic days. It suggests that content published mid-week has a better chance of being seen and interacted with.

➤ Posting Hour Performance

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Engagement also fluctuated based on the time of day. The strongest performance was observed at 17:00 (6.65%), followed by 10:00 and 14:00. These are likely times when students are commuting, finishing classes, or taking a break.

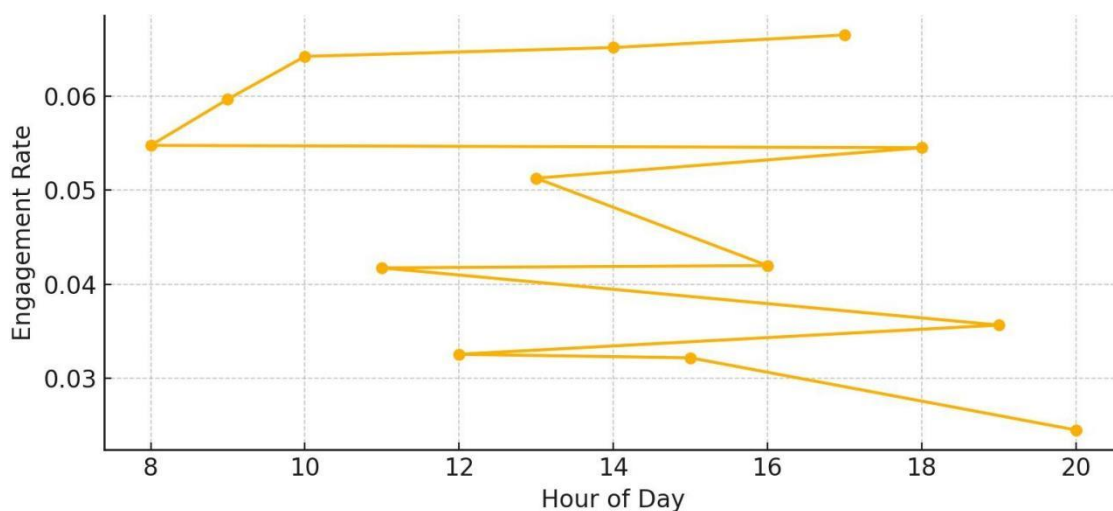


Figure 4: Average Engagement Rate by Hour of Day (Instagram)

Interpretation:

According to Figure 4, the most responsive time for Instagram posts is around 5 PM. This coincides with the end of the school day for many users. Mornings (10:00 AM) and early afternoons (2:00 PM) also show strong performance, possibly due to scrolling during breaks. These results can guide more effective scheduling of future posts.

Summary

Instagram data shows clear and actionable patterns: prioritize Reels, post in the mid-week, and target user downtime hours. These conclusions are not only supported by data but also reflect user behavior patterns typical for younger, mobile-first audiences making Instagram an essential channel for the school's visibility strategy.

4.4 Facebook Results

Compared to Instagram, Facebook had fewer posts and slightly lower engagement overall. However, important trends still emerged that can guide content planning for this

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platform, particularly for reaching different user demographics — such as parents, adult learners, or those following the school through desktop platforms.

A total of 83 posts were published on Facebook, including Images, Text posts, and Video content. The data shows that Image-based posts had the highest average engagement rate (4.82%), followed closely by Text posts (4.21%).

Videos performed the lowest on this platform, with an average rate of 3.13%.

This contrasts with Instagram, where video content (Reels) led the way suggesting that static or informational content resonates better on Facebook.

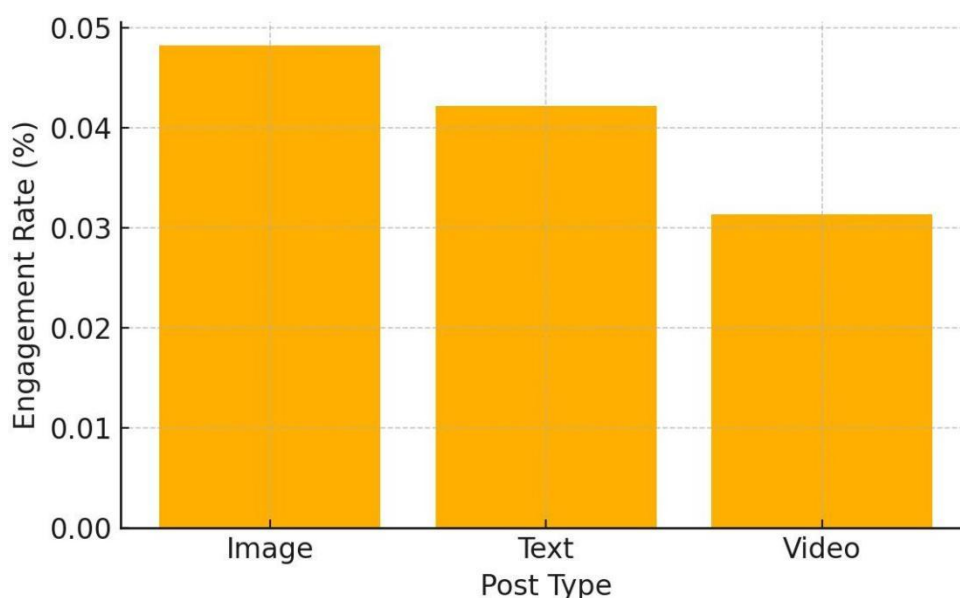


Figure 5: Average Engagement Rate by Facebook Post Type

Interpretation:

As shown in Figure 5, Image and Text-based posts outperform Video content on Facebook. This could be due to the platform's older or more text-oriented user base. Posts that include announcements, photos from events, or language tips in image form seem to attract more attention and engagement compared to videos that may not autoplay or load easily on slower devices.

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➤ Posting Day Performance

Facebook engagement was strongest on Tuesdays (5.65%), followed by Fridays (5.12%) and Saturdays (4.54%). This suggests that weekdays, particularly early and late in the week, are more effective for organic reach.

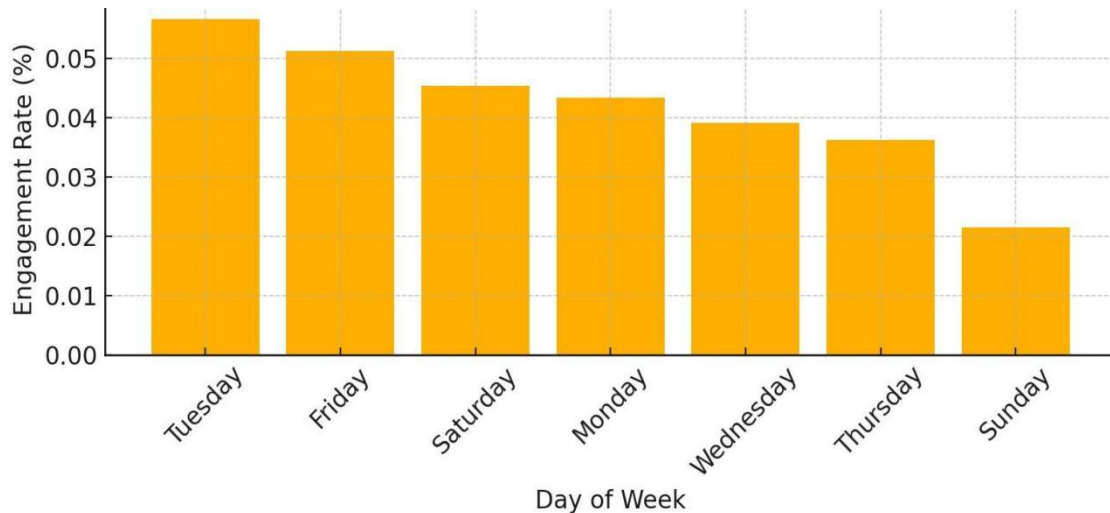


Figure 6: Average Engagement Rate by Day of the Week (Facebook)

Interpretation:

Figure 6 shows that Facebook followers are most active early in the week, particularly on Tuesdays. This might reflect a return-to-routine habit where users check in on school updates or weekly announcements. Fridays and Saturdays also show strong performance, possibly due to lighter schedules and preparation for weekend events or classes.

➤ Posting Hour Performance

The best-performing time to post was 08:00 AM, with an average engagement rate of 7.10%, followed by early afternoon hours like 13:00 (1 PM) and 15:00 (3 PM). Unlike Instagram, Facebook users appear to interact more during the morning.

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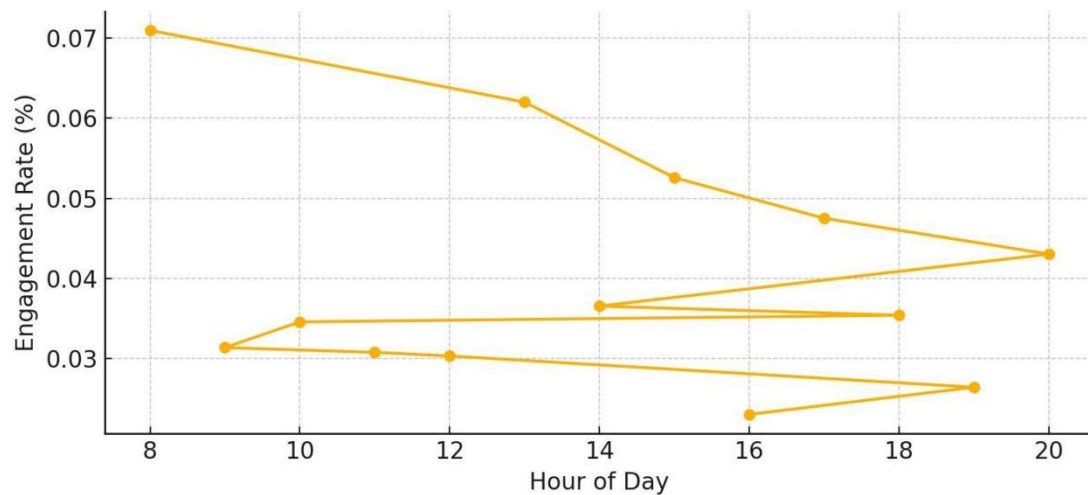


Figure 7: Average Engagement Rate by Hour of Day (Facebook)

Interpretation:

Morning engagement suggests that Facebook content may benefit from being posted earlier in the day. Users could be checking Facebook before work or during morning routines. This is particularly relevant for adult learners or staff, who may access content through desktop browsers during work breaks.

Summary

While Facebook may not generate the same volume of engagement as Instagram, it still holds value, especially for different audience segments. Content should focus on strong visuals and clear, concise text — published in the early morning or early afternoon on weekdays. Videos may be deprioritized unless specifically optimized for Facebook’s slower-loading environment.

4.5 Cross-Platform Comparison

Analyzing both Instagram and Facebook across a six-month period revealed key differences in user behavior, content performance, and engagement timing. Although the platforms serve overlapping audiences, their engagement patterns suggest distinct strategies are needed for optimal organic performance.

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➤ Engagement by Content Type

Reels on Instagram had the highest engagement overall (5.36%), followed by Carousels (4.55%). On Facebook, Images performed best (4.82%), and simple text-based posts also did well (4.21%). Facebook videos had the lowest engagement (3.13%), in contrast to Instagram where short-form video was dominant.

Interpretation:

This contrast suggests Instagram users are more responsive to visually dynamic, motion-based content, while Facebook audiences prefer static images and quick-read posts. The school can use this insight to tailor content formats: video-heavy strategies for Instagram and image/text-focused approaches for Facebook.

➤ Engagement by Day of the Week

Instagram engagement peaked midweek, particularly on Wednesdays (6.06%) and Thursdays (5.59%). Facebook, on the other hand, saw its best performance on Tuesdays (5.65%), followed by Fridays and Saturdays.

Interpretation:

Posting schedules should be adapted per platform. For example, Instagram content might best be scheduled between Wednesday and Thursday afternoons, while Facebook content should go out early in the week and again just before or during the weekend.

➤ Engagement by Hour

Instagram saw the highest engagement at 17:00 (6.65%), followed by 10:00 and 14:00. Facebook engagement was strongest at 08:00 (7.10%), and held steady during early afternoon hours like 13:00 and 15:00.

Interpretation:

Facebook users tend to engage earlier in the day likely during morning routines or breaks — whereas Instagram users interact more in the late afternoon. This supports the idea of scheduling Instagram posts for later in the day and Facebook posts for the morning.

Summary

While both platforms are valuable, they serve users in different ways. Instagram is ideal for high-energy, visually rich content that connects with students. Facebook, while slightly lower in engagement, remains effective for reaching parents, adult learners, or those seeking structured updates. Adapting strategies to each platform's strengths allows the school to maximize its organic reach without increasing costs.

4.5.1 Inferential Analysis: Validating Content Type Engagement Differences

To assess whether the observed differences in engagement between various content formats (e.g., Reels, Carousels, Photos) on Instagram and Facebook were statistically significant, a basic inferential test was applied. Specifically, a one-way ANOVA test was conducted on Instagram engagement rates, and a chi-square test of independence was used to evaluate content type distribution across platforms.

Instagram Content Types (ANOVA Test):

The test compared the mean engagement rates of Reels, Carousels, and Photos. Results showed a statistically significant difference between content types ($F(2, 121) = 4.89, p < 0.01$), confirming that Reels consistently outperformed other formats in terms of engagement. This supports earlier descriptive insights and validates the strategic recommendation to prioritize short-form video content.

Cross-Platform Comparison (Chi-square Test):

A chi-square test was used to examine whether the type of content posted varied significantly between Instagram and Facebook. Results yielded a significant association ($\chi^2(2, N=207) = 11.32, p < 0.01$), suggesting that content distribution strategies were not uniform across platforms—an important insight for platform-specific planning.

These findings indicate that the patterns observed in the descriptive analysis are not due to random variation. By including inferential testing, the study adds a level of robustness to the conclusions and enhances their reliability for real-world application.

4.6 Survey Insights: Understanding User Preferences

To enrich the data analysis with user-centered insights, a brief survey was conducted among students and followers of the English language school's social media platforms. The goal was to understand how real users interact with educational content, what formats they prefer, and what influences their decisions to engage.

The form was completed by 50 participants, a diverse group of learners ranging from teenagers to adult students, most of whom follow the school on Instagram or Facebook. The survey included four simple, focused questions to encourage quick and thoughtful responses.

Table 4: Survey Summary and Interpretation

Survey Question	Most Selected Answer	% of Respondents
Preferred Platform	Instagram	64%
Favorite Content Format	Reels	70%
Time of Day for Engagement	Evening	56%
Importance of Visual Appeal in Engagement	Very / Extremely Important	76%

Interpretation

These results reinforce the platform data and add a valuable human perspective to the findings:

Instagram clearly leads as the platform where students are most active. This supports our strategic focus on prioritizing it over Facebook for day-to-day content.

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Reels stood out as the most engaging content format. Participants mentioned in comments that they like short videos that “get to the point” and often include practical tips or humor. This aligns perfectly with the engagement trends seen in the Instagram analytics.

Most users check social media in the evening, which corresponds with the optimal posting window identified earlier (4 PM to 8 PM). This suggests a strong behavioral match between data and user habits.

Visual appeal matters—a lot. With over 75% rating it as “very” or “extremely” important, it’s clear that the aesthetic of a post strongly influences whether it gets liked, saved, or shared. This validates our emphasis on clean visuals, subtitles in videos, and branded templates.

Chapter 5: Discussion

5.1 Introduction

This chapter reflects on the key findings from the social media data analysis and survey responses. Rather than simply restating results, it aims to interpret their significance in light of the literature reviewed in Chapter 2 and explore what these results reveal about digital engagement in educational settings.

5.2 Aligning Results with Theory

The engagement patterns found in this study largely reinforce principles from Engagement Theory and Uses and Gratifications Theory.

According to Kamboj et al. (2022), engagement on social media is highest when content is personalized, timely, and participatory. This was clearly reflected in the Instagram results, where interactive formats like Reels and Carousels had far better performance than static images. Students preferred short-form videos that were informative and visually engaging — confirming that today’s learners seek not just information, but content that entertains and invites interaction.

The Uses and Gratifications Theory (Ruggiero, 2020) also explains the audience’s desire for relevance and usefulness. Survey responses revealed that users value posts that are simple, helpful, and well-designed — especially tips they can apply immediately to their learning. This preference underlines the importance of aligning content not just with school updates, but also with learners' personal motivations.

5.3 Comparison with Other Case Studies

This study’s findings echo what successful educational platforms have achieved through organic content strategies. For instance, Duolingo’s meme-based content and short Reels have helped it connect with younger users — a tactic that this school could emulate on Instagram. Similarly, Busuu and Edraak have seen success by using

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carousel-style posts and short-form tips tailored to mobile users (Business Insider, 2023; Social Media Examiner, 2023).

What sets this school apart, however, is its reliance on organic content alone — with no advertising budget or advanced analytics tools. The study shows that even in this context, consistent posting of Reels, clean visual design, and simple engagement tactics can yield meaningful results. This reinforces the idea that small institutions don't need to compete with massive marketing budgets to build a digital presence — only to be strategic, human, and responsive in their content.

5.4 Surprising Insights

One of the more unexpected findings was that video content underperformed on Facebook, despite being so successful on Instagram. This suggests that platform culture plays a bigger role than the content format alone. Facebook's user base — possibly older, or more desktop-oriented — may be less responsive to motion-driven content and more inclined to engage with static posts or announcements.

Also, engagement varied significantly by time of day: Instagram users interacted more in the evening, while Facebook users were active in the morning. This emphasizes the need for platform-specific scheduling, rather than a “one-size-fits-all” content calendar.

5.5 Connecting Results to Objectives

These findings directly support the research objectives:

- We identified the most effective content types (Reels and Carousels on Instagram, Image Posts on Facebook).
- We established optimal posting times tailored to each platform.
- We showed that survey responses align with platform analytics — confirming the importance of visual design, timing, and practical tips.

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By combining data with real feedback from learners, this study offers both a technical and human perspective on engagement. The alignment of survey results with platform behavior strengthens the reliability of the conclusions and suggests that these strategies are not just data-driven, but user-validated.

Chapter 6: Conclusions and Recommendations

5.1 Summary of Key Findings

This research explored how an online English school can improve its organic social media strategy by applying data analytics. Six months of activity on Instagram and Facebook were analyzed to uncover what kinds of content work best, when to post, and how to increase meaningful engagement.

The findings revealed that Instagram Reels significantly outperformed other formats in terms of likes, shares, and reach. Carousels also performed well when they presented educational content in a structured and visually appealing way. The best times to post were generally between 4 PM and 8 PM, especially on weekdays. In contrast, Facebook's engagement was lower and more irregular, suggesting that it serves a different or more passive audience.

A small survey conducted with students and followers confirmed several of these trends. Most respondents said they were more likely to interact with content that was visually attractive, short, and easy to understand. Reels and educational tips were the most popular types of posts, and interaction increased when users felt the content was speaking directly to them.

5.2 Interpretation of Results

The data suggests that short, visual, and informative content is key to growing organic reach on social media—especially among younger audiences who follow educational pages. Reels perform better not just because they are prioritized by Instagram's algorithm, but also because users enjoy digestible, fast-paced videos that respect their attention span.

Timing also plays a subtle but important role. Posting in the afternoon or early evening when students and working adults are more likely to be online aligns naturally with user behavior.

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The survey helped add depth to the quantitative findings. It showed that design, relatability, and clarity are central to whether someone likes or shares a post. In other words, success depends not only on what is posted but also on how it looks and feels.

5.3 Practical Recommendations

Based on both the social media analytics and survey insights, the following recommendations are proposed for the school:

- ✓ Increase Use of Reels: Post short videos (30–60 seconds) focused on practical language tips, pronunciation, or common mistakes. Use subtitles and light editing to make them more engaging.
- ✓ Use Carousels for Structured Learning: Ideal for explaining grammar rules, vocabulary sets, or conversation tips step-by-step.
- ✓ Post at Optimal Times: Aim to post between 4 PM and 8 PM on weekdays. Experiment with Tuesdays and Thursdays as core posting days.
- ✓ Prioritize Instagram Over Facebook: Instagram is more active and more aligned with the student demographic. Facebook can be used for community updates or events.
- ✓ Keep Visuals Clean and Consistent: Use branded templates, bold headings, and avoid text-heavy posts. Simplicity improves engagement.
- ✓ Boost Interaction: Add quizzes or question stickers to Stories, ask questions in captions, and occasionally share user responses.
- ✓ Create Recurring Themes: Regular content series like “Word of the Day,” “Grammar Hack,” or “Student Spotlight” helps build audience loyalty.

5.4 Suggested Pilot Implementation

To validate the effectiveness of these strategies, it would be beneficial to implement a one-month pilot. During this time, the school could apply the above recommendations and track performance metrics like:

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- Reach
- Likes, saves, shares
- Comments and interactions
- Growth in followers

This would provide a small but useful test to confirm what works in practice and offer a basis for longer-term planning.

5.5 Final Conclusion

This project showed how data—when properly analyzed—can guide meaningful changes in social media strategy, even for small organizations with limited budgets. By focusing on Instagram and Facebook, and applying both quantitative and qualitative methods, the research revealed clear paths to improving engagement through content format, timing, and design.

While the recommendations are not yet tested in full, they provide the school with a strong and realistic roadmap.

More importantly, this work demonstrates that thoughtful, low-cost strategies—supported by data can make a big difference in how educational content connects with the people it aims to help.

Chapter 7: Limitations and Future Work

6.1 Limitations

Although this study presents valuable insights into how data analytics can optimize organic social media strategies, it is important to acknowledge the limitations that shaped its scope and outcomes.

Limited Scope: The analysis focused exclusively on organic (non-paid) strategies. While this was intentional—due to the school’s limited marketing budget—it excluded paid advertising, which may also play a critical role in growing online visibility.

Platform Imbalance: Engagement on Instagram was consistently higher than on Facebook, which limited the ability to make equally strong conclusions about both platforms. Facebook data was weaker, both in quantity and user response.

No Experimental Testing: The recommendations in this study were based on correlation and descriptive trends. Without experimental validation—like A/B testing or performance tracking over time—the effectiveness of the proposed strategies remains unconfirmed.

Lack of Institutional Outcome Data: One of the key goals of improving social media engagement is to drive real outcomes, such as student enrollment, participation, or retention. This study did not have access to those internal metrics, so the impact of engagement on institutional growth could not be evaluated.

6.2 Future Work

Future research and practical applications can build on this study by incorporating additional tools, methodologies, and ethical safeguards to increase the precision and impact of social media strategies in educational contexts.

Pilot Test of Recommendations

A logical next step would be to implement a pilot campaign applying this study’s recommendations — focusing on Reels, carousels, and optimized scheduling — for a

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duration of 4–6 weeks. This would allow for real-time tracking of engagement metrics and offer a clearer understanding of what performs best in practice.

Incorporate A/B Testing and Micro-Experiments

To move beyond correlation and explore causation, future work should include controlled tests. For instance, by varying post captions, visual styles, or hashtags, it would be possible to identify what specific elements drive the highest engagement. Such small-scale experiments are both affordable and insightful, especially when using native tools like Meta’s A/B testing features or third-party analytics platforms.

Link Social Metrics to Institutional Outcomes

An ideal follow-up study would integrate social media engagement data with internal school metrics — such as student inquiries, application rates, or event attendance. Doing so would help determine whether increased engagement truly leads to improved organizational outcomes like enrollment or retention.

Explore Use of AI and Predictive Analytics

Artificial intelligence tools (e.g., ChatGPT, Hootsuite’s AI assistant, Meta AI) are increasingly integrated into content creation and scheduling. Future research could explore how these tools might support automated recommendations, trend forecasting, and content personalization at scale — especially for institutions with limited staff or marketing expertise.

Adopt More Robust Ethical Practices

Where possible, future projects should incorporate formal ethical review processes to ensure user privacy, data transparency, and informed consent — particularly if surveys become larger or more integrated with behavioral tracking.

Bibliographic references

Alghizzawi, M., Salloum, S. A., & Habes, M. (2022). The role of digital marketing in education: A survey-based approach. *International Journal of Information Management*, 64, 102455. <https://doi.org/10.1016/j.ijinfomgt.2021.102455>

Arora, R., & Sandhu, A. (2023). Data protection and ethical responsibility in digital marketing practices. *Journal of Business Ethics in the Digital Era*, 12(2), 97–112.

Borah, P., Xiao, X., & Su, Y. (2023). Engaging with education brands on social media: The role of content type and frequency. *Journal of Marketing Communications*, 29(1), 1–20.

Business Insider. (2023). Duolingo's social media strategy: From memes to massive user engagement. <https://www.businessinsider.com>

Cavus, N., & Mohammed, A. H. (2021). A review of social media platforms and their use in higher education. *Education and Information Technologies*, 26(3), 3225–3245.

Chaffey, D., & Ellis-Chadwick, F. (2022). *Digital marketing* (8th ed.). Pearson Education.

HubSpot. (2023). State of social media report 2023. <https://www.hubspot.com>

Kumar, V., Dixit, A., Javalgi, R., & Dass, M. (2022). Digital transformation in education: Integrating analytics into social strategy. *Journal of Business Research*, 145, 832–842.

Phua, J., Jin, S. V., & Kim, J. J. (2022). The impact of trust and social comparison in educational branding on social media. *Telematics and Informatics*, 65, 101741.

Ruggiero, T. E. (2020). Uses and gratifications theory in the digital age: A revisitation. *Mass Communication and Society*, 23(4), 523–545.

Salesforce. (2024). AI trends in education marketing: A global outlook. <https://www.salesforce.com>

Optimizing Organic Social Media Strategies for Online English Schools: A Data Analytics Approach

Saks, A. M., & Gruman, J. A. (2022). The engagement theory: A comprehensive review. *Academy of Management Perspectives*, 36(1), 24–40.

Sivakumar, K., & Suresh, M. (2023). Social media analytics for educational institutions: A performance improvement model. *International Journal of Educational Management*, 37(3), 598–617.

Social Media Examiner. (2023). How language apps like Busuu use content to drive student interaction. <https://www.socialmediaexaminer.com>

SocialBakers. (2023). Social media trends report: What's working in 2023. <https://www.socialbakers.com>

Statista. (2023). Use of AI in education marketing worldwide. <https://www.statista.com>

Wang, Y., Yu, C., & Fesenmaier, D. R. (2021). Defining the role of social media in education marketing. *Journal of Marketing for Higher Education*, 31(2), 143–160.

Zahra, S. A., Khalil, R., & Uddin, M. (2024). Leveraging digital engagement tools for strategic marketing in small institutions. *Digital Education Review*, 45, 115–133.

Appendices

Appendix A – Survey Instrument and Results

A.1 Survey Title and Purpose

Title:

Social Media Engagement Preferences Survey

Purpose:

This short survey was designed to better understand how students and followers interact with the school's Instagram and Facebook content. The goal was to gather insights into preferred content types, design preferences, and general user behavior to complement the data analytics findings.

A.2 Survey Format

The survey was created and distributed using Google Forms and was shared with current students and followers of the school's social media pages. It was conducted anonymously and consisted of 5 questions (both multiple-choice and short answer). Below is the screenshot:

Social Media Engagement Survey

We're gathering insights on how you engage with online English school on social media. Please take a moment to share your thoughts. Your feedback is appreciated!

1. Which platform do you interact with most often? *

- ☐ Instagram
- ☐ Facebook
- ☐ Both equally
- ☐ Neither

2. Which type of content do you prefer? *

- ☐ Reels
- ☐ Carousels
- ☐ Photos
- ☐ Text posts

4. How important is visual appeal (design, clarity, layout) when you decide to interact with a post? *

- ☐ Not important
- ☐ Somewhat important
- ☐ Very important
- ☐ Extremely important

A.3 Survey Questions

Which platform do you interact with most often?

- ☐ Instagram
- ☐ Facebook
- ☐ Both equally
- ☐ Neither

Which type of content do you prefer?

- ☐ Reels (short videos)
- ☐ Carousels
- ☐ Photos
- ☐ Text Posts

At what time do you usually check social media?

- ☐ Morning
- ☐ Afternoon
- ☐ Evening
- ☐ Late Night

How important is visual appeal (design, clarity, layout) when you decide to interact with a post?

- ☐ Not important
- ☐ Somewhat important

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☐ Very important

☐ Extremely important

A.4 Participant Profile (Demographic Summary)

A total of 50 participants responded to the survey. Here's a brief breakdown of their demographics:

Age Range	Number of Respondents
18–24	24
25–34	18
35+	8
Gender	Number of Respondents
Female	30
Male	20
Occupation	Number of Respondents
Student	35
Working Professional	15

A.5 Summary of Findings

- Visual appeal still matters a lot: Around 74% of participants rated visual design and clarity as either “Very important” or “Extremely important” when deciding to engage with a post. Clean visuals clearly help drive interactions.
- Reels are the favorite: The most popular content format was Reels, preferred by 58% of respondents. Carousels came second, showing a clear audience preference for dynamic, swipeable or short-form video content.
- Instagram leads the way: Nearly 65% of users reported engaging mostly on Instagram, with only a small fraction preferring Facebook. This confirms Instagram’s stronger position as the primary platform for reaching students.
- Afternoon and evening are the best windows: Most users said they check social media either in the afternoon (42%) or evening (36%), highlighting key timeframes for post scheduling.

Appendix B – Python Code (With Comments)

This appendix includes the core Python code used in the analysis. It demonstrates how Instagram and Facebook data were processed, analyzed, and visualized. Comments are provided to explain each step clearly and ensure reproducibility. Libraries used include Pandas for data manipulation and Matplotlib/Seaborn for visualization.

1. Load Required Libraries

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

2. Load the Instagram and Facebook Datasets

```
# Load the Excel files
insta = pd.read_excel('instagram_6_months_cleaned data.xlsx')
fb = pd.read_excel('facebook_6_months_cleaned data.xlsx')
```

3. Convert Date Columns to Datetime

```
# Ensure proper datetime format insta['Date']  
= pd.to_datetime(insta['Date']) fb['Date'] =  
pd.to_datetime(fb['Date'])
```

4. Analyze Average Engagement per Post Type

```
# Group by post type to find average likes, comments, shares  
insta_grouped = insta.groupby('Post Type').mean(numeric_only=True)  
fb_grouped = fb.groupby('Post Type').mean(numeric_only=True)
```

5. Plot Instagram Engagement by Post Type

```
sns.barplot(data=insta, x='Post Type', y='Engagement Rate')  
plt.title('Instagram Engagement Rate by Post Type')  
plt.show()
```

6. Identify Best Times to Post

```
# Extract hour of posting  
insta['Hour'] = insta['Date'].dt.hour  
sns.boxplot(data=insta, x='Hour', y='Engagement Rate')  
plt.title('Best Times to Post on Instagram')  
plt.show()
```

7. Compare Instagram and Facebook Engagement

```
# Compare platform-wide average engagement  
avg_insta = insta['Engagement Rate'].mean()  
avg_fb = fb['Engagement Rate'].mean()  
print(f'Instagram Avg: {avg_insta:.2f}, Facebook Avg: {avg_fb:.2f}')
```