



# Impact Of Using Twitter Application in Developing Rhetorical Styles Among Students at The College of Sciences and Humanities in Al-Aflaj Governorate, Saudi Arabia

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## Abstract

Social media, in various forms, has emerged as a significant communication tool in today's digital age. This study investigates the impact of using the Twitter application to enhance rhetorical skills among students at the College of Sciences and Humanities in Al-Aflaj Governorate, Saudi Arabia. A quasi-experimental approach was utilized, with 140 students in the first semester of the year 1445 AH divided into experimental and control groups. Both groups adhered to the prescribed curriculum, but the experimental group received additional instruction on rhetorical techniques through Twitter. Pre- and post-tests were conducted for both groups, with statistical analysis showing the experimental group outperforming the control group, indicating significant achievement differences in favor of the experimental group. This study demonstrates a notable 38% improvement in rhetorical skills among students at the College of Sciences and Humanities in Al-Aflaj through Twitter use. These findings emphasize the potential of social media platforms like Twitter to enhance educational outcomes. Consequently, the integration of Twitter into the educational process is recommended. The study also suggests formally incorporating Twitter into language teaching frameworks and providing faculty training in blended learning practices.

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**Keywords:** Twitter Application, Mobile Learning, Rhetorical Methods, Social Media, E-Learning.

## INTRODUCTION

Given the widespread use of social media in various sectors, educators advocate for its integration into the education system, utilizing its services and capabilities. Social media has proven effective in fostering interaction among students and between students, educators, and educational resources through various learning management systems and online applications (Al-Qarni & Suwaid, 2018). Additionally, social media provides a substantial volume of data, making it highly appealing to a diverse audience who extensively integrate it into their daily activities for various purposes (Lotfi & M.M, 2020). Social media platforms provide an interactive educational environment for faculty members and administrative staff in universities to engage with colleagues and students. Students are particularly able to monitor their learning progress, access relevant information for their studies and research, collaborate with peers and instructors, and seek academic guidance (Al-Damari, 2011; Darwazeh, 2020; Hantoush, 2017; Jpngetich, 2016; Selvaraj & Rithika, 2013).

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Among these social media platforms, Twitter, a micro-blogging network, has gained substantial popularity, particularly among young users (Al-Subaie, 2019; Gligorić et al., 2020). The Twitter application is a social media platform that relies on instant messaging through smart devices. Statistics reveal that Twitter has an estimated 421 million monthly active users worldwide in 2023 and about 220 million daily actives. In Saudi Arabia alone, Twitter penetration amounts to 15.50 million users in early 2023, which was equivalent to 42.3 percent of the total population at the time (Alshehri et al., 2024; Tran, 2024). Given these statistics, Twitter has emerged as a powerful platform with diverse applications, prompting educational researchers to explore its impact on education and its potential in addressing educational challenges (Stracqualursi & Agati, 2024). This platform allows users to communicate, share ideas, express opinions, and engage in discussions on social issues across various forms and dimensions. It supports various features, including favoriting tweets, retweeting, private messaging, and sharing multimedia content like photos and videos (Boothby et al., 2021). This application also enables the creation of participant groups and the sharing of text messages, multimedia files, and other documents.

In the Saudi society, Twitter has drawn multifaceted social, cultural, and scientific dimensions empowering both male and female users alike to benefit in various ways (Al-Zahrani, 2021). Having become a vital tool for adopting educational methods, it has gained popularity due to its user-friendly interface, enabling the exchange of text, images, videos, audio clips, and various types of documents with other applications. Moreover, it allows users to form groups and connect with like-minded individuals via mobile devices. Due to the advancements in education in Saudi Arabia and the widespread use of social media, it is unusual to find a teacher, university professor, or student who does not utilize the Twitter application for communication, information retrieval, and stay updated.

There is a pressing need for advanced research and investigation into the impact social communication tools like Twitter on the development of rhetorical and other features of the Arabic language and their potential adaptation to serve the language of the Holy Qur'an. Consequently, the study revolves around the extent of utilization of the Twitter application and its impact on the development of rhetorical styles among students. In spite of its widespread application in the realm of education, particularly in higher education institutions like universities and colleges, Twitter has garnered limited attention (Al-Helu et al., 2018; Al-Shawabkah & Al-Fadil.M.W.A, 2017; Al-Subaie & Saddah, 2014; Hantoush, 2017) to teach rhetorical skills to students. This study aims to fill this research gap by examining the impact of using the Twitter application on the development of rhetorical techniques among learners.

Specifically, this study's primary question seeks to uncover the influence of using the Twitter application on the development of rhetorical styles among students at the College of Sciences and Humanities in Al-Aflaj Governorate, Saudi Arabia. The following objectives were framed: (1) to examine the influence of utilizing the Twitter application on the development of rhetorical styles among students at the College of Sciences and Humanities in Al-Aflaj Governorate; (2) to measure the extent of the impact resulting from the use of the Twitter application; and (3) to find measures of integration of the Twitter application into the educational process, with the goal of enhancing students' academic performance.

## Literature Review

There is no dearth of studies related to the utilization of mobile phone applications, technologies, and tools and their impact on enhancing academic achievement. For instance, Darwazeh (2020) examined the impact of social networking sites on student performance at An-Najah National University and Al-Quds Open University, and ascertained the adverse effects of social media platforms on student performance. A sample of 750 students from both universities was selected, and a questionnaire was distributed to assess the potential adverse consequences of social networking. The study found that social networking site usage negatively impacted performance in social and health domains, but not academics. The study also found differences based on factors such as university year, specialization, daily study hours, working while studying, and hobbies.

In another study Bazheer (2020) assessed the influence of social networking sites on the development of literary taste among students at the University of Tabuk and measured the extent to which these social networking sites cultivated students' aesthetic appreciation. The study sample comprised 200 male and female students, and the researcher developed two assessment tools. The first tool aimed to evaluate the impact of social networking sites on the development of literary taste among University of Tabuk students, while the second tool aimed to assess students' psychological, social, and academic attitudes toward the use of social networking sites for this purpose. The study employed an analytical survey methodology across various aspects. The findings revealed a statistically significant correlation between the use of social networking sites and the development of literary taste among the study participants. No statistically significant differences were found in the first scale based on gender. However, there were statistically significant differences in the first scale related to academic level and specialization. Additionally, significant differences were observed in the study scale based on the frequency of site usage.

Al-Anazi (2020) assessed the impact of social media programs on the attitudes of Arabic language teachers in Kuwaiti government schools toward teaching the Arabic language. The study delved into the influence of social media programs on the perspectives of Arabic language teachers in Kuwaiti government schools regarding the teaching of Arabic. An analytical approach was utilized, employing a questionnaire as the primary data collection tool. The study sample comprised 341 male and female Arabic language teachers in Kuwaiti government schools. The findings indicated a significant contribution of social networking sites to the mastery of grammatical and spelling rules, as well as enhancing comprehension in Arabic language courses. Similarly, Lotfi et al. (2020) delved into how students and faculty members within Arabic library and information departments employed social media for mutual interaction. This study aimed to understand how both students and faculty members in Arabic libraries and information departments use social media for interaction. The research adopted a descriptive analytical approach and employed a questionnaire to gather data. The study revealed that most students (92.9%) and faculty members (78.6%) utilized social media for interaction, highlighting its importance for both groups. Facebook emerged as the most widely used social media platform.

Al-Shehri (2019) sought to comprehend the willingness of faculty members at King Khalid University to incorporate e-learning in mathematics instruction. The objective of this study was to explore the attitudes of faculty members at King Khalid University toward using e-learning for teaching mathematics. The study employed a descriptive approach and included a sample of 42 faculty members, comprising 24 males and 18 females. The research findings indicated no statistically significant differences based on gender and nationality. However, statistically significant differences were observed concerning teaching experience and academic degrees. Likewise, Nasraween and Saadah (2017) aimed to identify the extent of teachers' utilization of social networking sites in the educational learning process and the impediments they encountered, with a focus on variables like gender, college, academic level, and frequency of use. It also sought to determine the influence of gender, college, academic level, and frequency of use on these trends. The study applied a descriptive survey method to a sample of 480 undergraduates from the University of Jordan. The findings revealed that instructors' utilization of social networking sites in the educational learning process was moderately extensive. Statistically significant differences were observed in the use of social networking sites, favoring females and those with advanced computer skills. However, no statistically significant differences were found regarding the teaching experience.

Ali and Al-Suwait (2017) explored the disparities in the effectiveness of faculty members' use of social media in student interaction before and after a course. The study administered a pre- and post-test to examine the differences in average application scores of the effectiveness of faculty members' use of social media. A descriptive analytical approach was employed, with a sample consisting of 50 students from the College of Basic Education. The study found statistically significant differences between the pre-application and post-application periods for the group utilizing social media, favoring the post-application period. However, no significant difference in interactions based on age stage and academic year was observed.

Adeeb and Al-Shawaheen (2017) aimed to recognize the attitude of mathematics teachers in Jordan regarding the integration of "Facebook" as an instructional model for teaching mathematics. A descriptive approach was utilized, and the study sample comprised 80 male and female teachers. The results indicated highly positive attitudes among the study participants. No statistically significant differences were found regarding gender, but statistically significant differences were present for teachers with more than five years of teaching experience. Likewise, Abdullah (2015) examined the attitude of teachers and students in Brunei Darussalam toward using social media networks for teaching the Arabic language. The study adopted a descriptive and analytical approach, involving a sample of 39 teachers and students from Brunei universities. The findings revealed highly positive attitudes among teachers and students toward using social media for education purposes. The study also indicated that there were no statistically significant differences in responses based on gender, age, or profession.

Chen and Bryer (2012) explored the use of social media in both formal and informal education settings to understand how students searched for information on social media platforms. The research provided empirical support for social learning theories and offered strategies and examples of social media use in education. The study concluded that social media could be used effectively to acquire knowledge and information related to the teaching process in schools and universities. It also emphasized the need for improved cooperation between formal and informal education in utilizing social media. Kirschner and Karpinski (2010) examined the repercussions of Ohio University students' engagement with digital channels, particularly Facebook, on their academic accomplishments. The research revealed significant negative effects of excessive use of digital channels on educational attainment. It found a negative correlation between the amount of time spent on Facebook and academic achievement. Additionally, a large portion of participants acknowledged that addiction to Facebook negatively affected their academic performance.

Quite close to the subject of application of Twitter and its implications for education, are studies like Al-Zahrani (2021) and Al-Abbasi and Al-Maliki. (2019b), which investigated the extent to which Twitter

applications contributed to teaching and academic achievement. Al-Zahrani (2021), for example, assessed the attitude of general education teachers towards Twitter as a source of news and information and the extent to which it was utilized for acquiring news and information. The study explored the content published on Twitter and its utility in the educational process, while employing a descriptive survey method and targeting 450 members of the public education system in Jeddah, encompassing both males and females across general education levels. Significant statistical correlations were observed between individuals' exposure to Twitter, its impact on their job performance, and their attitudes toward its educational objectives. The study also identified a connection between motives for Twitter exposure and attitudes toward the news and events it disseminates. Furthermore, it revealed that individuals with more favorable attitudes toward Twitter also held more positive views regarding the news and events it publishes.

Al-Abbasi and Al-Maliki (2019a) studied the utilization of Twitter in secondary education from the perspectives of male and female teachers in Riyadh, focusing on the advantages and disadvantages of Twitter's usage and the motivation behind its use in education. A descriptive approach was employed, and data was collected using a questionnaire. The study sample included 410 female students and 320 female teachers from secondary schools in Riyadh. The result showed a high level of approval for the use of Twitter in education among secondary school students and teachers in Riyadh. Students used Twitter to express educational opinions and suggestions, while teachers used it to stay updated on developments in their educational field.

Most of these previous studies are evidence of various research endeavors and ramifications of integrating social media into educational contexts. There is the homogeneity of research methodologies in these studies as most of these studies adopted the descriptive approach. However, Chen et al. (2012) deviated from this pattern, employing the quasi-experimental method in their study. Likewise, questionnaires served as the primary research tool for data collection in most of these studies, with the exception of Ali et al. (2017), which employed pretest and posttest as their study too. The current study leverages insights from these previous studies to strengthen its theoretical framework and research instrument design and investigate the influence of the Twitter application on academic performance of students at the College of Sciences and Humanities in Al-Aflaj Governorate, Saudi Arabia.

In pursuit of the study's objectives and the assessment of the Twitter application's impact on the development of rhetorical styles among students at the College of Sciences and Humanities in Al-Aflaj Governorate, the following hypothesis was posited:

*H1: There are no statistically significant differences ( $\alpha \leq 0.05$ ) between the average scores of students in the experimental group and those in the control group on the achievement test conducted in this study.*

## Theoretical Framework

Rhetorical skills encompass the effective use of language to persuade, influence, and communicate ideas eloquently. Theoretically, there are three specific categories of rhetorical methods: Meanings (Al-Ma'ani); Al-Bayan; and Al-Badi'. The first category, Meanings (Al-Ma'ani), refers to the content and ideas conveyed through language, focusing on the clarity, coherence, and effectiveness of the message. This category involves skills such as choosing appropriate words, organizing thoughts logically, adapting content to the audience, and using rhetorical devices like metaphors and analogies. The second category, Al-Bayan, encompasses the use of figurative language and rhetorical devices to enhance clarity and effectiveness, including similes, metaphors, personification, rhetorical questions, repetition, parallelism, antithesis, and paradox. Finally, Al-Badi' focuses on the aesthetic aspects of language and uses creative techniques such as wordplay, puns, rhyme, alliteration, assonance, hyperbole, and understatement to create a memorable and engaging experience for the audience. Twitter was chosen as the medium for enhancing these specific rhetorical skills due to its unique features and widespread popularity among students. Twitter's concise nature, limited to 280 characters per tweet, encourages students to express their ideas succinctly and effectively, which is a crucial aspect of rhetorical skill development (Alzahrani & Almutairi, 2023).

Moreover, Twitter's instant communication and multimedia sharing capabilities facilitate continuous interaction between instructors and students beyond regular class hours, allowing for the exchange of supplementary materials, examples, and feedback (Higueras-Rodríguez et al., 2020). The platform's collaborative features, such as hashtags and retweeting, enable students to engage in educational discussions, review lessons, and provide peer feedback, fostering a supportive learning environment for rhetorical skill development (Elbadawi, 2023). Recent studies have highlighted the effectiveness of Twitter in developing specific rhetorical skills. For instance, investigations into the use of Twitter for enhancing persuasive writing skills among Saudi EFL learners found that students who used Twitter as a medium for practicing persuasive writing demonstrated significant improvements in their ability to craft compelling arguments, use persuasive language, and engage their audience effectively compared to the control group. Similarly, research on the impact of Twitter on developing argumentation skills among Saudi university students indicated that students who actively participated in Twitter discussions and debates exhibited

enhanced critical thinking, logical reasoning, and the ability to construct well-structured arguments (Alhaider, 2023). Additionally, a study on how Saudi EFL students used Twitter to improve their rhetorical analysis skills found that students who did rhetorical analysis activities on Twitter got a lot better at finding and analyzing rhetorical devices, figuring out how strong arguments were, and changing how they used rhetoric in response (Alageel et al., 2023; Gleason & Manca, 2020).

Twitter, one of the most popular social media platforms, possesses several distinctive features (Al-Zahrani, 2021) namely, (1) users can engage by commenting on opinions, retweeting, or favoring, each carrying practical and cultural implications; (2) there are no numerical limits to the friends one can follow; (3) Twitter allows individuals to freely express their opinions and ideas, irrespective of their academic and cultural backgrounds. This includes written content and the recently introduced voice space feature, facilitating communication between professors or teachers and their students anytime, anywhere; (4) it stands out as one of the fastest digital media for publishing and disseminating news; (5) Twitter serves as a platform for rapid relief efforts, guidance, and advice; (6) users can engage with global officials, decision-makers, and celebrities, offering commentary, holding them accountable, and expressing opinions on their actions; (7) real-time updates on the activities of friends are readily available to users; and (8) Twitter users can seek advice from experts in various fields of life.

Numerous benefits can be derived from integrating Twitter into the educational process. Firstly, it allows users to engage in ongoing conversations related to specific topics by using hashtags (#). To follow a particular topic, users simply search for the topic's name with the accompanying hashtag, making it easy to categorize and search for relevant content (Fox & Varadarajan, 2011). Secondly, Twitter offers convenient accessibility through its presence on various smart devices, ensuring uninterrupted educational progress in a flexible setting, anytime, and from anywhere (Forgie et al., 2013; Nadji, 2016). Another advantage of Twitter in education is its ability to provide a platform for students to express their opinions openly and confidently, even for those who may be shy or hesitant due to the presence of authority figures like teachers or social anxiety (Al-Bahrani & Patel, 2015; Fox et al., 2011).

Furthermore, Twitter serves as a communication channel between instructors and students, acting as a virtual blackboard for sharing crucial information and ideas. Teachers can effectively relay messages to students regarding course-related matters, including homework assignments and submission deadlines (Al-Bahrani et al., 2015). Additionally, Twitter can positively impact students' academic performance and weekly homework completion (Davis & Yin, 2013; Ha & Kim, 2014). It has the potential to engage students, motivating them to embrace academic material with enthusiasm, ultimately leading to favorable educational outcomes (Al-Qarni et al., 2018). Another notable benefit of Twitter in education is its capacity to facilitate the exchange of files and messages, including multimedia content like photos, videos, audio clips, and text messages (Al-Eidan, 2019; Al-Sheikh, 2021). Moreover, Twitter supports collaborative learning through study groups that encourage students to review lessons, ask questions, and engage in educational discussions. It promotes cooperation, teamwork, and interactive learning among students and between students and teachers (Al-Eidan, 2019; Al-Sheikh, 2021). Twitter also serves as an interactive platform for students, allowing them to freely express their opinions and overcome inhibitions and shyness that may hinder their participation in the classroom. This fosters better academic performance and personal development (Al-Eidan, 2019; Al-Sheikh, 2021). Lastly, the Twitter application facilitates parental communication with educators, eliminating the need for physical school visits. It helps establish trust between educators and students, transcending space, time, and psychological barriers. The platform also enables the exchange of files in various formats, such as PDF and Word files, through shared links (Al-Eidan, 2019; Al-Sheikh, 2021).

Twitter provides various services to aid educators and learners in enriching their skills and knowledge within scientific fields (Alim, 2017; Alsaeed, 2016). However, certain challenges may hinder the full potential of these social applications. One such obstacle is Twitter's character limit per tweet (Al-Qarni et al., 2018). This limitation can result in incomplete ideas and a lack of comprehensive information, potentially impacting the quality of knowledge acquisition. Consequently, individuals may turn to alternative online resources or other social media platforms offering greater flexibility (Carpenter & Krutka, 2014). Privacy and security concerns are also prevalent issues across various social media platforms (Seaman & Tinti-Kane, 2013). Twitter, known for its inclusivity and ease of participation, allows users to engage without strict identity verification (Peddinti et al., 2016). This openness can be exploited by hackers, posing risks to users' private data (Talha & Kara, 2017). Effective time management while using Twitter is essential but challenging. Some users find it difficult to control their time, often spending excessive hours browsing the platform, jumping from account to account or hashtag to hashtag (Alsaeed, 2016). This can lead to addiction and prolonged, unproductive interactions. Another significant barrier is the proliferation of fake accounts on Twitter. These accounts frequently post tweets with popular hashtags, often including unrelated or harmful links (Al-Qarni et al., 2018; Peddinti et al., 2016; Talha et al., 2017), or engage in automatic retweeting through multiple accounts (Al-Khalifa, 2015).

## Methodology

### *Research Design*

A quasi-experimental research design was applied on two equivalent groups to achieve the study's objectives. Specifically, a non-equivalent control group design was used because randomly assigning students to conditions was not feasible in this educational setting. The experimental and control groups consisted of intact classes of students enrolled in the relevant courses. Despite our efforts to choose classes with similar characteristics, the non-random assignment raises the possibility of selection bias. To mitigate this concern, several steps were taken. First, the groups were compared on key demographic variables and prior academic achievement, where no significant differences were found at baseline. Second, a pre-test measure of rhetorical skills was included to establish initial group equivalence on the outcome variable and account for any pre-existing differences in the analyses. Finally, we controlled for potential confounding by maintaining consistency in the timeframe, course content, and instructors across the conditions, with the Twitter integration acting as the only distinguishing variable. Despite these measures, it is acknowledged that quasi-experimental designs are vulnerable to certain internal validity threats, such as history and maturation effects. However, given the brief duration of the study and the similarity of the groups, the conclusions are believed to remain valid and informative, while recognizing the need for further research with more rigorous experimental controls.

This study's quasi-experimental design also enabled a comparison between Twitter-based instruction and traditional classroom methods, but it was crucial to recognize the inherent limitations of this approach. The non-random assignment of participants to the experimental and control groups introduces the potential for selection bias, where pre-existing differences between the groups could influence the results. Despite establishing baseline equivalence through demographic comparisons and a pre-test of rhetorical skills, we may still encounter unmeasured confounding variables.

### *Research Instrument*

The assessment tool used in this study was a standardized test designed to evaluate the proficiency of the research participants in rhetorical techniques. This test consisted of 20 items, and each item was assigned a single score. The test format employed multiple choice questions type.

### *Sampling and Population*

The study population comprised all students enrolled in the language skills course at the College of Sciences and Humanities in Al-Aflaj Governorate during the first semester of the academic year 1445 AH. A sample of 140 undergraduate students (70 males and 70 females) was identified using the random sampling method. The participants' ages ranged from 18 to 24 years ( $M = 20.5$ ,  $SD = 1.5$ ). The majority of the students (85%) were Saudi nationals, while the remaining 15% were international students from various Arab countries. Most of the participants (90%) were enrolled in humanities and social science majors, with only 10% in natural science and engineering majors.

In a survey conducted prior to the study to assess participants' experiences with Twitter and other social media platforms, it was found that 75% of the participants had active Twitter accounts, with 60% reporting that they used Twitter daily. Among those with Twitter accounts, 80% indicated that they had been using the platform for more than a year. Participants also reported using other social media platforms, such as Instagram (90%), Snapchat (85%), and Facebook (70%). However, none of the participants had prior experience with using Twitter or any other social media platform for educational purposes.

All 140 participants were divided into two groups of equal size of 70 students: experimental group and control group. The control group received traditional education, while the experimental group received blended education, combining traditional methods with mobile education, particularly with the Twitter application as an enrichment tool. We conducted two measurements, pre and post, to observe the changes that occurred within this group. The experimental group received instructions that integrated Twitter as a supplementary tool for developing rhetorical skills, while the control group received traditional classroom instruction without using Twitter. The Twitter-based instructional methods included:

1. Weekly Twitter assignments focused on analyzing and discussing rhetorical techniques in real-world examples, such as political speeches, advertisements, and social media posts. Students were required to tweet their analyses and engage in discussions with their classmates using a designated hashtag.
2. Twitter-based peer feedback, where students provided constructive criticism of each other's rhetorical analyses and received guidance from the instructor through tweeted comments and direct messages.
3. Live Twitter chats hosted by the instructor feature Q&A sessions and discussions on specific rhetorical techniques and their applications.
4. Sharing supplementary resources, such as articles, videos, and podcasts related to rhetorical skills, via tweets and retweets.

In contrast, the control group received traditional instruction that relied on in-class lectures, discussions, and written assignments, without the integration of Twitter or other social media tools. We kept the instructional content and learning objectives consistent between the two groups, with Twitter serving as the key distinguishing factor in the experimental group's instruction.

## Results and Discussion

### Validity and Reliability Tests

To ensure the validity and reliability of the study's scale and to enhance the accuracy of data collection, the scale underwent a series of pre-tests through a validity and reliability assessment. The initial version of the test was presented to a group of experts who served as arbitrators. Their role was to assess the accuracy of the test items and their appropriateness for measuring the intended constructs. Based on the arbitrators' feedback, some items were revised, and others were eliminated. The valuable input and observations of these expert arbitrators were carefully considered, leading to necessary amendments. The initial test contained 26 items, but after incorporating the arbitrators' feedback, the final version of the study tool (test) comprised 20 items.

To ensure the validity of the scale if it is reused again to give the same results and achieve internal consistency, the test was applied to a pilot sample from the study population and outside its sample, numbering (20) students. Coder and Richardson equation 20 was calculated with the following equation:

$$r_d = \frac{\delta_1 r_{11}^2 + \delta_2 r_{22}^2 - 2r_{12}\delta_1\delta_2}{\delta_1^2 + \delta_2^2 - 2r_{12}\delta_1\delta_2}$$

whereas:

$r_d$ : stability of the tool

$r_{12}$ : Correlation between the experimental group and the control group

$r_{22}^2, r_{11}^2$  Stability of the experimental and control groups

$\delta_2^2, \delta_1^2$  Variation between experimental and control groups

(Vivian Wong Shao et al., 2023)

By applying the equation, the reliability of the tool reached (0.74), and according to this value, the tool was considered acceptable for the purposes of the study.

To answer the study question (What is the impact of using the Twitter application on developing rhetorical styles among students at the College of Sciences and Humanities in Al-Aflaj Governorate?), the researcher first calculated the arithmetic mean and standard deviation of the achievement scores for the experimental and control groups in both the pre-test and post-test measurements (Table 1). Subsequently, a one-way analysis of covariance (ANCOVA) was conducted to determine if there were significant differences between the two groups' post-test scores, while controlling for their pre-test scores (Table 2).

**Table 1:** Pre- and Post-Test Means and Standard Deviations for Student Achievement in the College of Sciences and Humanities, Al-Aflaj Governorate, by Group.

Group	N	Pre-measurement		Post measurement	
		Mean	SD	Mean	SD
Experimental group	70	9.600	2.569	13.600	2.735
Control group	70	9.914	3.212	10.543	2.914

The results presented in Table 1 indicate that the pre-measurement arithmetic mean for the experimental group was 9.600, while it was 9.914 for the control group. In the post-measurement, the arithmetic means for the experimental group improved to 13.600, whereas it was 10.543 for the control group. It is noteworthy that both groups demonstrated an improvement in their average scores from the pre-measurement to the post-measurement. Additionally, there are apparent differences between the averages of the experimental and control groups in the post-measurement.

To assess the statistical significance of these differences, a one-way analysis of variance (One Way ANCOVA) was conducted, and the results of this test are displayed in Table 2. This study used ANCOVA based on several assumptions:

- 1) Linearity: The relationship between the covariate (pre-test scores) and the dependent variable (post-test scores) is linear.
- 2) Homogeneity of regression slopes: The covariate and dependent variable regression slopes are equal across both groups.
- 3) Normality: The residuals, or the differences between the observed and predicted values, follow a normal distribution.
- 4) Homoscedasticity: The variance of the residuals is equal across both groups.

- 5) Independent of the covariate and treatment effect: The covariate (pre-test scores) is independent of the treatment effect (Twitter intervention).

Prior to conducting the ANCOVA, we checked these assumptions and found no violations. However, it is important to acknowledge the potential limitations of this statistical method. ANCOVA can only control the linear effects of the covariate on the dependent variable and may not account for non-linear relationships. Furthermore, ANCOVA relies on the assumption of error-free covariate measurement, a condition that may not always hold true in educational research.

Despite these limitations, the study deemed ANCOVA appropriate, as it facilitated the comparison of post-test scores between the experimental and control groups, while accounting for any pre-existing differences in their pre-test scores. The results of the ANCOVA (Table 2) indicated a significant difference between the two groups, with the experimental group outperforming the control group on the post-test after adjusting for their pre-test scores."

**Table 2:** One-Way ANCOVA for Post-Measurement Achievement Differences in College of Sciences and Humanities, Al-Aflaj Governorate by Group.

Source of variance	Sum of squares	D F	Mean squares	F value	Significance level	ETA square $\eta^2$
Pre-measurement	248.470	1	248.470	56.506	0.000	.0458
The Group	185.849	1	185.849	42.265	0.000	0.387
The error	294.616	67	4.397			
Corrected total	706.643	69				

Table 2 illustrates that the (F) value reached 42.265, with a significance level of 0.000. This signifies statistically significant differences in the post-measurement achievement of students from the College of Sciences and Humanities in Al-Falaj Governorate based on the group variable, with the advantage favoring the experimental group.

To better gauge the magnitude of the Twitter intervention's impact, we calculated the effect size using eta-squared ( $\eta^2$ ). Eta-squared represents the proportion of variance in the dependent variable (post-test scores) that is attributable to the independent variable (Twitter intervention). The Twitter intervention explained a 38.7% variance in post-test scores, as indicated by the eta-squared value of 0.387. This value suggests a substantial effect size, highlighting the practical significance of incorporating Twitter into rhetorical skills instruction (Shevchuk, 2021).

Table 2 also provides insights into the effect size resulting from Twitter application usage, represented by the Eta square ( $\eta^2$ ), which stands at 38%. This percentage underscores the substantial impact of employing Twitter. Furthermore, it reveals that the value of  $R^2$  represents the variance explained by the group variable, reaching 57.1%. This high percentage underscores the influence of enhancing post-measurement values through pre-measurement data, elucidating the variance and differences observed in the post-measurement.

The hypothesis of the study (There are no statistically significant differences ( $\alpha \leq 0.05$ ) between the average scores of students in the experimental group and those in the control group on the achievement test conducted in this study), was tested by comparing the post-test scores of the experimental group who used Twitter and the control group who did not, using the one-way ANCOVA test. The results in Table 2 show that there was a statistically significant difference in the post-test scores between the two groups, with the Twitter group scoring higher (adjusted mean of 13.703) compared to the control group (adjusted mean of 10.440). The ANCOVA test also showed an F-value of 42.265 and a p-value of less than 0.05. Since the p-value is less than the significance level of 0.05, it indicates the difference between the two groups' scores is statistically significant.

Therefore, the null hypothesis stating there is no significant difference is rejected. It can be concluded that there is a statistically significant difference in rhetorical competence favoring the experimental Twitter group over the control group. So, in summary, the stated hypothesis has been tested using ANCOVA analysis of post-test scores, and the results demonstrate the hypothesis can be rejected based on the supportive statistical evidence showing significant differences due to the Twitter intervention.

Table 3 clearly displays that the adjusted arithmetic mean for the experimental group is 13.703, surpassing the control group's adjusted arithmetic means, which is 10.440. These figures imply that the experimental group participants achieved the highest arithmetic mean. This outcome also leads to the rejection of the null hypothesis and the acceptance of the alternative hypothesis, indicating a significant impact of using the Twitter application on developing rhetorical styles among students at the College of Sciences and Humanities in Al-Aflaj.

**Table 3.** Adjusted post-measurement means and standard errors for students' achievement in the College of Sciences and Humanities in Al-Aflaj Governorate.

Group	N	Adjusted arithmetic mean	Standard error
Experimental group	70	13.703	0.355
Control group	70	10.440	0.355

The study determined that utilizing the Twitter application on mobile devices is a contemporary and effective teaching approach. This technology's features and advantages notably improved the communication between university professors and their students beyond regular class hours. It facilitated the students' access to valuable educational content, reinforcing their classroom learning. Consequently, students in the experimental group exhibited superior performance in the post-test compared to the control group, which did not use the Twitter application in this study.

These findings are consistent with the study conducted by Al-Zahrani (2021), who found statistically significant associations between respondents' level of Twitter exposure and its impact on their job performance and attitudes toward educational objectives. Additionally, the study revealed a connection between the motives behind their Twitter usage and their attitudes toward the news and events shared on the platform. Furthermore, higher levels of exposure to Twitter were linked to a favorable outlook on the news and events it disseminated, consistent with Bazheer (2020) study on the cultivation of literary preferences through social networking sites. These findings were also in line with Al-Abbasi et al. (2019a) study, which showed high acceptance among female students and teachers in Riyadh's secondary schools regarding the use of Twitter for educational purposes.

Moreover, Ali et al. (2017) study indicated a statistically significant difference between the pre-application and post-application phases for the group using social media, mirroring the results of Adeeb et al. (2017) study, which reported highly positive attitudes among the study sample. Abdullah's (2015) study among students in Brunei Darussalam universities also revealed a positive attitude towards the use of social media in teaching the Arabic language.

These findings underscore the advantages and capabilities of social media, particularly the Twitter application, in facilitating communication between university professors and students, leading to enhanced achievement, scientific knowledge, and information retention among the experimental group students compared to the control group. The results revealed that utilizing Twitter significantly enhanced rhetorical skill development among students at the College of Sciences and Humanities in Al-Aflaj Governorate, with the experimental Twitter group outperforming the control group on the post-test measure (adjusted mean of 13.703 vs 10.440). The effect size was substantial at 38% (Al-Zahrani, 2021). This aligns with prior inquiries finding positive academic and attitudinal impacts of Twitter, such as Bazheer (2020) study showing social media cultivation of literary preferences. Specifically, the microblogging platform enabled continuous, flexible communication and sharing of multimedia academic materials between professors and students to reinforce classroom content (Lotfi et al., 2020). For instance, teachers could disseminate crucial course information and deadlines (Al-Bahrani et al., 2015). This expanded academic engagement explains the experimental group's rhetorical skill improvements. The statistically significant difference of 3.263 on the post-test underscores Twitter's pedagogical utility for rhetorical development, consistent with evidence of enhanced achievement in other disciplines like mathematics (Adeeb et al., 2017). As evidenced by an F-value of 42.265,  $p < 0.05$ , the results were highly significant. The findings contribute uniquely to the scholarly understanding of Twitter's capacity to enhance rhetorical competence amid a broader literature concentrating on generic social media impacts or literacy skills (Abdullah, 2015; Al-Anazi, 2020). Given the 38% effect size, incorporating Twitter holds considerable promise for enriching rhetorical instruction and performance. Further research into media applications could uncover additional strategies to boost academic outcomes (Ali et al., 2017).

## Conclusion

In conclusion, this study provides empirical evidence for the significant impact of the Twitter application on developing rhetorical competencies among students at the College of Sciences and Humanities in Al-Aflaj Governorate. The post-intervention rhetorical skills test revealed statistically significant differences between the experimental Twitter group and the control group, with the Twitter-assisted students demonstrating significantly higher adjusted average performance (13.703 vs. 10.440). The considerable 38% effect size resulting from Twitter usage further highlights its substantial influence. The study's substantial effect size further emphasizes the significant impact of Twitter intervention on student rhetorical skill development. The eta-squared value of 0.387 indicates that the Twitter intervention accounted for 38.7% of the variance in post-test scores. The considerable effect size underscores the potential for social media to play a significant role in Arabic language education and the effectiveness of the Twitter intervention in enhancing rhetorical skills.

Furthermore, the study's execution was done in a naturalistic educational setting, while enhancing ecological validity, compromising the level of control typically associated with laboratory experiments. Factors such as student motivation, instructor variability, and external events could pose threats to internal validity through history and maturation effects. The study's relatively brief duration of a single semester also limited the ability to assess the longitudinal impact of Twitter integration on rhetorical skill development. Despite efforts to maintain consistency across conditions, it was challenging to rule out all

potential confounding due to the inherent complexity of classroom environments. Therefore, we interpreted the findings cautiously, acknowledging the balance between experimental control and practical application. Future research employing more rigorous experimental designs, such as randomized controlled trials or counterbalanced repeated measures, could strengthen the causal inferences drawn from the study's results.

Integrating Twitter's multimedia communication capacities promoted continuous teacher-student interactions that reinforced classroom learning beyond regular lectures. This pedagogical advantage gave rise to improved information retention and application manifested as rhetorical skill gains for the experimental group. As the first known investigation concentrating explicitly on Twitter's role in advancing rhetoric abilities, the research makes a novel contribution. Overall, the microblogging platform shows immense promise as an educational tool, aligned with earlier studies on attitudinal, motivational, and academic impacts across various disciplines. The study recommends prioritizing Twitter and similar mobile applications in teaching to engage digitally inclined learners through flexible, collaborative environments unconstrained by space and time. It sets the stage for additional inquiries exploring media technologies for realizing diverse educational objectives. Substantive research opportunities remain regarding instructional strategies to optimize social media's affordances.

By scientifically demonstrating Twitter's utility for rhetorical development at Saudi Arabia's College of Sciences and Humanities in Al-Aflaj Governorate, the investigation informs policies on technological integration for enriching Arabic language pedagogy. It brings us one step closer to effectively harnessing social media advancements toward nationwide educational excellence. This study also highlights Twitter's potential as a supplementary tool for enhancing rhetorical skills and Arabic language competencies, suggesting its integration into educational frameworks. The platform enables mobile learning by offering continuous, flexible interactions free from spatial and temporal constraints, aligning well with the digital engagement of 21st-century students. This calls for adapting teaching methods. The effectiveness of Twitter in improving rhetorical abilities underscores the need for instructor training in social media-based teaching best practices, which is essential for mainstreaming its adoption. The observed improvements in students' rhetorical competence through Twitter intervention underline the efficacy of combining formal classroom instruction with informal learning via social networks, advocating for a blended educational approach.

The study motivates curriculum renewal that strategically includes Twitter and similar technologies, optimizing engagement and outcomes. These findings offer valuable insights into educational technology and language pedagogy, particularly relevant to educational psychologists. They demonstrate the importance of social media as a pedagogical tool that is adaptable for younger learners and vital for future research and practical application in various educational settings. This research contributes to the growing body of literature on integrating technology in education, a topic of increasing relevance. Twitter has proven to be a valuable tool for personalized engagement and academic achievement enhancement, providing an alternative to the conventional classroom environment. While focusing on university students, the broader implications of this study provide insights for school and educational psychologists, enriching the field with innovative, technology-driven methodologies adaptable across different age groups and educational environments.

Based on the main results, the study makes following recommendations:

- 1) Formally integrate Twitter into pedagogical policies and frameworks while expanding research on its holistic potential for advancing Arabic language competencies like reading, writing, listening, and speaking abilities beyond rhetoric.
- 2) Implement faculty development programs focused on best practices for strategically blending formal classroom teaching with informal Twitter-enabled mobile learning opportunities that promote continuous engagement and measurable competence gains.
- 3) Renew academic curricula and teaching strategies to incorporate Twitter-based activities that optimize student engagement and educational outcomes based on statistically significant performance improvements.
- 4) Promote multi-disciplinary studies examining diverse social media platforms' educational impacts and enhancement strategies to inform adoption decisions and enhancement measures.
- 5) Institutionalize mobile learning via platforms like Twitter to enable flexible digital interactions unconstrained by space and time limitations based on empirically validated effectiveness for 21st century digitally inclined learners.
- 6) It is essential to utilize the Twitter platform for its services, including its voice spaces, which can enhance students' linguistic fluency and break the fear of public speaking.
- 7) It is necessary to benefit from the Twitter platform for its capabilities, such as the possibility of hosting scholars and experts from all over the world through its voice spaces. This allows them to leverage their knowledge, especially those who find it challenging to attend physical classrooms. Such interactions enhance motivation towards scientific advancement by connecting with academic role models, aspiring to follow their footsteps and scientific paths.

## Study Significance and Limitations

This study holds significant importance as it explores a contemporary concept in the field of education known as mobile education. The motivation behind this research was to harness the potential of mobile devices in the hands of students, specifically utilizing the Twitter application to enhance the educational process and elevate the academic performance of students at the College of Sciences and Humanities in Al-Aflaj Governorate. The study's significance is evident in the following aspects:

- It addresses the nexus between mobile devices, academic achievement, and skill development.
- It emphasizes the blended learning approach, integrating mobile applications into education.
- It leverages advancements in mobile devices, their diverse applications in education, and the creation of a modern learning environment incorporating contemporary technologies.
- This study may provide valuable insights for education policymakers in the Kingdom of Saudi Arabia, aiding in decisions to enhance Arabic language education through the utilization of social media in the educational context.
- It opens avenues for further research on the impact of different media applications on the development of linguistic skills in various educational settings.
- The findings of this study could assist universities and colleges in finding suitable solutions to enhance their educational outcomes.

The study had certain limitations.

- **Objective limitations:** The objective limitations of this study are to examine the impact of utilizing the Twitter application on the development of rhetorical styles among students at the College of Sciences and Humanities in Al-Aflaj Governorate.
- **Time limitations:** The time frame for study is determined in the first semester of the academic year 1445 AH.
- **Spatial limitations:** represented by the College of Sciences and Humanities in Al-Aflaj Governorate.
- **Human limitations:** The specific context of the study may limit the generalizability of its findings. As the research was carried out at a single institution, the College of Sciences and Humanities in Al-Aflaj Governorate, the results may not be readily transferable to other educational settings with different student demographics, curricula, or technological resources and infrastructure.

Future research should encompass comparative studies on the effects of different social media platforms like WhatsApp, Facebook, Instagram, etc. on developing rhetorical skills, thereby understanding the unique benefits of each technology. Additionally, investigating Twitter's role in enhancing other Arabic language skills such as reading, writing, listening, and speaking is crucial for a comprehensive view. It's also important to assess the long-term learning outcomes of integrating Twitter into classroom teaching over various academic years and student groups to evaluate its potential for sustained educational advancement. Research should also focus on determining the optimal duration of Twitter interventions for maximum improvement in rhetorical skills and optimizing the timeframes for educational interventions.

Lastly, using interviews and focus groups to find out how both students and teachers feel about using Twitter for rhetoric lessons would give us useful information about how this tool works, which would make it easier to use in schools. Finally, conducting interviews and focus groups to find out how both students and teachers feel about using Twitter for rhetoric lessons would give us useful information about how this tool works, which would make it easier to use in schools. Future research should use a mixed-methods approach, combining quantitative measures with qualitative data collection methods like focus groups and in-depth interviews, to learn more about how the effects seen and the students' experiences with the Twitter intervention work. This would allow for a more granular understanding of how students engage with Twitter for rhetorical skill development, the specific features and activities that they find most beneficial, and any challenges or barriers they encounter. Additionally, qualitative data from instructors could provide insights into pedagogical strategies and best practices for integrating Twitter into rhetorical skills instruction.

Future research should encompass comparative studies on the effects of different social media platforms like WhatsApp, Facebook, Instagram, etc. on developing rhetorical skills, thereby understanding the unique benefits of each technology. Additionally, investigating Twitter's role in enhancing other Arabic language skills such as reading, writing, listening, and speaking is crucial for a comprehensive view. Also, the longitudinal studies tracking the development of students' rhetorical proficiency over multiple academic years would shed light on the sustained impact of Twitter integration. Such research could shed light on whether the observed gains in the study persist, diminish, or amplify with longer-term Twitter usage. Furthermore, comparing the effectiveness of Twitter-based instruction against traditional classroom approaches devoid of social media would provide a valuable benchmark. Investigations contrasting Twitter with other technology-mediated pedagogies, such as online discussion forums or multimedia lectures, could illuminate the unique strengths of the microblogging platform. Cross-platform comparisons examining

Twitter's relative merits versus other social networks like Facebook, Instagram, or TikTok may guide optimal platform selection for rhetorical instruction. Qualitative inquiries delving into students' and instructors' experiences could yield insights into the cognitive, emotional, and motivational factors influencing Twitter's educational efficacy.

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