توسيع نموذج قبول التكنولوجيا لتقنية التيليجرام لمعلمي اللغة الإنجليزية كلغة أجنبية من خلال دمج المعايير الذاتية الكفاءة الذاتية

Extending The Technology Acceptance Model of EFL Teachers' Telegram Technology by Incorporating Subjective Norms and Self-Efficacy Constructs

إعداد

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المستخلص: تعد تكنولوجيا Telegram إحدى شبكات التواصل الاجتماعي الأكثر شهرة في المملكة العربية السعودية. **إن دراسة** العوامل التي تؤثر في نية تبني معلمي اللغة الإنجليزية كلغة أجنبية هذه التكنولوجيا، يساعد الباحثين في مجال تكنولوجيا التعليم ومقدميها على تطويرها كتقنية أكثر فاعلية وقبولاً. تهدف هـذه الدراسة إلى استقصاء العوامل المؤثرة على نية تبني معلمي اللغة الإنجليزية كلغة أجنبية تكنولوجيا Telegram للأغراض التعليمية في المملكة العربية السعودية. ولتحقيق أهداف الدراسة واختبار فرضياتها، تم استخدام الاستبانة كأداة لجمع البيانات، وتم توزيعها واعتمادها على عينة عشوائية مكونة من 257 معلمًا من معلمي اللغة الإنجليزية، وتم تحليل البيانات باستخدام نمذجة المعادلة الهيكلية. بشكل عام، أظهرت نتائج الدراسة أن نموذج الدراسة المقترح فسر ما نسبته 72% من النوايا السلوكية لمعلمي اللغة الإنجليزية لاستخدام تكنولوجيا Telegram. وقد أوضحت نتائج تحليل الانحدار المتعدد أن جميع العوامل التي تضمنها نموذج الدراسة لمقترح تؤثر معنوياً إما بشكل مباشر أو غير مباشر على نوايا معلمي اللغة الإنجليزية السلوكية لاستخدام تكنولوجيا Telegram، وأن عامل المعايير الذاتية كان لها تأثيراً إيجابياً على سهولة الاستخدام المدركة والتي بدورها كان لها ايضاً تأثيراً إيجابياً على الفائدة المدركة، وأن الكفاءة الذاتية كان لها تأثيراً ايجابياً على سهولة الاستخدام المدركة، ولكن لم يكن هناك تأثيراً إيجابياً للكفاءة الذاتية على الفائدة المدركة. وتوصلت نتائج الدراسة ايضاً إلى أن اتجاهات معلمي اللغة الإنجليزية نحو استخدام تكنولوجيا Telegram كان لها تأثيراً مباشراً وايجابياً على نواياهم السلوكية للاستخدام. وكان لسهولة الاستخدام ايضاً تأثيراً إيجابياً بشكل غير مباشر على نوايا معلمي اللغة الإنجليزية السلوكية لاستخدام تكنولوجيا Telegram من خلال الفائدة المدركة. أخيراً، اظهرت نتائج الدراسة أن سهولة الاستخدام والفائدة المدركة كان لهما تأثيراً ايجابياً ومعنوياً al على نوايا معلمي اللغة الإنجليزية السلوكية لاستخدام تكنولوجيا Telegram، مع تأثير اتجاهاتهم كمتغير وسيط. تعد نتائج هذه الدراسة مفيدة وذات أهمية للأكاديميين وواضعي السياسات، وقد خلصت النتائج مجموعة من التوصيات والدراسات المستقبلية.

الكلمات المفتاحية: التيليجرام؛ نوايا معلمي اللغة الإنجليزية كلغة أجنبية؛ نموذج قبول التكنولوجيا؛ الكفاءة الذاتية؛ المعايير الذاتية.

Extending The Technology Acceptance Model of EFL Teachers' Telegram Technology by Incorporating Subjective Norms and Self-Efficacy Constructs

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Abstract: In the Kingdom of Saudi Arabia (KSA), Telegram is among the most popular social media networks. A more profound knowledge of the numerous elements influencing the intention of English as a Foreign Language (EFL) instructors to use Telegram could aid researchers and producers of educational technology in developing more effective and acceptable telegram technology. This study investigates the factors influencing EFL teachers' intentions to utilize Telegram for educational purposes in KSA, given the increasing popularity of Telegram's use in education. To validate the measures and proposed research approach, 257 EFL educators were polled. A self-reporting questionnaire was used to collect data, which was then analyzed using structural equation modeling. Overall, the suggested research model explained 72% of the variance in the intentions of English teachers to use Telegram in the KSA. The regression analysis results revealed that subjective norms and self-efficacy, perceived ease of use, and perceived usefulness indirectly affected EFL teachers to use Telegram. Subjective norms influenced perceived usability, which positively increased perceived utility. It was discovered that self-efficacy strongly influences perceived usability but not perceived utility. The views of EFL teachers have a direct impact on their desire to use Telegram. In addition, perceived usefulness moderately influenced EFL teachers' plans to utilize Telegram. This study concluded that the perceived ease of use and utility predicted EFL teachers' intentions to embrace Telegram, with attitudes about Telegram functioning as a moderating variable. In addition, this paper discusses the ramifications for academics and policymakers. Finally, the study's future scope and limitations are examined.

Keywords: Telegram; EFL Teachers' Intentions; Technology Acceptance Model; Self-efficacy; Subjective Norms.

Introduction

The use of technology is a requirement in 21st-century teaching and learning. Integrating technology into classroom settings has become an irreversible trend that has brought revolutionary progress (Hsu & Lin, 2021). Technology integration is "the degree to which technology is used to facilitate teaching and learning" (Ertmer, 1999, p. 50, as cited in Torsani, 2016). Most instructors agree that technology is essential to delivering high-quality education (Chen et al., 2019; Epp & Phirangee, 2019; Hoi, 2020; Pérez-Paredes et al., 2019). The majority of educators concur that technology is crucial for delivering high-quality education. (Chen et al., 2019; Epp & Phirangee, 2019; Hoi, 2020; Pérez-Paredes et al., 2019).

Beyond the classroom, the use of technology in teaching and studying English has grown. Technology boosts authentic target language input and diversity of language usage (Golonka et al., 2014), increases communication opportunities (Li, 2014), and makes teaching and learning more pleasurable (Huang et al., 2019). In recent years, various learning-supporting technology applications have been widely embraced in higher education (de Souza Rodrigues et al., 2021; Habib et al., 2021; Mpungose, 2020; Su & Chen, 2020; Yunusa & Umar, 2021). Telegram is one of the most crucial social media networks and online applications. Telegram is a relatively new internet program developed in 2013 by Nikolai and Pavel Durov, who had previously founded the Russian social network VK, which Mail.ru Group subsequently acquired. By providing quizzes, learner attendance, and voting, Telegram's user base is expanding due to its innovative learning tools.

Telegram provides multimedia messaging and audio and video calls, similar to Facebook Messenger and WhatsApp. Moreover, the Telegram program is user-y because it is simple to use and has stickers built into its system. In addition, the program is a leading cloud-based instant messaging service, and its prevalence in daily life is growing. According to Statista, Telegram has 500 million monthly active users globally (Ceci, 2022); the multi-platform application is compatible with iOS, Android, Windows, and Mac.

Statista reports that Telegram's global install base increased to 64 million in January 2021, following the revelation that WhatsApp would issue a new privacy policy update that users widely condemned. Telegram downloads in the

Asia-Pacific region hit roughly 62 million at the start of 2021, accounting for 38% of global downloads in the first quarter of 2021. In 2021, most of Telegram's global audience consisted of individuals between the ages of 25 and 34. (Ceci, 2022). 75% of Telegram users indicated obtaining most of their news from the app as one of the reasons to use it (Ceci, 2022). In addition, Telegram allows users to create groups of up to 5,000 people for mass broadcasting.

Telegram's features are undeniably promising. Telegram, in the setting of English as a Foreign Language (EFL), has facilitated the sharing of material, introduction of assignments, facilitation of discussions, and group activities while enhancing language abilities (Ariantini et al., 2021). Telegram offers similar potential for online learning as it exhibits great strengths, such as integrated user address books (Ghorbani & Ebadi, 2020), beautiful stickers for expressive dialogue (Khodabandeh, 2018), and group channels for information sharing (Alizadeh, 2018). These qualities make Telegram popular among young people, educators, and students (Alizadeh, 2018).

Numerous prior studies have demonstrated Telegram's usefulness in teaching and learning the English language (Heidari-shahreza & Khodarahmi, 2018; Xodabande, 2017). Specifically, they discovered that Telegram improves learners' fluency in speaking English (Abbasi & Behjat, 2018; Azad et al., 2018; Khodabandeh, 2018) and positively contributes to creating an enjoyable and stress-free learning environment to promote learners' curiosity, motivation, and engagement (Azad et al., 2018; Banafshi et al., 2020; Rostami & Khodabandeh, 2020; Vahdat & Mazareian, 2020). Nonetheless, it is crucial to understand how English as a Foreign Language (EFL) students see Telegram as a tool that facilitates learning English.

The implementation of Telegram in English language learning improves various aspects of EFL learners' English language skills, including reading comprehension (Naderi & Akrami, 2018), vocabulary (Zarei et al., 2017; Ghobadi & Taki, 2018), writing skills, attitudes (Aghajani & Adloo, 2018), listening comprehension (Salehpour, 2018), speaking (Setiawan & Wahyuni, 2017; Xodabande, 2017), and oral comprehension (Abbasi & Behjat,2018; Amiryousefi, 2017; Khodabandeh, 2018). In addition, Telegram strengthens EFL students' listening comprehension and collaborative skills (Amiryousefi, 2017; Faramarzi et al., 2019; Salehpour, 2018), which makes learning situations more meaningful, improves writing performance, actively promotes a cooperative environment, and

boosts motivation (Aghajani & Adloo, 2018). In addition, Heidari et al. (2018) examined the influence of Telegram on EFL beginners' acquisition of a second language's vocabulary. They confirmed that Telegram might successfully inspire learners to study English. In addition, the results of the technology acceptance model (TAM) questionnaire suggested that participants viewed Telegram as a platform that provided an exciting and realistic English learning environment, hence facilitating their learning (Haghighi et al., 2019).

Nevertheless, despite the aforementioned benefits, the use of Telegram in formal education in the Kingdom of Saudi Arabia (KSA) is still in its infancy, and actual information about EFL teachers' acceptance of Telegram technology in KSA still needs to be improved.

Problem Statement and Research Gap

Current Telegram-related studies have primarily focused on the potential educational benefits of the application (i.e., Abbasi & Behjat, 2018; Aghajani & Adloo, 2018; Alizadeh, 2018; Amiryousefi, 2017; Ariantini et al., 2021; Azad et al., 2018; Banafshi et al., 2020; Ghobadi & Taki, 2018; Ghorbani & Ebadi, 2020; Heidari et al., 2018; Khodabandeh, 2018; Rostami & Khodabandeh, 2020; Salehpour, 2018; Setiawan & Wahyuni, 2017; Vahdat & Mazareian, 2020; Xodabande, 2017; Zarei et al., 2017), which contributes to a better understanding of Telegram's significance in education. However, more studies must be conducted on the factors influencing EFL teachers' adoption or rejection of Telegram, particularly in teaching English as a foreign language in Saudi Arabia.

Individual approval of the Telegram application is crucial to successfully implementing the Telegram technology. According to Aguilera-Hermida (2020) and Wang et al. (2022), the factors influencing technology use, adoption, and acceptance are now the subject of intense study. While students are the primary target of educational technology acceptance studies in higher education, teachers are consistently disregarded while being essential stakeholders in technology implementation. Teachers' attitudes are crucial to the success of technology in formal educational settings since they are the ones who decide whether or not to employ technology in their classrooms (Sang et al., 2010). Siyam (2019) acknowledged that teachers are the driving force behind good technology integration. Their decision to apply technology in their teaching is closely tied to their level of technology acceptance, which refers to their willingness to use

technology to complete their teaching-related responsibilities (Akar, 2019; Leem & Sung, 2018). Thus, many academics have been interested in the variables that affect teachers' technology use (Akar, 2019; Scherer et al., 2019).

To ensure the efficacy of Telegram as a teaching and learning tool in education, EFL teachers must accept it. Acceptance and intention to use Telegram for educational purposes can be influenced by various variables, including subjective norms and self-efficacy, related to the perceived effectiveness and simplicity of usage in teaching and learning. Determining and comprehending the factors influencing EFL teachers' adoption or rejection of Telegram technology necessitates further research into their desire to use the Telegram program.

The technology acceptance model (TAM) has been widely utilized to describe user behavior and technology utilization. Although several academics and researchers (e.g., Abdullah & Ward, 2016; Eraslan et al., 2019; Huang & Teo, 2021; Sánchez-Prieto et al., 2019; Ursavaş et al., 2019; Wang et al., 2022) are studying this model and its expansions, the model is still under examination. According to Tarhini et al. (2014), the applicability and validity of TAM are still debatable, especially in non-Western contexts (Tarhini et al., 2014). They added more factors to the model and argued that the TAM should include external variables to improve our knowledge of technology acceptance. Beteille et al. (2020) found that TAM is the predominant model for predicting and explaining teachers' intentions to use technology. TAM was proven valid in understanding EFL teachers' intent to employ technology in language teaching scenarios (Huang et al., 2021; Huang & Teo, 2021; Liu et al., 2019; Teo et al., 2018). According to the researcher, there is no empirical research investigating the elements contributing to Telegram acceptance among EFL teachers in KSA.

Aim of the Study

This study aimed to evaluate the antecedent factors and causal interactions in predicting EFL teachers' acceptance of Telegram technology based on an enhanced version of the TAM model with two external variables (subjective norms and self-efficacy). The following research questions informed the conduct of this study:

RQ1: To what extent does the proposed research model explain EFL teachers' intentions to use Telegram in higher education institutions in KSA?

RQ2: To what extent do subjective norms (SN), self-efficacy (SE), perceived usefulness (PU), perceived ease of use (PEoU), and attitude toward using (ATU) predict EFL teachers' intentions to use (INT) Telegram in institutions of higher education in KSA?

Literature Review and Model Development

Acceptance of new technology is essential for its efficient usage in educational settings and can be viewed as a precondition for the subsequent enhancement of the learning process (El-Gayar et al., 2011). Technology acceptance quantifies a person's readiness to utilize technology for a given task (Davis, 1989).

Rapid technological breakthroughs and digitalization in nearly every aspect of our lives, including education, have drawn the attention of researchers and academics to the elements that explain technology acceptance (Scherer & Teo, 2019a). This emphasis led to the development of numerous theoretical models, such as technology acceptance models (TAMs), that elucidate both the behavioral intention and use of technologies. These models "explain the determinants of computer acceptance that are general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations" (Davis et al., 1989, p. 985).

Davis (1986, 1989) first proposed the concept of TAMs, drawing from behavioral models such as the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), expectancy theory, self-efficacy theory (Bandura, 1981), cost-benefit decision processes (Beach & Mitchell, 1978), Innovation Diffusion Theory (IDT) (Tornatzky & Klein, 1982), and the Channel Disposition Model (Swanson, 1987). In doing so, Davis concluded that a user's attitude toward technology is determined by perceived usefulness (PU) and ease of use (PEoU). Since then, Davis' TAM has been developed into TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008).

TAM (Davis, 1986, 1989) is a well-known model for evaluating acceptance and behavioral intent toward using a technology (Yalçın & Kutlu, 2019; Sánchez-Prieto et al., 2019; Šumak et al., 2011; Ursavaş et al., 2019), and it has recently been determined to "represent a credible model for facilitating assessment of diverse learning technologies" (Granić & Marangunić, 2019, p. 2572).

Since Davis's first proposal of the TAM model, it has been extensively validated and employed by industry and academics in several relevant studies and has gained empirical support from a variety of fields, including health sciences (Hsieh, 2015; Rahimi et al., 2018) and education (Al-Shahrani, 2021; Scherer et al., 2019; Teo et al., 2018). This model has also been adopted by multiple researchers in various disciplines, such as augmented reality (Al-Shahrani, 2021), smart devices (Leem & Sung, 2018), mobile devices (Sánchez-Prieto et al.,2019), and online education (Huang et al., 2021); its validity has been convincingly demonstrated.

TAM has predictive power, particularly for teachers integrating technology into instruction (Sánchez-Prieto et al., 2017; Teo et al., 2018; Ursavaş et al., 2019). Numerous researchers and academics have utilized this TAM model to explain the technology acceptance process from external causes through actual technology adoption (Li et al., 2019). This model assists the researcher in investigating the effects of external factors on dependent variables.

TAM has been functional (e.g., Al-Shahrani, 2021; Eksail & Afari, 2020; Kartal et al., 2022; Scherer et al., 2019; Siyam, 2019; Ursavaş et al., 2019) in studying instructors' acquisitions of technology due to its use by several researchers and academics in various situations. Moreover, it is asserted that TAM is the most popular model for explaining teachers' intentions to use technology in the classroom by studying their beliefs and attitudes due to its simplicity and clarity.

In EFL contexts, several scholars (i.e., Huang & Teo, 2021; Huang et al., 2019; Huang et al., 2021; Liu et al., 2019; Sun & Mei, 2020; Teo et al., 2018) asserted that the TAM model adequately explains EFL teachers' intentions to use technology. Since 1986, TAM has been one of the most influential theories and models used to explain and comprehend user acceptance of technology processes. It postulates that two fundamental factors, PU and PEoU, influence individuals' attitudes toward technology and, in turn, their intention to use (INT) and actual usage of computers. An individual's attitude toward technology (ATU) affects behavioral intention (BI). In turn, ATU is determined by PU and PEoU. In addition, PU is indicated to have a separate effect on INT, while PEoU influences PU (see Figure 1).

Despite TAM's extensive use, its applications have remained limited. TAM's omission of external elements that may influence users' intentions to use

technology is a flaw. Dishaw and Strong (1999) insisted on the need to investigate the TAM in various usage scenarios in order to strengthen TAM's external validity. To increase the predictability of the model, the generalizability of findings, and to further explain variation in PU and PEoU, several external variables were added (i.e., Abdullah & Ward, 2016; Eraslan et al., 2019; Huang & Teo, 2021; Maranguni & Grani, 2015; Sánchez-Prieto et al., 2019; Ursavaş et al., 2019; Wang et al., 2022). According to a meta-analysis by Abdullah and Ward (2016), subjective norm, experience, enjoyment, computer anxiety, and self-efficacy are the most frequently added external factors to the TAM model. According to the research, external influences are diverse, with subjective norm (SN) and computer self-efficacy (SE) being the most frequently cited elements. These additions characterize technology acceptance as a multifaceted process driven by individual attitudes and perceptions as well as contextual and situational factors, such as SN and SE. The justification for each variable is provided in the sections that follow.

Research Models and Hypotheses

External Variables

Subjective norm (SN) is claimed to be a direct predictor of an individual's behavioral intention in Fishbein and Ajzen's (1975) Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) (Ajzen, 1991). SN assesses "a person's perception that most people who are important to him or her think he or she should or should not perform the behavior in question" (Fishbein & Ajzen, 1975, p. 302). Ursavaş et al. (2019) advocated for a renewed emphasis on SN ("an individual's perceptions regarding the approval or disapproval of important others of a target behavior," p. 2503) in order to better comprehend the intention to use technology and conversion of beliefs into practice, particularly among teachers.

SN is social pressure exerted by peers to execute a behavior (Sahu et al., 2020; Ursavas et al., 2019). According to research, an individual's attitude toward engaging in an activity is influenced by the views of people whose opinions are highly regarded (Ursavas et al., 2019). In other words, SN is an individual's view of how peers of significance would approve or reject a decision (Fishbein & Ajzen, 1975; Ursavas et al., 2019). Thus, Ursavaş et al. (2019) extended the list of external variables in the TAM by investigating the effect of subjective norms (SN) on pre-service and in-service teachers' perceptions, attitudes, and behavioral

intention to use technology in Turkey; the authors demonstrated that attitudes toward computer use were the most influential predictor of behavioral intention in both pre-service and in-service teachers. Subjective norms considerably affected pre-service teachers' behavioral intentions, but the effect was minor on in-service teachers.

Moreover, SN played a crucial impact in shaping pre-service teachers' attitudes toward technology use. In-service teachers, on the other hand, considered the utility of technology in fostering a positive attitude. In this study, we expected English teachers to be likely to think that using Telegram technology for English teaching is necessary because his/her significant others (e.g., school principals and colleagues) had explicitly extolled the advantages of using Telegram technology.

Self-efficacy (SE) is "peoples' judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). Several previous research articles have revealed that SE is directly associated with the two most crucial motivation variables in the TAM, PEoU, and PU (Abdullah & Ward, 2016; Bin et al., 2020; Chen et al., 2019; Scherer et al., 2019; Thongsri et al., 2019; Yalçın & Kutlu, 2019; Wang et al., 2022). Specifically, according to the meta-analysis by Abdullah and Ward (2016), SE is the most important predictor of students' perceptions of the ease of use of online learning platforms. It is also a strong predictor of students' PU. Specifically, Wang et al. (2022) discovered that SE considerably impacts PEoU in CCtalk-assisted EFL courses. Teachers of English as a Foreign Language with a high SE may find it simple to utilize Telegram and see its worth and utility. As a result, it has been advised that more attention be made to evaluating SE and its effect on users' PEoU and PU (Abdullah & Ward, 2016; Islam & Sheikh, 2020).

TAM-core and Outcome Variables

Scherer and Teo (2019b) reported that students' and teachers' evaluations of technology's usefulness and usability and their attitudes toward technology are significant explanatory variables. As TAM-core characteristics, perceived usefulness (PU) and ease of use (PEoU) are crucial predictors of technology adoption, including Telegram technology. These primary factors are regarded as

dynamic characteristics that directly or indirectly describe the usage intentions of users (Marangunić & Grani, 2015). Grani and Marangunić (2019) corroborated this by completing a comprehensive literature analysis that offered an overview of current research efforts on TAM application in learning and teaching for various learning domains, technologies, and user types. They discovered that TAM's main characteristics, PEoU and PU, are antecedent variables that influence the acceptability of technology-based learning.

The definition of *perceived ease of use (PEoU)* is "the degree to which the prospective user expects the target system to be free of effort" (Davis et al., 1989, p. 985). In the context of Telegram, the PEoU is the extent to which a user believes that utilizing Telegram would be effortless. An example of PEoU is the simplicity of acquiring Telegram skills. Moreover, Davis et al. (1989, p. 985) describe perceived usefulness (PU) in the TAM as "... the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context". According to Davis, the TAM is derived from the Reasoned Action Theory. Cronbach's Alpha (Cronbach, 1951) values for PEoU and PU were greater than 0.90 (Davis, 1989), indicating good internal reliability within each scale. Thus, we accept the TRA's definition of Attitude: "the individual's positive or negative evaluation of performing the behavior" (Ajzen & Fishbein, 1980, p. 6). Additionally, Wang et al. (2022) have confirmed the considerable influence of PU and PEoU on ATU's adoption of CCtalk-assisted EFL courses.

Szymkowiak and Jeganathan (2022) studied 417 Indian students' acceptance of peer-to-peer (P2P) e-learning with the extended TAM; the result revealed that PEoU was positively associated with the PU of and ATU toward P2P e-learning; however, the association between PU and ATU could not be confirmed. In addition, the results showed that SE is substantially connected with PEoU and PU of P2P e-learning and that SE positively influenced the intention to use P2P e-learning but not its PEoU. Scherer et al. (2019) verified through a meta-analysis of 114 empirical TAM investigations that PU and PEoU strongly predicted INT via ATU. Even Baydas and Goktas's (2017) pilot study with 145 pre-service teachers revealed that the factor analysis merged PU and ATU into a single component, indicating that ATU may not mediate between PU and INT.

Previous research has demonstrated that PEoU positively influences the ATU and PU of system users. For instance, Wu and Zhang (2014) discovered that

PEoU is essential for PU and ATU utilizing E-Learning 2.0. In addition, Hsu (2016) employed PU and PEoU as the two predictors of mobile-assisted language learning use and discovered that PEoU strongly influenced PU, which significantly affected ATU.

Numerous researchers (e.g., Al-Shahrani, 2021; Strudwick, 2015; Hsu & Wu, 2017; Teo et al., 2018) have used TAM as a framework to predict user's technology usage intentions, and the two elements in TAM (PU and PEoU) have been reported to be significant predictors of technology adoption. Mittal and Alavi (2020) discovered that PU and PEoU were major determinants in the mobile learning acceptance of university lecturers. Similarly, Huang and Teo (2021) discovered that PU and PEoU strongly influenced the intent of English teachers.

Attitude toward utilizing (ATU) is a tendency to respond positively or negatively to an occurrence (Kaplan, 1972). ATU exerts the most influence on INT (Abdullah & Ward, 2016; Bin et al., 2020; Chen et al., 2019; Scherer et al., 2019; Wang et al., 2022). As a result, Wang et al. (2022) found that ATU and PEoU substantially impact the intention to use CCtalk-assisted EFL courses.

Intention to use (INT) as a TAM outcome variable measures an individual's propensity to engage in a specific action (Ajzen, 1991). Intentions encompass all of the motivational elements that drive action and reveal the amount of effort a person will exert to engage in a particular behavior. According to Ajzen (1991), intentions predict behavior with a high degree of precision. In this study, INT indicates the extent to which EFL teachers are willing to employ Telegram to teach English in English classrooms.
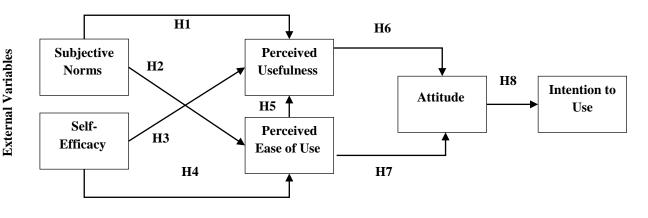

Figure 1: Research Model

Hypotheses

Based on the previous literature review, the authors formulated the following hypotheses:

H1: Subjective norms will have a significant influence on perceived usefulness.

H2: Subjective norms will have a significant influence on perceived ease of use.

H3: Self-efficacy will have a significant influence on perceived usefulness.

H4: Self-efficacy will have a significant influence on perceived ease of use.

H5: Perceived ease of use will have a significant influence on perceived usefulness.

H6: Perceived ease of use will have a significant influence on attitude.

H7: Perceived usefulness will have a significant influence on attitude.

H8: Attitude will have a significant influence on intention to use.

Methodology

Participants and Procedure

This study's sample comprised 257 participants. During the second semester of the 2022-2023 academic year, 566 English teachers from two education departments in Abha and Al-Khobar, Saudi Arabia, were invited to participate in a survey. Participants were recruited using representative samples, and 303 completed and submitted the online survey. However, due to missing data, six responses were omitted from the analysis, reducing the total sample size to 297 participants. It is commonly accepted that the sample size for MLE should range between 100 and 400 individuals (Ding et al.,1995). Our sample size met this criterion. Participants were not required to complete the survey, and their responses were kept confidential. The participants were chosen through a process of convenience sampling. Each participant was educated on the study's goal and told of his or her ability to decline participation and withdraw from completing the questionnaire at any time, with anonymity guaranteed. The ages of the participants ranged from 22 to 25 (10.9%), 26 to 35 (28%), 36 to 44 (30%), and over 45 (32%). Many participants (52%) had more than six years of teaching experience, while the majority had more than nine years of computing experience. Table 1 illustrates the demographic features of the respondents.

Table 1

Demographic characteristics of the respondents.

Items	Type	Frequency (n = 257)	%
Age	22-25 years old	28	10.9
	26-35 years old	72	28.0
	36-44 years old	76	29.6
	45+ years old	81	31.5
Years of teaching experience	1 to 3 years	67	26.1
	3 to 6 years	56	21.8
	More than 6 years	134	52.1
Experience in using computers	less than a year	12	4.7
	From 1 to 3 years	19	7.4
	3 to 6 years old	18	7.0
	6 to 9 years old	40	15.6
	More than 9 years	168	65.4

Instruments

In the present investigation, a two-part self-report questionnaire was utilized. Part 1 consists of demographic questions such as age, years of teaching experience, and computer experience. A series of items in Part 2 measure each variable in the research model. (See Figure 1). The instrument consists of demographic questions and 16 items adapted from Davis (1989) for each of the four TAM variables in this investigation (perceived usefulness, perceived ease of use, attitude towards Telegram use, and behavioral intention to use). The subjective norm construct is based on Fishbein and Ajzen's (1975) study and comprises six measures. The six-item self-efficacy construct is derived from the research of Compeau and Higgins (1995). All items were evaluated using a 5-point Likert scale, with one denoting strong disagreement and five denoting strong agreement (this follows the format used by Davis, 1989). The content validity of the measure was determined by pilot testing with EFL teachers.

Results of Descriptive Analysis

Table 2 shows that the mean values of all variables ranged from *4.04 to 4.43 (SD ranged from 0.60 to 0.77).* The mean value of SN was relatively low *(M = 4.04, SD = 0.60)*, showing that EFL teachers do not view the beliefs of significant others, such as students, leaders, coworkers, and colleagues, as influential in their plans to use technology. The mean ATU value was relatively high *(M = 4.43, SD = 0.72),* indicating that EFL teachers had favorable views toward utilizing Telegram technology. The mean values of SE, PU, PEoU, and

INT were *4.19, 4.32, 4.33, and 4.42,* respectively, indicating that teachers responded favorably to these variables on average. The skewness and kurtosis indices for all items varied from *-0.58 to 1.71* and from *-0.080 to 3.47*, respectively, which were both within the range of 3 to 8, as advised by Kline (2011); this suggests that the data in this study were approximately distributed normally. All SD values were less than 1, showing that opinion differences among EFL teachers were minimal.

Table 2.

Descriptive statistics of the variables in the technology acceptance(n=257)

Construct	Mean	SD	Skewness	Kurtosis
Subjective norm	4.04	.77	-0.58	-.080-
Self-Efficacy	4.19	.68	-0.75	.037
Perceived usefulness	4.32	.70	-1.26	1.805
Perceived ease-of-use	4.32	.60	-0.88	.807
Attitude	4.43	.71	-1.71	3.465
Intention to Use	4.42	.75	-1.59	3.109

Note. SD= Std. Deviation

Evaluation of Reliability

The internal consistency of the questionnaire's subscales was determined using Cronbach's (1951) coefficient alpha reliability analysis. As shown in Table 3, the results demonstrated excellent internal consistency among the items of each subscale *(> 0.8)*, ranging from *0.870 to 0.949*, with an acceptable level or over 0.7 for all of the construct's elements, thus demonstrating relevance (Hair et al., 2005; Nunnally, 1994).

Table 3

Reliability of Each Variable

Construct	Cronbach's α
Subjective norm	.872*
Self-Efficacy	.870*
Perceived usefulness	.910*
Perceived ease-of-use	.880*
Attitude	.919*
Intention to Use	.949*
All Variables	**.954***

Note. * Significant at α > .70.

The correlation between the constructs utilized in this investigation is depicted in Table 4. All bivariate correlations are significant, with the strongest association *(0.834)* between attitude toward Telegram usage and intent to use. Other correlations range from *0.743-2.271*. A few bivariate associations are less than 0.5, but all are statistically significant.

Table 4

Correlation between the constructs

Constructs	Subjective norm	Self-Efficacy	Perceived usefulness	Perceived usefulness	Attitude	Intention to Use
Subjective norm						
Self-Efficacy	.374**					
Perceived usefulness	.344**	.557**				
Perceived ease-of-use	.352**	.617**	.733**			
Attitude	.271**	.487**	.743**	.660**		
Intention to Use	.300**	.395**	.704**	.582**	**.834****	

** for $p < .01$

Hypothesis Testing

Table 5 provides the findings of the regression analysis based on the proposed relationships in the research model; Figure 2 is a graphical representation of the outcomes of the analysis. Using PU as the dependent variable and SN, SE, and PEoU as independent variables, the first regression analysis revealed that SE and PEoU were significant predictor variables, while SN was not. The results of the regression revealed that the three constructs (SN, SE, and PEoU), taken as a set, accounted for 56% of the variance in PU *(R^2=.0.559, F = 107.017, p < .001)*. *PEoU (β =. .616, t = 11.443, p < .001)* was found to be the greatest influence on PU, followed by SE *(β =. 150, t = 2.763, p < .001)* and SN *(β =.071, t = 1.563, p < .05),* which in turn supports hypotheses H3 and H5. As there is no significant effect of SN on PU *(β = 0. 071)*, H1 was unsupported.

Using PEoU as the dependent variable and SN and SE as independent variables, a second regression analysis revealed that SN and SE were significant predictor variables. In addition, the model's R^2 suggested a substantial impact size of 0.398, and the four variables (SN and SE) accounted for *40%* of the variance in the PEoU of Telegram technology as a group. As to PEoU, the primary determinant was SE *(β = 0.565, t = 10.757, p < 0.001)*, followed by SN *(β = 0.140, t =2.675, p < 0.001)*, which in turn supports H2 and H4.

The third regression tested whether PU and PEoU significantly predicted ATU. The overall regression was statistically significant. In support of hypotheses H6 and H7, as depicted in Table 5, the value of R^2 is .58, which indicates that this model accounts for almost 58% of the total variation in the data. Therefore, both PEoU and PU significantly influence ATU *[F (2,255) = 175.89, p < .001]*, supporting hypotheses H6 and H7 H_6. Based on the values of standardized coefficient β in Table 6, PU *(β = 0.561, p<0.001)* has slightly stronger effects on ATU in comparison to PEoU *(β =.249, p<0.001)*. The fourth regression analysis was also conducted to specify the nature of the relation between ATU as a dependent variable and ATU as an independent variable. The regression results indicated that ATU with *(β=0. 834, t-value=24.143, p < .001)* significantly affects INT. Therefore, H8 was supported, as is observable in Table 5.

Table 5
Results of hypothesis testing

Hypothesis	Path	β	T values	Decision
H1	SN → PU	.071	1.563	Not Supported
H2	SN → PEoU	.140	2.675	Supported
H3	SE→ PU	.150	2.763	Supported
H4	SE→ PEoU	.565	10.757	Supported
H5	PEoU → PU	.616	11.443	Supported
H6	PU → ATU	.249	4.165	Supported
H7	PEoU → ATU	.561	9.383	Supported
H8	ATU → INT	.834	24.143	Supported

Note. SN, Subjective Norms; SE, Self-efficacy; PU, Perceived usefulness; PEoU, Perceived ease of use ATU, user's attitude; INT, Intention to use
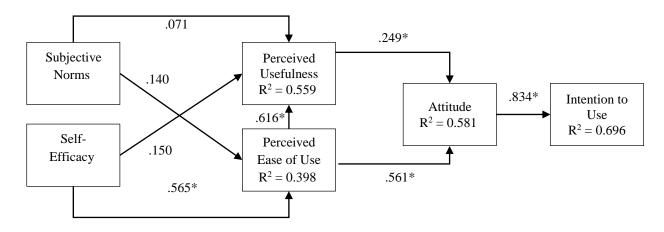

Figure 2: Model testing results

p < 0.05 *

Discussion and Conclusions

This study aimed to extend the TAM model by incorporating two external variables, subjective norm and Telegram self-efficacy, to determine the extent to which these variables influence English teachers' behavioral intentions to adopt and utilize Telegram technology in the Kingdom of Saudi Arabia. The results provide valuable insights that assist practitioners and researchers in better understanding how EFL teachers' perceptions influence their intention to utilize Telegram technology, which is arguably an effective overall indicator for gauging the performance of Telegram technology. This enhanced comprehension from multiple angles can provide a holistic view of how to enhance Telegram technology development and application. Similar to previous research (e.g., Abdullah & Ward, 2016; Bin et al., 2020; Chen et al., 2019; Scherer et al., 2019; Thongsri et al., 2019; Yalçın & Kutlu, 2019), our results theoretically and empirically support TAM as a practical theoretical framework for better understanding EFL teachers' acceptance of Telegram technology.

The variance explained each latent variable. The model can explain 70%, 58%, 56%, and 48% of the variance in INT, ATU, and PEoU, respectively. The model accounted for 72% of the variance in INT. According to Davis (1989), the variance explained is more than that in the original TAM (40% to 50%). Overall, the results indicate the validity of the extended TAM in describing the intent of English teachers in the Kingdom of Saudi Arabia to employ Telegram technology.

Seven of the eight hypothesized links were confirmed. Observations indicate that the subjective norm considerably impacted usefulness and ease of use. Subjective norms (SN) with (β =0.140) significantly affected ease of use, providing support for prior studies (i.e., Abdullah & Ward, 2016; Bin et al., 2020; Huang et al., 2019; Ursavaş et al., 2019) which hypothesized that English teachers view the beliefs of significant others such as learners, leaders, coworkers, and colleagues as influential in their intentions to use technology. On the other hand, this study did not support the association between subjective norms and perceived usefulness.

Important study findings revealed that Telegram self-efficacy significantly influenced the application's usefulness and usability ease of use. This finding is in line with previous research (e.g., Abdullah & Ward, 2016; Bin et al., 2020; Chen et al., 2019; Scherer et al., 2019; Thongsri et al., 2019; Yalçın & Kutlu,

2019). Consequently, self-efficacy is found to have a significant positive effect on the perceived ease of use and ease of use of online databases (Chen et al., 2019). Additionally, Abdullah and Ward (2016) discovered that self-efficacy is the most significant predictor of individuals' perceptions of the ease of use and ease of use of online learning platforms.

According to the TAM model and prior research (e.g., Al-Shahrani, 2021; Abdullah, Ward, 2016; Eraslan et al., 2019; Mittal & Alavi, 2020; Huang & Teo, 2021; Strudwick, 2015; Hsu & Wu, 2017; Teo et al., 2017; Wang et al., 2022), the two elements in TAM (PU and PEoU) were to be critical predictors of technology adoption. The PEoU of EFL teachers was also validated as a significant predictor of their views toward using Telegram technology (β =0.561), such that the more PEoU Telegram has, the more likely teachers will perceive it as useful. Therefore, it is expected that teachers who find Telegram technology beneficial and straightforward to implement are more inclined to adopt it. Therefore, in order to attract more Telegram users, teachers should increase the quality of their Telegram application by delivering relevant, up-to-date content that meets the demands of their students. To facilitate Telegram applications, system designers should build a user-friendly system.

The results also revealed that the two variables, usefulness *(β =0.249)* and ease of use (β =0.561), significantly and directly influenced the opinions of English teachers about Telegram use. These findings demonstrate that the perception of technology's usefulness plays a crucial influence in its utilization. According to the TAM, Telegram's usefulness, and ease of use for educational purposes should predict user opinions.

The two variables—usefulness and ease of use—have proven vital for accepting technology (Davis, 1989); findings can also be applied to the education domain (Granić & Marangunić, 2019; Scherer et al., 2019). The results of this study align and found that EFL teachers' PEoU *(β = 0.616)* significantly affects their PU, and EFL teachers' PU *(β = 0.249)* statistically affects their' ATU toward Telegram in turn, which is a crucial endogenous variable to INT.

The attitudes of English instructors concerning Telegram use have been revealed to be a significant factor in their desire to use it. Both usefulness *(β=0.249)* and ease of use *(β=0.561)* influenced instructors' propensity to utilize Telegram technology only indirectly via their ATU. The results indicate that instructors' opinions directly affect their intention to adopt Telegram technology

(β = 0.834). This conclusion is comparable to those of previous studies (e.g., Abdullah & Ward, 2016; Bin et al., 2020; Chen et al., 2019; Scherer et al., 2019; Sánchez-Prieto et al., 2019; Wang et al., 2022) that revealed that ATU is the most influential factor determining INT. According to Sánchez-Prieto et al. (2019), secondary pre-service teachers' views regarding use are the most significant predictor of their desire to utilize mobile devices in their teaching practice.

The results provide valuable insights that aid practitioners and researchers in better understanding how EFL teachers' attitudes influence their intention to use Telegram technology, which is arguably an effective overall indication of its performance. This enhanced comprehension created by multidimensional perspectives can provide a holistic perspective on improving Telegram technology development and application.

Limitations and Future Research

Given the aforementioned assertions, there is the potential for academic organizations to create and manage Telegram technology meaningfully. The following suggestions are made based on the findings of the study. As their opinions have the most significant direct effect on their desire to utilize Telegram technology in teaching and studying the English language, school administrators and leaders should make an effort to promote good attitudes toward Telegram among EFL teachers. In addition, providing technology that improves usability and user-friendliness could increase the effectiveness and efficiency of teaching and learning. In addition, policymakers and practitioners should provide all facilities for EFL teachers and students to use the Telegram app, including the necessary wireless internet settings, such as WiBro or Wi-Fi zones, which should be constructed in schools; they should also provide proper user training and a system that promotes usability.

Although a thorough examination was conducted, the current study has some limitations. Firstly, this study was undertaken in KSA, where Telegram technology is expanding yet in its infancy. Secondly, as the number of Telegram technology users grows, so will the capacity to do random probabilistic sampling. Thirdly, as a result, survey respondents responded based on their preferences, which may represent a self-selection bias.

Ultimately, The relative novelty of Telegram technology among scholars and researchers in the last constraint of this study on Telegram behavior. The

results and implications of this study must be generalized for external validity, as they were derived from a single study on Telegram that targeted a specific user population in KSA. It is anticipated that additional research will assist in generalizing results and promoting dialogues, including many cultures employing Telegram technology.

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