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Application of WhatsApp as an Alternative Online Distance Learning Platform in Learning Mandarin as a Foreign Language

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ABSTRACT

Online Distance Learning (ODL) plays a crucial role in higher education. Online learning tools such as Zoom, Microsoft Teams, and Google Meet have gained significant popularity in higher education due to their robust features designed for teaching, collaboration, and managing virtual classrooms. Nonetheless, ongoing issues like poor campus connectivity and constant disconnections continue to pose challenges. Regarding this matter, Mandarin as a foreign language (MFL) instructors at Universiti Teknologi MARA Penang branch (UiTMCPP) took the initiative to adopt mobile learning (m-learning) using WhatsApp as a viable alternative. It is believed that WhatsApp's ease of access and stability can help overcome connectivity issues, leading to a more reliable ODL experience. Hence, this study aimed to investigate MFL students' experiences, concerns, and perceptions regarding the use of WhatsApp as an alternative ODL platform in learning Mandarin. Interviews were conducted with 20 Degree and Diploma students, and the findings informed the development of a survey distributed to 250 (185 answered) Degree and Diploma students at UiTMCPP, who are taking MFL courses. Results show that WhatsApp is ideal for low internet speeds and high user coverage, cost saving, and user-friendly. However, the suitability of WhatsApp for conducting evaluations requires further investigation within the given context. There are also several concerns need to be considered such as prone to distractions and demands careful early lesson planning. This study highlights the implication of using WhatsApp as an alternative tool for MFL ODL while emphasising that success relies on active collaboration between students and instructors beyond platform choice.

1. Introduction

Nowadays, Malaysian higher education actively promotes blended and online distance learning (ODL) as integral components of modern education that align with Malaysian educational policy. Blended learning combines traditional face-to-face instruction with the use of digital technologies,

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creating a hybrid approach that leverages the benefits of both direct interaction and online resources to enhance the learning experience. In that blended context, ODL refers specifically to an educational model where learning is conducted online, offering flexibility in time and location, and fostering a student-centred environment through digital platforms. This study focuses on ODL, acknowledging its capacity to broaden access to education and meet the evolving needs of a contemporary academic landscape.

Despite the widespread acceptance and significant positive impact of ODL on students' learning, Lobach [1] highlighted drawbacks of ODL, including delays in receiving immediate feedback from instructors and limited opportunities for individual discussions with students who are struggling. Meanwhile, technological issues, such as unreliable internet connectivity, inconsistency of platforms, malfunctioning equipment (e.g., broken microphones or cameras), or outdated computers that are incapable of running required applications, were recognised as significant sources of stress and frustration during ODL [2]. Arya [3] indicated that students often struggle to find an appropriate space to sit with their computers or laptops at a designated time, free from environmental distractions. The study emphasised that ODL still needs to address the importance of providing a conducive environment to ensure effective learning.

In the context of foreign language teaching and learning, the challenges associated with ODL that students currently face are largely comparable. For example, Valentina *et al.,* [4] found that most foreign language students identified technical challenges such as unreliable internet connectivity, computer malfunctions, and issues with audio or camera equipment as the primary drawback of ODL. This was followed by the lack of immediate interaction or feedback from peers and instructors. Additionally, environmental factors and students' proficiency with technology are crucial aspects that should be taken into account to ensure a stress-free experience in foreign language ODL [5].

In addressing the above issues, WhatsApp emerges as a useful educational tool or platform with the potential to resolve foreign language ODL problems. According to Kartal [6], WhatsApp has been used widely and diversely in contemporary language learning. In addition, "mobile learning (m-learning)" appears to be a predominant approach to leveraging WhatsApp in the context of language learning. To further expand on the concept of "mobile", Kuimova *et al.,* [7] stated that WhatsApp is an effective tool for m-learning due to its free, flexible, and user-friendly nature. Since many students frequently use WhatsApp in their daily lives without the limitations of physical boundaries, they feel at ease incorporating it into their learning process. The WhatsApp messenger also provides user-friendly features such as group chats, voice messages, audio/video uploading, and file/picture sharing, which make it an adaptable and engaging tool for foreign language learning [8].

While English remains a dominant global language, Mandarin is now the most extensively spoken language worldwide [9]. On that note, Mandarin has become a popular foreign language among Malaysian, largely due to China's growing global influence and rapidly expanding economy. Besides tapping into the opportunities presented by China's economic rise, learning Mandarin allows individuals to connect with Mandarin speakers worldwide. In Malaysia, proficiency in Mandarin is essential for those aiming to conduct business, pursue careers, or study in China, which has led to a significant surge in interest in learning the language. This trend is also evident among Malay students at Universiti Teknologi MARA Cawangan Penang branch (UiTMCPP). The institution offers five foreign languages—Mandarin, Japanese, French, German, and Arabic. Specifically, Mandarin courses are available to both Degree and Diploma students, with three progressive levels (1, 2, and 3) for Degree students and two levels (1 and 2) for Diploma students.

Mandarin as a foreign language (MFL) instructors at UiTMCPP proactively adopted WhatsApp as a m-learning tool to enhance and support ODL. This initiative was aimed at addressing challenges faced by MFL students, similar to those previously identified. Several studies have investigated MFL

students' listening skills using WhatsApp as a m-learning tool at UiTMCPP (e.g., [10-11]). However, these studies have not explored the MFL students' overall experiences, leaving a gap in understanding how they perceive and interact with WhatsApp in the broader context. We cannot deny that prominent ODL platforms like Zoom, Microsoft Teams, and Google Meet have positively impacted MFL learning. The aim of this study is to explore and assess the extent to which WhatsApp, as an alternative ODL platform, can address the common challenges associated with ODL when using these mainstream platforms. The objective of this study was to respond to the following research questions:

1. What are the experiences of MFL students in learning Mandarin through WhatsApp?
2. What are the concerns of MFL students in learning Mandarin using WhatsApp?
3. What are the MFL students' perceptions regarding the use of WhatsApp as an alternative ODL platform in learning Mandarin?

2. Literature Review

2.1 Mobile Learning

With the advancement in mobile technologies, mobile learning (m-learning) has become rather prevalent. One of the reasons for this is it allows one to learn anytime and anywhere through multimedia and communication tools. It is not dependent on time, place, and learning resources. It can be used at any time and any place if there is internet access. When internet access is unavailable, learning can still occur if the learning materials have been downloaded onto the device. Apart from that, m-learning also allows real-time online interaction in a series of short-burst learning activities [12]. Learners can study without any hassle, even just for a short duration. When they are puzzled by what they are learning, they can post their questions on the spot and get their queries answered in real-time by other members (including the instructor) from the same learning group.

With the popularity and widespread use of smartphones and tablet PCs, m-learning is becoming increasingly ubiquitous. Learners are not limited to only the materials given by the instructors in terms of learning materials. They could have access to a vast pool of almost infinite resources. With the increasing number of learning applications made available on the internet and online apps stores, instructor can now easily customise and prepare their teaching and learning materials. Moreover, they can choose to use whichever apps they think may facilitate students' learning, making their teaching more accessible and practical.

2.2 WhatsApp Messenger

WhatsApp messenger is a proprietary, cross-platform, and encrypted instant messaging client for smartphones. It uses the internet to send text messages, documents, images, video, user location, and audio messages to other users through standard cellular mobile numbers [13]. It can encourage learners to learn by anticipating needs, making collaborative learning efficient and effective, and building a relationship that stimulates learner-to-learner interaction for consistent and progressive learning [14].

Even though many other apps are available, 97 percent of the Malaysian population is using WhatsApp, which is popular compared to other applications [15-16]. WhatsApp has experienced remarkable growth, with an increase of up to 1 million users daily [17]. Based on a survey conducted among the 149 Diploma and Degree students from UiTM Penang Branch in March 2020, WhatsApp is the most preferred platform for online learning [18]. Since WhatsApp messenger is a widely used application among Malaysians including students, it could be a useful tool to attract students'

attention and promote the acquisition of language skills among students. With WhatsApp, teaching and learning languages can be done outside the formal and limited face-to-face classroom time. It not only promotes m-learning but at the same time, it also promotes blended learning.

Why mobile instant messaging applications such as WhatsApp is used instead of other media applications such as Zoom, Microsoft Teams, and Google Meet for distance teaching and online learning? There are three reasons for choosing WhatsApp. First, a quick look around will tell us that the current college and university students own at least a smartphone although they may not have a laptop. Thus, they can easily download a mobile instant messaging application such as WhatsApp; then, they will quickly master and use it. Second, WhatsApp does not require very high bandwidth. This translates to low cost, which is a very important consideration since many students cannot afford spending tons of money just to access learning materials. Third, with WhatsApp, students can easily upload or download files, videos, and audio via their smartphones.

According to Soo [19], WhatsApp usage in education carries a positive response regarding the learning of students. In a survey-based study of 100 respondents of a Malaysian university, the study concluded that the use of WhatsApp is significant in helping the students' learning, beneficial in locating information for tasks, and effective in connecting students with peers and instructors. Some recent studies in second and foreign language teaching and learning have utilised WhatsApp to improve language learners' motivation [8], oral or speaking skills [20], listening skills [10-11], communication skills [21], reading [22], and writing of Chinese characters and sentences [23]. All these studies show significant improvement in students' achievement and indicate that WhatsApp messenger is a suitable teaching and learning platform.

Unlike the network operator's short message service (SMS) where the sent message is delivered to the recipient with or without their consent, WhatsApp gives the message recipient the leeway to accept or reject messages from different recipients. Also, WhatsApp has the capability of group-formation where a message can reach different recipients. The maximum group members that WhatsApp can accommodate currently stands at 256 [17]. Until date, WhatsApp has released a lot of features apart from messaging features, include artificial intelligence (AI) [24].

3. Methodology

3.1 Research Design

Sequential exploratory mixed-method design was used in this study. Initially, qualitative data were gathered through focus group interviews to gain deep understanding of students' experiences and concerns regarding the use of WhatsApp in learning MFL and to identify collective opinion among Degree and Diploma MFL students. Students shared their experiences of how instructors conduct ODL using WhatsApp features, how they learn MFL using those WhatsApp features, and what concerns they suggest in the context. It addresses the first and second research question of this study which gave an overview of the MFL students ODL process using WhatsApp.

The insights collected from qualitative approach were then used to develop a quantitative instrument, which was a questionnaire, tailored to investigate the MFL students' perceptions regarding the use of WhatsApp as an alternative ODL platform in learning Mandarin. Thereby, students expressed their opinion specifically on the mobility, feasibility, ease of use, and perceived usefulness of using WhatsApp as an alternative ODL platform in learning MFL. It addresses the third research question of this study and proposes potential future applications for WhatsApp.

3.2 Participants

The Penang branch campus of the largest and the most comprehensive university in Malaysia - Universiti Teknologi MARA (UiTM) was selected as the research site. This location provides a diverse pool of MFL learners from various professional programs. UiTM offers innovative education with cutting-edge infrastructure and technology, in addition to Universiti Teknologi MARA Penang branch (UiTMCPP) MFL instructors' initiatives in introducing WhatsApp as an alternative ODL platform for MFL teaching and learning, making it an ideal location to study students' application of technological tools in their educational context.

Both Diploma and Degree students who are enrolling in the MFL courses in UiTMCPP were invited as this study's participants/respondents. There are totally 5 progressive MFL courses offered in UiTMCPP. For Degree students, there are TMC401 (Introductory Mandarin Level 1), TMC451 (Introductory Mandarin Level 2), and TMC501 (Introductory Mandarin Level 3); for Diploma students, there are TMC101 (Foundation Mandarin Level 1) and TMC151 (Daily Conversation Mandarin Language Level 2). For qualitative data samples, MFL student participants were selected by means of purposeful sampling. Totally 20 students (12 Degree, 8 Diploma – 4 students from each course) participated in the focus group interviews.

The quantitative participants' selection criteria are similar to those used in qualitative research. A probability sampling, i.e. simple random sampling method was employed to select quantitative data (questionnaire) respondents, allowing the researchers to make accurate assumptions or generalisations from the sample to the population. Krejcie and Morgan [25] suggested that a typical survey has a 5% margin of error and a 95% confidence level. The total population of Degree and Diploma students who are enrolling in the MFL courses in the current semester is roughly about 760 students and the suggested sample size is estimated around 250 students.

3.3 Data Collection

Semi-structured interview questions were constructed to collect qualitative data through focus group interviews. The qualitative construct validation of the interview protocols was done by a team of experts (experts in the subject matter and experts in measurement). The experts evaluated and provided confirmation on the appropriateness of the procedures in terms of encouraging positive engagement, maintaining the flow of conversation, and stimulating the participants to share their experiences and thoughts. The focus group interview process was conducted online and recorded with participants' permission for later transcription and analysis. To ensure accuracy, participants were provided with a copy of their transcribed interviews and asked to verify correctness, clarify discrepancies, and further remark on the inquiry.

On the other hand, the structure of the 5-point Likert-scale questionnaire (1=lowest; 5=highest) was derived from the themes identified from the qualitative data collection. The themes were subjected to 2 inter raters for validity and reliability. The developed items were presented to 3 expert judges to establish content validity using Rovinelli and Hambleton's [26] Item Objective Congruence (IOC) method. Rasch model [27] was employed to confirm the construct validity. The questionnaire only includes closed-ended questions. Questions cover various aspects, including mobility, feasibility, ease of use, and perceived usefulness.

3.4 Data Analysis

The participants' responses collected from focus group interviews were transcribed and analysed using NVivo 12 Pro by means of thematic analysis. Data collected from focus group interviews were first analysed using In Vivo coding. Then, second-cycle coding was conducted to generate codes for descriptions through focused coding. To demonstrate the relationship between each code by generalising code patterns and categories, this study implemented Saldana's [28] code mapping approach. For instance, in the "first iteration" of code mapping, a large number of codes were identified. Followed by "second iteration", the initial codes were categorised resulting from comparing and sorting all the codes to determine which one seems to come together. During the "third iteration", the previous categories were further classified into more specific groups; some categories found in previous categories were downgraded into "subcategories". The analysis process continued with the second cycle coding via focused coding. Focused coding is a more rigorous analysis that filters the codes and generates interpretation and description for emerging patterns, categories, and themes through constant comparative analysis. Eventually, the "code weaving" [28] technique was applied by integrating themes into narrative form to see how the puzzle pieces fit together and address the research question. Whereas responses collected from the questionnaire were analysed by means of descriptive statistics, in which data were summarised using measures such as mean and standard deviation to understand the general trends and patterns.

4. Results and Discussion

4.1 MFL Students' Experiences in Learning Mandarin through WhatsApp

Students' experiences shared during focus group interviews offer an overview of how WhatsApp was utilised as an alternative ODL platform for delivering MFL, as well as how MFL students engaged in learning within that context. According to students' responses, their experiences in learning MFL via WhatsApp can be summarised into themes as illustrated in Table 1. The qualitative findings revealed no notable differences in responses between Degree and Diploma students.

Table 1
The themes of students' experiences in learning MFL using WhatsApp

Themes	Excerptions
Reading	Learn daily conversation, vocabulary, and sentence/grammar via exercises in the textbook
Writing	Preparation for online writing tests including: (a) sentence construction via word sequence diagram (WSD) (Hoe & Florence, 2004) (b) translation via GATT translation method (Hoe, 2014) (c) rewriting declarative sentences as interrogative sentences Learn the writing of Chinese characters
Listening	Conduct listening exercises to prepare students for the online listening tests
Speaking	Conduct a simulated dialogue to practice the writing and presentation of dialogues
Formative assessment	Submission and evaluation of students' situational dialogue creation and performance (as a formative assessment)

4.2 Flexible use of WhatsApp voice messaging

Based on students' elaboration, the instructors often took pictures/screenshots of the conversation, vocabulary, sentence, and grammar points to be taught. The explanations namely the teaching of the content points for each picture were recorded as voice-notes. Those pictures and

their accompanying voice notes were then sent to students via WhatsApp application. A voice-note explanation and sample answer were also recorded and sent via WhatsApp to students for classroom activity and exercise listed in the textbook.

As been described, WhatsApp has proven to be a mobile and flexible alternative platform for online distance learning (ODL), enabling students to access language-related information beyond their regular classroom hours. This is particularly evident through the use of WhatsApp instant voice messaging, which provides opportunities not commonly available in most learning contexts, as highlighted by Oksuz-Zerey [29].

4.3 Learning Materials or Applications Integrated with WhatsApp

In the MFL courses, students were required to learn and write Chinese characters. To facilitate the learning of these characters, stroke order exercises as well as explanations and guidance on the radical and font characteristics of each Chinese character have been clearly explained in their textbook. Nonetheless, MFL students were expected not only to recognise Chinese characters but also to master the skill of writing them. Supplementary notes, images, and voice-note comments were sent to students through WhatsApp. However, a copy of all the details and materials was made available to students on UFuture, the official Learning Management System (LMS) of UiTM.

Regarding this matter, according to Jackson [30], WhatsApp has limitations in meeting students' learning needs, particularly in the comprehensive organisation and management of learning materials, which platforms like Moodle or Blackboard (UFuture – in the UiTM context) are better equipped to provide. Furthermore, Chu and Toh [23] proposed a more direct method of teaching Chinese characters via WhatsApp by incorporating a stroke count typing technique to enhance students' interest in recognising and writing. In addition, Ting *et al.,* [31] recommended integrating specialised applications directly with WhatsApp to enhance student engagement, complementing traditional methods of material sharing and aggregation. Clearly, WhatsApp's use in teaching MFL at UiTMCPP is still in its early stages, with significant potential for further enhancement.

4.4 Interactive Activities and Assessments

To prepare for assessments, students were provided with sample questions (listening and writing) via the WhatsApp application, along with detailed explanations on how to answer them. Furthermore, simulated dialogue writing, along with its accompanying instructions, was conducted through WhatsApp as well. Students submitted their drafts to the instructors via the platform, where each draft was reviewed, annotated, and returned for further improvement. Throughout the activities, students were actively asking questions via WhatsApp, and they could choose to either send their questions by texts or voice-notes. On that note, Najwa [32] strongly advocates for WhatsApp as a valuable tool and platform for language ODL, saying that WhatsApp provides extensive features that facilitate effective and expressive communication; moreover, its data-friendly nature ensures accessibility without imposing a significant burden on students.

Owing to the interactive features of WhatsApp, the instructors used it as a platform for ODL assessments, focusing on situational dialogue creation and performance. Students were given a few days to practice dialogues with their classmates. Each group then recorded their conversation using WhatsApp and submitted the recording to the instructors for evaluation. However, students noted that WhatsApp was not used for listening and writing assessments because instructors found the platform unsuitable, ineffective, and unstable for managing the process and collecting responses. Instructors are unable to play an audio in real time for students to listen and answer questions. As

highlighted by Rianto *et al.,* [33], instant messaging applications cannot help in correct students' work one by one or doing two tasks simultaneously. Although students can type their answer to a particular question on WhatsApp, it will be very difficult for the instructors to record and mark all the students' answers at one go.

This finding, however, contrasts with Sabiq and Fahmi's [34] study, which argues that WhatsApp's auto-response feature makes ODL assessments more objective, accountable, transparent, and accessible for both instructors and students, though similar challenges with unstable internet connections and slow response were noted. Somehow, WhatsApp might benefit from supportive applications to streamline the organisation and evaluation of learning outcomes [35]. Thus, further investigation is necessary to explore WhatsApp's functionality as an assessment tool, especially in UiTMCPP context.

4.5 MFL Students' Concerns Regarding the use of WhatsApp in Learning Mandarin

4.5.1 High distractions

Robin *et al.,* [36] conducted a study to investigate the intention to use WhatsApp, and they concluded that people use WhatsApp principally because it is more inherent to an entertainment application than to a messaging application. Similarly, Sultan [37] suggested that users of WhatsApp turn to it as a medium for entertainment besides acquiring information. This is evidenced by the data collected, showing students using WhatsApp more for social purposes [38]. During ODL, the instructors are not physically present in the learning environment. This coupled with all the distractions around them can easily cause a student to lose focus.

The success or failure of ODL depends largely on students. As such, if students do not have a strong willpower or self-discipline to learn via the given materials, they will never succeed in ODL. Although the learning materials on the WhatsApp can be accessed and replayed repeatedly, learning will not happen if students do not utilise those materials. Besides, instructors could not use WhatsApp to monitor students' learning and progress. Hence, although WhatsApp may be a good tool to deliver teaching materials to students, it cannot be used to ensure or monitor learning.

4.5.2 Need for early and careful lesson preparation

During ODL, instructors need to ensure all the teaching materials are prepared beforehand. There is no such thing as impromptu teaching. In addition to this, instructors must also convert all teaching materials into electronic form before the materials can be forwarded to students via WhatsApp application. WhatsApp can be used to transform a classroom. This transformation should, however, be controlled by the instructors; or else things will develop into chaos. Although using WhatsApp in teaching and learning does not involve a steep learning curve, using it for every class may cause boredom to students, as highlighted by Babu and Kumar [39]. It is not as interactive as some other online tools such as Kahoot! and Quizizz.

4.6 MFL Students' Perceptions Regarding the use of WhatsApp as an Alternative ODL Platform
4.6.1 Mobility

Table 2
Students' perceptions regarding the mobility of using WhatsApp

	Course Code	1. I like to learn Mandarin using WhatsApp because I can learn it wherever I want.	2. I like to learn Mandarin using WhatsApp because I can learn it at my own preferred time.	3. I like to learn Mandarin using WhatsApp because I can learn using my preferred mobile device.	4. I like to learn Mandarin using WhatsApp because I can revise the learning materials anytime I want.
TMC101	Mean	4.24	4.12	4.32	4.32
	N	25	25	25	25
	Std. Deviation	.779	.833	.748	.802
TMC151	Mean	3.60	3.48	3.83	3.67
	N	42	42	42	42
	Std. Deviation	1.061	1.215	1.010	1.119
TMC401	Mean	4.46	4.43	4.46	4.29
	N	28	28	28	28
	Std. Deviation	.793	.690	.693	.810
TMC451	Mean	4.27	4.25	4.38	4.32
	N	81	81	81	81
	Std. Deviation	.758	.902	.815	.788
TMC501	Mean	4.29	4.43	4.43	4.43
	N	7	7	7	7
	Std. Deviation	1.113	.535	.535	.787
Total	Mean	4.13	4.08	4.25	4.17
	N	185	185	185	185
	Std. Deviation	.906	.988	.857	.914

Note. For Course Code TMC151, the mean range between 3-4, while other courses range between 4-5. The standard deviation exceeds 1, indicating greater variation in students' responses. This suggests that students in TMC151 had more diverse experiences or perceptions. However, this variation does not significantly influence the overall trends across all courses.

According to the overall findings as illustrated in Table 2, it underscores the strength of WhatsApp as a mobile-friendly learning tool. Apart from requiring excellent internet connection, the use of online learning tools like Zoom, Microsoft Teams, and Google Meet requires both the instructors and students to be present synchronously. If students are unable to attend the session, this will result in them missing the class. The use of instant messaging platforms such as WhatsApp can overcome this problem. WhatsApp mobile technology has been of immense value in this respect, as it is commonly used in universities [40]. By enabling learners to access study materials and engage in language practice from virtually any location, WhatsApp aligns with the modern preference for flexible, adaptable learning methods. For instance, if students cannot participate synchronously, they can still have access to the learning materials as soon as they have access to the internet. With the learning materials at hand, students can self-study and post questions in the WhatsApp group if needed.

According to an experimental study by Amry [41], students perceive WhatsApp as a user-friendly platform for learning, a valuable tool for problem-solving, and an effective means to address challenges associated with the learning materials shared through the app. With the use of WhatsApp application in class, the instructor can always share the learning materials before, after, or during

class time so that students can view or download the learning materials for self-learning. If students have questions to ask, they can pose the questions to the instructor through WhatsApp. This cannot be done via other synchronous online learning platforms. In short, the mobility advantage of WhatsApp, highlighted in the data, establishes WhatsApp as an effective tool for Mandarin learners seeking convenience and location independence.

4.6.2 Feasibility

Table 3
Students' perceptions regarding the feasibility of using WhatsApp

Course Code		5. I like to learn Mandarin using WhatsApp because it requires minimal internet data.	6. I like to learn Mandarin using WhatsApp because it allows me to study even in places with weak Wi-Fi connectivity.	7. I like to learn Mandarin using WhatsApp because it allows me to download the learning materials easily.	8. I like to learn Mandarin using WhatsApp because its user-friendly interface makes it easy to navigate
TMC101	Mean	4.24	4.04	4.24	4.36
	N	25	25	25	25
	Std. Deviation	.723	.790	.831	.757
TMC151	Mean	3.81	3.50	3.50	3.60
	N	42	42	42	42
	Std. Deviation	.994	.994	1.042	1.061
TMC401	Mean	4.29	4.43	4.46	4.43
	N	28	28	28	28
	Std. Deviation	.897	.634	.744	.790
TMC451	Mean	4.35	4.29	4.30	4.48
	N	81	80	81	81
	Std. Deviation	.744	.845	.798	.673
TMC501	Mean	4.14	4.00	4.14	4.43
	N	7	7	7	7
	Std. Deviation	.690	.577	.690	.787
Total	Mean	4.18	4.08	4.12	4.24
	N	185	184	185	185
	Std. Deviation	.846	.896	.909	.883

Note. For Course Code TMC151, the mean range within 3-4, while other courses range between 4-5. The standard deviation in question no.7 & 8 exceeds 1, indicating greater variation in students' responses. This suggests that students in TMC151 had more diverse experiences or perceptions. However, this variation does not significantly influence the overall trends across all courses.

Based on Table 3, the findings highlight the feasibility of WhatsApp as a learning tool, with its ease of use and lightweight data requirements standing out as its most appealing features. In Malaysia, network data subscription is rather expensive. This means students need to spend quite a lot if they are to participate in all online classes. In addition, the data traffic obtained is usually not as advertised; thus, they often face unstable internet connection which causes them to be disconnected from online classes. WhatsApp reduces the costs and efforts in almost all fields of life due to its convenient nature [42].

WhatsApp having more than a billion users, the top messaging platform's users are actively exchanging messages, making voice and video calls, sharing documents and pictures, sharing their stories just like other social media apps around the world, free of charge [17] and cost saving [43]. According to Daniel *et al.,* [44], WhatsApp is a very low cost, convenient, efficient, and effective way

of communication within and outside organisations, institutions, and businesses. Since using WhatsApp is free of charge and it does not require high bandwidth, using it is a good online learning tool that can aid students' learning.

4.6.3 Ease of use and perceived usefulness

Table 4
Students' perceptions regarding the ease of use and perceived usefulness of using WhatsApp

Course Code		9. I like to learn Mandarin using WhatsApp because it does not require any specialised skills	10. I like to learn Mandarin using WhatsApp because using WhatsApp makes my Mandarin learning easier and effective.	11. I like to learn Mandarin using WhatsApp because I feel satisfied when using WhatsApp to learn Mandarin.	12. I like to learn Mandarin using WhatsApp because it motivates me to learn harder.
TMC101	Mean	4.48	3.96	3.88	3.80
	N	25	25	25	25
	Std. Deviation	.714	.935	.781	1.000
TMC151	Mean	3.74	3.21	3.26	3.12
	N	42	42	42	42
	Std. Deviation	1.014	1.200	1.061	1.087
TMC401	Mean	4.46	4.11	4.11	3.86
	N	28	28	28	28
	Std. Deviation	.693	.994	.737	1.044
TMC451	Mean	4.51	4.09	4.14	3.85
	N	81	81	80	81
	Std. Deviation	.615	.951	.823	.950
TMC501	Mean	4.43	4.29	4.14	4.14
	N	7	7	7	7
	Std. Deviation	.535	.951	.690	.900
Total	Mean	4.31	3.88	3.89	3.69
	N	185	185	184	185
	Std. Deviation	.806	1.072	.923	1.037

Note. For Course Code TMC101 and TMC151, the mean generally range between 3-4, while other courses range between 4-5. TMC151 also displays a standard deviation greater than 1, indicating greater variation in students' responses. These two course groups notably influence the overall mean of the dataset.

Based on Table 4, the highest-rated factor indicates that the use of WhatsApp is rather straight forward, which students do not need the support of any technical team to manipulate the tool. Nowadays, students are very competent in using social media and instant messaging platforms [45]. As such, they have very little problem in using WhatsApp application. The ease of use of WhatsApp means students do not need to spend time figuring out how to download the learning materials and send assignments to their instructors. They can instead use the time to focus on their studies. As for the instructors, they do not have to spend time learning how to use WhatsApp too. They can better utilise the time preparing the teaching materials or marking students' assignments.

WhatsApp's perceived usefulness refers to how users believe the platform enhances their ability to achieve specific goals, such as succeed in learning Mandarin. According to Marwan and Safa [38], WhatsApp is probably the most effective and easily available method of communication; it allows users to discuss and share opinions extensively. It also helps the users to raise their personality and increase participation in discussions [46]. Thereby, Tan *et al.,* [11] indicated that students believe that

WhatsApp ensures effective Mandarin learning and enhance their effort in obtaining the target language knowledge. Nonetheless, the study's findings indicate a moderate level of students' belief that WhatsApp is an effective tool in motivating them to learn Mandarin and in making the learning process more accessible. This suggests that while students recognise the app's potential for supporting language acquisition—particularly through features like instant feedback and peer interaction—there remains room to enhance its pedagogical impact through more structured, content-driven engagement.

However, there are noticeable differences between Diploma and Degree students regarding how easy and useful they find WhatsApp for learning Mandarin. Diploma students in both TMC101 (Level 1) and TMC151 (Level 2) generally reported moderate satisfaction, indicating that while WhatsApp supports their learning and motivation, the impact is not as strong. These findings suggest the need for further comparison between Diploma and Degree students to better understand their differing experiences.

5. Conclusion

As a conclusion, WhatsApp is an easy-to-use, mobile, and cost-saving instant messaging application that can be used for ODL in MFL. Students can easily access learning materials to learn anytime and anywhere with minimum data requirement. As with all other learning tools, the use of WhatsApp in teaching and learning has its concerns such as prone to distractions and demands careful early lesson planning, which another apparent concern is its effectiveness to be used as an evaluation tool. However, this is quite understandable as WhatsApp is an instant messaging application and is not designed to be a full-fledged online teaching and learning tool.

WhatsApp is just another considerable platform to support ODL. It does not guarantee the success of teaching and learning. The success of teaching and learning primarily depends on two key factors: students and instructors. Students have to be self-directed while instructors need to be well-prepared to equip with necessary teaching and technological skills. With close cooperation from everyone in utilising WhatsApp as an ODL platform, the best outcomes for MFL learning can be achieved.

One notable concern from the data is that the standard deviation for Course Code TMC151 exceeds 1, indicating high variability in student responses, which may affect the reliability of the findings. This calls for further investigation to understand the cause—whether it relates to the instructor's teaching style, a different instructional method, the suitability of the Diploma Level 2 syllabus, or unique characteristics of the student group. Additionally, differences in the perceived ease of use and usefulness of WhatsApp between Diploma and Degree students warrant deeper exploration. These variations may stem from differences in syllabus content, teaching approaches, or instructor influence. Besides, students only somewhat agree that WhatsApp increases motivation or makes learning easier, this invites a reconsideration of its overall effectiveness in supporting Mandarin language learning.

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