

An Analysis of Factors Impacting Users' Choice of Freemium or Premium Services in a Mobile-Assisted Language Learning App

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Abstract: Since the COVID-19 pandemic, the popularity of foreign language learning on mobile-assisted language learning (MALL) applications has increased. The MALL also implements a freemium (free access) and premium business model where customers must purchase the subscription package provided. This research aims to find out what factors influence the migration of users from the free version to the premium MALL version. This study uses a quantitative and qualitative approach. Quantitative data obtained through questionnaires filled out by 1,232 respondents and qualitative data obtained through interviews with thirty interviewees. The results of this study show that dissatisfaction in the push factor was found to be factors that significantly influenced the user's desire to switch to the premium version of the MALL, while perceived intrusiveness and perceived inefficiency did not have a significant positive effect on the user's desire to switch to the premium version of the MALL. The pull factor, perceived enjoyment, perceived usefulness, and trialability showed a significant positive influence, while the perceived learner value aspect did not show a significant positive influence. Finally, all aspects of the mooring factor, namely switching cost, social influence, and inertia show a significant influence on user intention to switch to the premium version of the MALL. However, switching cost showed positive influence on users' switching intention, contrary to the predicted hypotheses. The results of this research are expected to be an input for MALL application developers to improve their services so that users switch to using the premium version of the MALL.

Keywords: Mobile-assisted language learning, Switching intention, Pull-push-mooring, Indonesia

1. Introduction

M-learning is now a global trend, especially for foreign language learning (Toto & Limone, 2019). With the increasing penetration of mobile technology into human daily life, m-learning is becoming integrated with foreign language learning. Mobile assisted language learning (MALL) is used to describe the use of mobile technology in foreign language learning (Arvanitis & Krystalli, 2021). Aliakbari and Mardani (2022) found that MALL is one of the foreign language learning approaches that provides the most benefits to learners and can improve foreign language skills. In Indonesia, learning a foreign language is a necessity to be able to enter the global community due to globalization and the opportunity to exchange knowledge with other countries (Sulyati, 2020). To date, Duolingo is the most prominent foreign language learning application globally (Ceci, 2023). Since the pandemic, the interest of Indonesian people in learning foreign languages through Duolingo has increased drastically (Anggraeni, 2023).

Duolingo implemented game-based elements in its app to engage individuals, such as leaderboards, level-system, badges, and rewards with the aim of assisting its users in improving their foreign language skills (Huynh, Zuo, and Iida, 2016). Through providing useful features for free, Duolingo hopes to attract users to switch to the premium version, where they can enjoy additional benefits and a more immersive learning experience. The premium version of Duolingo, also known as Super Duolingo, offers a paid service with no ads and no access restrictions, as well as providing additional features such as personalized lessons (Purnama, 2023). User switching behavior refers to the actions taken by users when they choose an alternative service over the previous one (Sun et al., 2017), such as switching from the free version to the premium version. Tsai (2022) explained the importance of recognizing the difference between free version users and premium versions because the factors that affect free version users to use premium are diverse.

The push-pull-mooring (PPM) model is often used by previous studies because it has been proven to accurately test users' switching intention to switch from one condition to another (Tsai, 2022; Lisana, 2022; Wang & Shin, 2022; Chen & Keng, 2019; Nayak et al., 2021). One of them is a study that explores the factors that affect students in switching to using m-learning as a way of learning which used to be in the form of face-to-face classes (Lisana, 2022). Magsayo (2022) also conducted a similar study with student research subjects in rural areas of the Philippines. Chen and Keng (2019) conducted a study in the context of switching intention from face-to-face English courses to online courses.

In addition to the educational context, this research will also focus on identifying the factors that affect the use of the premium version. One of the previous studies that resonated with this context was Tsai's (2022) research on switching user intentions to switch to the premium version of the over-the-top (OTT) platform, which is part of video on demand (VOD), in Taiwan using the PPM model framework. Among the previous studies that have been discussed, there has been no research that specifically discusses the transition of users of the free version to the premium version of the MALL application, especially Duolingo, with the framework of the PPM model. Thus, this study will adopt the framework of the PPM model. Also supported by Nayak et al. (2021) stated that the PPM model has the advantage of adapting to the context of the research to be carried out because it does not determine fixed variables in the aspects of push, pull, or mooring. Thus, the question of this research is what push, pull, and mooring factors affect the switching intention of MALL young customers to premium services? This research can provide guidance for MALL service providers in developing strategies to make users switch from free to premium services.

2. Literature Review

We used push-pull-mooring (PPM) as a main reference of our proposed model. Push-pull-mooring (PPM) is based on migration theory which is influenced by push and pull factors. The ability of the PPM model framework in analyzing factors that affect switching intention in the context of education has been proven by various previous studies (Chen & Keng, 2019; Nayak et al., 2021; Lin et al., 2021; Lisana, 2022). The selection of research variables was carried out by taking constructs from previous studies that have been proven to affect switching intentions. In addition, to enrich the context related to factors that can affect the use of an educational platform, this study also refers to research that discusses the adoption of an e-learning system. This study adopts several factors that are appropriate to the context of the research, namely the influence that resulted in users of the free version of Duolingo switching to the premium version of Duolingo.

The push factor is a life situation that causes dissatisfaction with the environment in which it is occupied, thus prompting an individual to leave (Dorigo & Tobler, 1983; Bansal, 2005). The pull factor is an attribute of another place that makes it appear attractive (Dorigo & Tobler, 1983). The mooring factor is defined as a situational factor that moderates the decision to migrate or not (Bansal, 2005; Tsai, 2022). The main research that will be referred to in this study discusses the factors that affect the continuity intention of MALL (Faozi & Handayani, 2023) and switching intention (Tsai, 2022; Ye et al., 2022; Hu et al., 2023; Lisana, 2022; Magsayo, 2022; Zhu, Peng and Yang, 2023). Based on the referenced studies, we chose variables that were proven to have an influence on switching intention and had a context relevant to this study. Figure 1 shows the research model used with 10 hypotheses and 11 variables.

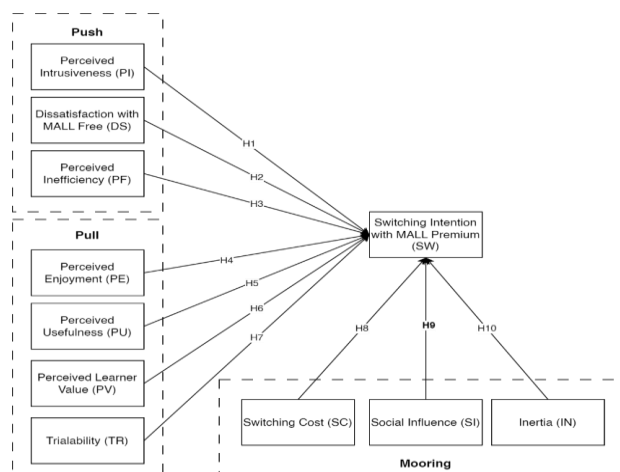


Figure 1: Proposed Research Model

Perceived intrusiveness is the level of how disturbed the user arises due to impaired individual cognitive processes (Li, Edwards, and Lee, 2002; Tsai, 2022). In the context of application use, disruption of cognitive processes can be caused by the appearance of advertisements (Li, Edwards, and Lee, 2002). Foulds, Azzopardi, and Halvey (2021) found users take much longer to complete tasks when there are ads and users also report more negative experiences such as frustration levels, distractions, and difficulty completing tasks. The distraction of these ads can cause irritation and trigger users to avoid the ads (Wei, Ko, and Pearce, 2021). Wei, Ko, and Pearce (2021) found that the presence of advertising disorders or perceived intrusiveness can increase the tendency of social media users to avoid advertising due to annoyance. Therefore, we define the following hypothesis.

H1: Perceived intrusiveness (PI) has a positive influence on switching intention to MALL premium (SW)

User satisfaction is often linked to the user's intention to use an application (Faozi & Handayani, 2023; Pozon-Lopez et al., 2020). Pozon-Lopez et al. (2020) found that user satisfaction is an important predictor of the intention to use MOOC platforms. Kuo (2020) found that user dissatisfaction causes consumers to switch to other mobile payment services. Dissatisfaction refers to the feeling of dissatisfaction of users with the product/service being used because they fail to meet the users' expectations or needs (Yoon and Lim, 2021). Sekarputri et al. (2024) found that users who feel uncomfortable using an app tend to stop using it and are encouraged to switch to another application. This is in line with Ye et al. (2022) who found that dissatisfaction is one of the factors that encourages e-commerce live streaming (ELS) users to leave the old platform and switch to another platform. Ye et al. (2022) and Sekarputri et al. (2024) prove that dissatisfaction can affect users' intention to switch to a product. Thus, we suggest the following hypothesis.

H2: Dissatisfaction (DS) has a positive influence on switching intention to MALL premium (SW)

Perceived inefficiency refers to the negative experience felt by individuals regarding the use of resources that have not been optimized (Phan and Ngu, 2021). An individual tends to consider the efficiency aspect when deciding to use a new technology and hopes to get an increase in efficiency in his/her activities (Murillo-Zegarra et al., 2020). Sarkar, Sarkar, and Sreejesh (2021) and Mazhar (2022) found that inefficiency can lead to dissatisfaction in customers and subsequently make customers switch to other services. Perceived inefficiency also refers to how far individuals have had negative experiences with inadequate content and wasted time when using a product or service (Kim, Choi and Choi, 2019). Zhu, Peng and Yang (2023) found that the intention to switch from lecturers who teach natural science courses has a high tendency to be influenced by perceived inefficiency felt in traditional classrooms. Then, we define the following hypothesis.

H3: Perceived inefficiency (PF) has a positive influence on switching intention to MALL premium (SW)

Generally, on platforms with a freemium business model, application developers deliberately reduce the sense of enjoyment of their users by limiting access or features to create demand for premium services (Hamari, Hanner, Koivisto, 2019). A sense of pleasure has a significant influence on the intention to purchase a product (Yulianto & Oroh, 2021) and is one of the main predictors of a platform's user intent to purchase premium services (Yulianto & Oroh, 2021). In a study conducted by Yulianto and Oroh (2021), it was found that a sense of pleasure has a significant influence on the intention to purchase premium services. In the context of education, perceived enjoyment can be defined as how learners enjoy using mobile learning to increase knowledge regardless of possible performance consequences (Kim, et al., 2020; Tsai, 2022). Previous studies have found that perceived enjoyment has a great influence on students' intention to adopt a new mobile learning system (Pramana, 2018; Lisana & Suciadi, 2021; Tsai, 2022). Tsai (2022) found that perceived enjoyment is one of the pull factors that can affect users' intention to switch using mobile learning systems. Previous studies have found a positive influence between perceived enjoyment and the intention to switch from free to premium services (Yulianto & Oroh, 2021) and on the use of mobile learning (Tsai, 2022). Thus, we propose the following hypothesis.

H4: Perceived enjoyment (PE) has a positive influence on switching intention to MALL Premium (SW)

Perceived usefulness is how the perception of users of an information system can improve the performance of their activities (Al-Rahmi et al., 2021). Perceived usefulness was found to have a great influence on adoption behavior in information system users (Ye et al., 2022). If users realize that there are useful uses for a new technology, then users will show positive behaviors that can affect their intention to adopt the technology (Zhu, Peng and Yang, 2023). As a result, the perceived usefulness of a platform can significantly affect a user's switching intention (Ye et al., 2022). Qashou (2020) also found that perceived usefulness has a significant positive influence on the intention to use mobile learning. Therefore, we suggest the following hypothesis.

H5: Perceived usefulness (PE) has a positive influence on switching intention to MALL premium (SW)

Perceived learner value refers to how users perceive the learning experience from the use of mobile learning (Magsayo, 2022). The adoption of mobile learning systems can be influenced by how the system can facilitate academic goals and satisfaction in the learning process (Magsayo, 2022). Perceived learner value describes a person's level of interest in learning and a sense of enthusiasm to get good results (Magsayo, 2022). These variables can help users to realize the value of adopting mobile learning in user learning (Magsayo, 2022). Ain, Kaur and Waheed (2016) argue that students' positive perception of learning through a learning management system (LMS) can affect students' intentions in spending more time and effort to be able to gain knowledge from the LMS. A learning platform will be considered to have more value if students are willing to spend time and effort to learn and how the system can facilitate quality learning (Ain, Kaur and Waheed, 2016; Magsayo, 2022). Then, we propose the following hypothesis.

H6: Perceived learner value (PV) has a positive influence on switching intention to MALL premium (SW)

Trialability is defined as a level at which a product innovation can be evaluated under limited conditions, such as a limited period or environment (Hsieh, 2021). Previous research has argued that a technological innovation will be easier to adopt if potential users can conduct trials first because that will reduce perceived risks (Raman et al., 2021; Wang, Douglas, and Hazen, 2021). This argument is supported by several studies on technology adoption that prove that trialability is an important aspect to include (Raman et al., 2021; Wang, Douglas, and Hazen, 2021; Hidayat-ur-Rehman et al., 2022). Hsieh (2021) proves that trialability is one of the crucial variables that has a positive impact on switching intention. Thus, we suggest the following hypothesis.

H7: Trialability (TR) has a positive influence on switching intention to MALL premium (SW)

The cost aspect is an important factor that needs to be tested on the switching intention variable (Wu, Vassileva, and Zhao, 2017; Monoarfa et al., 2023). Past study found that switching cost is a theory that is suitable to be used in proving user perception when using a new service (Yuen, Ng, and Wang, 2023). Wu, Vassileva, and Zhao (2017) researched the behavior of internet users towards the change of memory storage methods in the cloud, and found that low switching costs are interpreted when users are not too worried about losing effort in the service switching process. Switching cost is defined as the user's perception of sacrifices, both financial and non-financial, which are considered in carrying out new behaviors (Monoarfa et al., 2023). Then, we define the following hypothesis.

H8: Switching cost (SC) has a negative influence on switching intention to MALL premium (SW)

Social influence is defined as the perception of users over the opinion of important people (family, friends, or other relatives) that they should use a new technology, product, or service (Yee et al., 2022). Previous research has demonstrated the influence of social influence in predicting switching intentions. For example, a user in the transition to e-commerce live streaming (Ye et al., 2022) and the individual shift from cash payments to mobile payments (Hsieh, 2021). In the three studies, the social influence variable was placed as a mooring variable. In addition to predicting switching intention, social influence factors are also often used to predict other behavioral intentions, such as predicting the adoption rate of mobile payments in the younger generation (Wei, Ko, and Pearce, 2021). Thus, we suggest the following hypothesis.

H9: Social influence (SI) has a positive influence on switching intention to MALL premium (SW)

When dealing with a new product or service, users may be influenced by inertia and choose not to move away from the original option (Sun et al., 2017). In making changes to the use of products, there are risks and costs that must be incurred by users (Monoarfa et al., 2023). In minimizing the uncertainty of risks and costs, users tend to choose more familiar products so that inertia is proven to affect the user's tendency to have switching intention (Hu et al., 2023). Inertia is defined as the user's preference to maintain the current behavior on the original option when faced with a better alternative judged from previous experience (Samuelson & Zeckhauser, 1988). In the context of MALL, inertia is defined as the tendency of users to choose to continue using the free version of the MALL. Finally, we propose the following hypothesis.

H10: Inertia (IN) negatively influence switching intention to MALL premium (SW)

3. Methodology

3.1 Research Design

This study uses a mixed method approach by first distributing questionnaires and then followed by conducting interviews with respondents. Before distributing the questionnaire, we conducted a readability test on the respondents to confirm the accuracy of the use of diction and grammar, as well as the ease of understanding the questions. The readability test was conducted by interviewing 11 respondents face-to-face and online using video conferencing platforms, such as Google Meet and Zoom Meeting. Furthermore, a pilot study was conducted on 35 respondents to analyze Cronbach's Alpha (CA) scores. The CA result from the pilot study is 0.896 so that a wider distribution of questionnaires can be carried out. The questionnaire link is shared through social media platforms such as LINE, WhatsApp, Instagram, X, Telegram, Facebook which are widely used by Indonesians. The quantitative data collection period lasted about one month, from February 17, 2024, to March 16, 2024. The object of research in this study is one of the MALL platforms, namely Duolingo. The criteria for respondents involved in this study are respondents who have used the free version of Duolingo and know the offers provided by the premium version of Duolingo. All respondents have agreed to participate in filling out the questionnaire. Table 1 explains the summary of the demographics of the respondents involved in this study.

Table 1: Summary of Demographic Data of Quantitative Respondents

Demographics		Number of Respondents	Percentage
Gender	Man	406	33.0%
	Woman	826	67.0%
Age	< 17 years old	13	1.1%
	17 - 25 years	980	79.5%
	26 - 35 years old	198	16.1%
	36 - 45 years old	38	3.1%
	> 45 years	3	0.2%
Education	High school or below	836	67.9%
	Diploma	52	4.2%
	Undergraduate	332	26.9%
	Master student	12	1.0%
Domicile	Greater Jakarta	457	37.1%
	Outside Greater Jakarta in Java Island	572	46.4%
	Sumatra	129	10.5%
	Kalimantan	33	2.7%
	Sulawesi	27	2.2%
	Bali, Nusa Tenggara Barat, Nusa Tenggara Timur	12	1.0%

Demographics		Number of Respondents	Percentage
	Maluku and Papua	2	0.2%
Occupation	Unemployed	44	3.6%
	Students	797	64.7%
	Private employees	184	14.9%
	Employees of state-owned enterprises	13	1.1%
	Self employed	71	5.8%
	Civil servants	9	0.7%
	Housewives	81	6.6%
	Others	33	2.7%

3.2 Analysis Method

Data processing and analysis in this study used the covariance-based structural equation modeling (CB-SEM) method. The data processing process is carried out using several applications, including Google Sheet and AMOS 26. After quantitative data processing, we also collect data through interview sessions with respondents. This stage aims to confirm and identify supporting arguments for all hypotheses. The respondents involved in the interview were 30 respondents where most of the interviewees were aged 17-25 years, were undergraduate students, and resided in the Greater Jakarta area. Each interview session will be documented through a recording that has been approved by the respondent to be recorded. All data obtained from this study is anonymous. After conducting interviews with respondents, we used the content analysis method to analyze qualitative data.

3.3 Research Instruments

In this study, a questionnaire was used to collect quantitative data which was generally divided into demographic and measurement items totaling 44 statements. The answer to the statement uses a Likert scale with a value of 1 describing "Strongly Disagree" and a value of 5 describing "Strongly Agree". Appendix A explains the measurement items and Appendix B explains the interview questions used in this study.

4. Result

The first stage in the quantitative data analysis process is the specification of the research model by first making a path diagram. The loading factor value for each measurement item is above 0.7. The average variance extracted (AVE) value for each variable is above 0.5 and the CA and CR values are above 0.7 for each variable so that it passes the validity and reliability test according to Hair et al. (2014). Appendix C shows the AVE, CA and CR values for each variable. Before being able to conduct a hypothesis test, we conduct a Goodness of Fit (GoF) evaluation. In the structural model test, Goodness of Fit (GoF) was evaluated through Minimum Discrepancy Function by Degrees of Freedom divided (CMIN/df), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Tucker-Lewis index (TLI) metrics. Appendix D shows the results of the GoF that are in accordance with the cut-off value.

The hypothesis test in this study will be carried out in a one-tailed with a significance level of five percent. The hypothesis is considered to have an influence if the p-value has a value of <0.05 and has no influence if the value is ≥ 0.05 (Hair et al., 2014). In one-tailed research, the direction of influence needs to be examined to be able to conclude if a hypothesis is accepted (Kock, 2015). Table 2 explains the results of the hypothesis test.

Table 2: Hypothesis Testing Result

Hypothesis				P	Description
H1	SW	<---	PI	0.181	Rejected
H2	SW	<---	DS	0.003	Accepted
H3	SW	<---	PF	0.053	Rejected
H4	SW	<---	PE	0.003	Accepted
H5	SW	<---	PU	0.047	Accepted
H6	SW	<---	PV	0.308	Rejected
H7	SW	<---	TR	0.003	Accepted
H8	SW	<---	SC	0.037	Rejected
H9	SW	<---	THE	0.002	Accepted
H10	SW	<---	IN	0.002	Accepted

5. Discussion

This study found that there was no effect of perceived intrusiveness on switching intention (SW). The results of this study are not in accordance with Tsai (2022), Foulds, Azzopardi, and Halvey (2021), and Wei, Ko, and Pearce (2021). Foulds, Azzopardi, and Halvey (2021) found that users reported negative responses due to the appearance of ads, such as feeling frustrated, distracted, and having difficulty completing their tasks. Tsai (2022) found that ad disruption is one of the main factors that encourage users to switch from a free OTT platform to a premium. Based on the interview data, it can be concluded that interviewees of the free version of MALL consider advertising not a significant distraction. This is because of the frequency of ads that can still be tolerated (*"There are not too many ads because they are only there after playing one unit of lessons."* - Interviewee 6). Some users feel that advertising can be an opportunity to take a break in the middle of learning to use the MALL (*"I consider it as a chance to take a break after a unit of lessons, I never mind the ads,"* - Interviewee 6).

This study also shows that dissatisfaction has a positive and significant influence on the intention of users to switch to premium services. This is in line with Kuo (2020) who stated that low user satisfaction or user dissatisfaction causes consumers to switch to other mobile payment services. Pozón-López et al. (2020) also stated that user satisfaction is an important factor that influences the intention to use MOOC platforms. This is contrary to Sarkar, Sarkar, and Sreejesh (2021) and Mazhar et al. (2022) who found that inefficiency can lead to dissatisfaction in customers and subsequently make customers switch to other services. Zhu, Peng and Yang (2023) found that the intention to switch lecturers who teach natural science courses has a high tendency to be positively influenced by the inefficiency of traditional classrooms. However, the results of this study are in line with Kim et al. (2019) who found that perceived inefficiency has no positive effect on individuals' intention to switch from traditional content services to content services with augmented or virtual reality technology.

This research shows that perceived enjoyment has a positive influence and significantly affects the user's intention to switch to premium services. Tsai (2022) also showed the same results, namely the significant positive influence of the perceived enjoyment variable that can encourage user intention to switch from traditional classes to the use of mobile learning. Yulianto and Oroh (2021) also showed a positive influence of perceived enjoyment on switching intention from a free service to a paid service. Feeling pleasure in using a product can encourage users to buy the product (Yulianto & Oroh, 2021). Of the total 30 interviewees, 77 percent of them said that with the loss of annoying restrictions by using the premium version, they can feel more comfortable and freer to use MALL. In addition, 10 interviewees also felt that the premium version of the MALL provides more variety of lessons and personalization that it makes users do not easily feel bored and can be more excited in using the MALL platform (*"I am more excited to learn focus better on learning because of the personalized lesson feature. Also, I can choose freely which material or topic I want to learn"* - Interviewee 16).

In addition, perceived usefulness has a positive influence on the user's intention to switch to premium services. The results of this hypothesis test are consistent with Ye et al. (2022). Ye et al. (2022) found that the perceived usefulness has a positive influence that can increase user intention to move from one ELS to another ELS platform. Based on the results of interviews, 63 percent of the interviewees agreed that the features in the premium version of the MALL are useful and can meet the needs of users (*"I feel that the features in the premium*

version can fulfill my needs because I mainly want to be able to play without being limited by hearts," - Interviewee 2).

Perceived learner value did not have a positive influence on the intention of users to switch from the free version of MALL to the premium version in this study. This contrasts with Magsayo (2022), Harja, Irawan and Ambarwati (2019) and Zacharis and Nikolopoulou (2022) who found that perceived learner value is a significant variable that can affect the intention of students to adopt a new mobile learning platform. Based on the results of the interview, MALL users feel that they do not get a different learning process in the premium version than the free version. This shows that there is no extra value to be gained from the learning process in the premium version of the MALL that can motivate users to commit to a subscription (*"The features in Duolingo premium are not too helpful for learning if compared to the free version. The useful features are the features that already exist by default, which is the gamification, for example, leaderboards and point systems."* - Interviewee 8).

Then, this study also found that there was a positive influence between trialability on switching intention to premium MALL. This is consistent with Hsieh (2021) who found that trialability is one of the crucial variables that positively affects the intention to switch from traditional health facility transactions to the use of technology. The experience of exploring or testing a product is an important opportunity (Raman et al., 2021; Wang, Douglas, and Hazen, 2021; Hidayat-ur-Rehman et al., 2022). The same thing was found in Raman et al. (2021), in which the existence of a trial period can affect the decision to adopt a new e-learning system by students. The results of the interview showed that 73 percent of the 30 interviewees were helped by the free trial and considered that the free trial was an important opportunity before committing to subscribe to the premium version of the MALL (*"I feel that free trial is very important so users don't feel cheated if it turns out that the premium version is not suitable for them when users have already paid,"* - Interviewee 16).

The study found that the sacrifices that users must make have a significant positive influence on their intention to subscribe to the premium version of the MALL. The results of this study are contrary to Hsieh (2021) which proves that switching costs have a negative effect on the intention to switch the behavior of patient transaction methods from cash to medical mobile payment. Anis and Noor (2021) also found that there was no moderation effect of switching costs that affected user satisfaction or intention to switch. Zakiy and Haryanto (2021) sees that even switching costs have a positive effect on customer loyalty. The higher the switching cost that is likely to be incurred by the customer, the higher the customer's loyalty not to turn away from the bank's services. Subscription prices are the main reason why users are reluctant to switch. The results of the interview showed that 57 percent of the interviewees felt that the costs that needed to be incurred to subscribe to the premium tended to be inexpensive (*"I think the price is still affordable. At that price, you can learn many languages, not just one language"* - Interviewee 1).

The study also found that users' perception of the opinions of important people around them had a positive influence on the intention to subscribe to the premium version of the MALL. The results of this study are consistent with Ye et al. (2022) which prove the influence of relatives in switching to other live streaming platforms. Hsieh (2021) showed that social influence has a positive impact on switching intentions, both between companies in the same offering and from offline to online transactions. Half of the interviewees agreed that opinions from friends, family, and reviews on social media influenced users to switch to the premium version (*"If I have friends who use the premium version of Duolingo, it can influence me to be interested in subscribing."* - Interviewee 25).

Finally, this study shows that inertia negatively affects the switching intention of users of the free version of Duolingo to the premium version. These results are consistent with Hsieh (2021) which proves that inertia makes patients less motivated to use medical mobile payment. An example of inertia action is that patients are used to relying on cash payment methods because they are more commonly used (Hsieh, 2021). Ye et al. (2022) in e-commerce live streaming (ELS), Hu et al. (2023) in the adoption of electric vehicles in China, and Dogra, Bakshi, and Gupta (2022) in e-health, all prove that inertia affects the intention to switch from one service to another. In addition, some interviewees feel that their needs have been met when using the free version of the MALL so there is no high urgency to switch to the premium version of the MALL (*"I feel that the free feature is enough to meet my casual use needs. I don't have a problem with the limitations of Duolingo,"* - Interviewee 6).

6. Conclusion

This study found that there is one push factor (dissatisfaction) and three pull factors (perceived enjoyment, perceived usefulness, and trialability) that positively affect users' intention to switch to the premium version of the MALL. Perceived intrusiveness as one of the push factors proposed in this research model was found to be

a factor that did not positively affect the user's desire to switch to the premium version of Duolingo from the free version. This means that even if users are required to watch ads after completing a lesson, it is not considered a significant distraction because the majority of users think that the frequency of ads and the length of ads are still tolerable and considered a normal thing to appear in the free version of an app. In addition, perceived inefficiency was also found to have no positive influence on user switching intentions. This can be caused by users who are already used to the limitations of Duolingo's features. On the other hand, perceived learner value is a pull factor that doesn't influence users to switch to Duolingo premium. This happens because users do not feel a significant difference between the learning process in the premium version and the free version. Then, it was also found that mooring factors, social influence and switching costs have a positive influence on users' intentions to switch users to premium MALL. Meanwhile, inertia as a mooring factor was found to have a negative influence on users' intentions to switch users to the premium version of the MALL. The limitations of this study are that the demographics of the respondents are dominated by female respondents (67 percent), aged 17-25 years (79.5 percent), and students (64.7 percent). Future research can conduct research to analyze user loyalty in using premium MALL.

Duolingo users feel that the premium version of Duolingo only provides a slight difference in features compared to the free version of Duolingo. Duolingo can focus on increasing the differentiation between free and premium services by increasing the benefits of premium rather than just adding limitations to its free services, such as ad restrictions and limited hearts. Duolingo can further develop the curriculum and optimize the features it already has. In further curriculum development, Duolingo can involve more comprehensive language learning materials, such as an in-depth introduction to letters in languages that do not use Latin characters and a more complete explanation of sentence structure (grammar). Duolingo can also provide alternative two-way learning with experts, such as a feedback feature where users can confirm the knowledge they have gained with experts. In optimizing the features that you already have, Duolingo can re-evaluate the use of technology in speaking and listening practice questions in personalized practice features.

In addition, Duolingo can differentiate between users of the free version of Duolingo and the premium version, such as creating a special badge for the premium version, rewards for loyal users of the premium version, or a customized avatar. Duolingo users love the variety of practice questions in the premium version of Duolingo because they don't get bored easily when using Duolingo. Therefore, Duolingo can add a variety of challenge types to its learning, such as by using movies or songs that are popular on the internet to be used in questions. Duolingo can also use different practice question formats, such as using videos. Duolingo users also argue that the surrounding environment, such as family or relatives, can influence a user's desire to subscribe to a premium subscription on Duolingo. In addition, users also show a positive response to features that support collaboration between users such as the friend's quest feature. Therefore, Duolingo can implement a feature that will support interaction between users of the premium version.

Ethical Declaration: This study is not required ethics approval.

AI Statement: We did not use artificial intelligence tools.

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Appendix A: Measurement Items in the Questionnaire

Code	Measurement Items	References
PI1	I feel that the ads in the free version of the Duolingo app were distracting me when working on the questions.	Tsai (2022)

Code	Measurement Items	References
PI2	I find that the ads in the free version of the Duolingo app are annoying. (e.g., the duration is too long).	
PI3	I feel that the ads in the free version of the Duolingo app are not to my liking.	
PI4	I am annoyed when I have to watch ads on the free version of Duolingo.	Li, Edwards, and Lee (2002)
DS1	I have trouble doing the lessons I wanted on the free version of Duolingo.	Ye et al. (2022)
DS2	I feel that the features in the free version of Duolingo have not met my expectations.	
DS3	I feel that the features in the free version of Duolingo do not meet my needs.	
DS4	I am not satisfied with my overall experience while using the free version of Duolingo's features.	Sekarputri et al. (2024)
PF1	I feel like I wasted a lot of time learning a foreign language on the free version of Duolingo (e.g., ads take up my learning time).	Kim, Choi and Choi (2019)
PF2	I feel that the process of learning a foreign language in the free version of Duolingo is inefficient (e.g., the limitation of hearts hinders the efficiency of my learning process).	Zhu, Peng and Yang (2023)
PF3	I find the learning process of the free version of Duolingo unproductive (e.g., the restriction on the features, such as Legendary level, made it difficult for me to be productive).	Kim, Choi and Choi (2023)
PF4	I don't get the results I want in learning a foreign language on the free version of Duolingo due to feature limitations.	Zhu, Peng and Yang (2023)
PE1	I believe the premium version of the Duolingo app has interesting features.	Lisana (2022)
PE2	I'm very excited to use the features on the premium version of the Duolingo app.	
PE3	I believe the features in the premium version of Duolingo can make my learning process more enjoyable.	
PE4	I believe I will love the overall learning experience due to the features offered by the premium version of Duolingo.	Lisana and Suciadi (2021)
PU1	I feel that the features in the premium version of Duolingo can improve my learning performance. (e.g., the personalized lesson feature improves my performance)	Faozi and Handayani (2023)
PU2	I feel that the features in the premium version of Duolingo can increase my learning productivity. (e.g., having no restrictions, such as on Legendary level and heart limitations, helps me be more productive)	
PU3	I feel that the features on the premium version of Duolingo can effectively help me learn a foreign language. (e.g., having an infinite heart makes my experience more effective because I don't have to wait for the system to refill my hearts)	

Code	Measurement Items	References
PU4	I feel that the features in the premium version of Duolingo will be useful to me.	
PV1	I can be more proactive in learning a foreign language by using the premium version of Duolingo.	Magsayo (2022)
PV2	I am able to increase my interest in learning by using the premium version of Duolingo	
PV3	I am able to achieve my academic goals in learning languages by using the premium version of Duolingo.	
PV4	I am able to learn a foreign language more actively using the premium version of Duolingo.	
TR1	I wanted to explore the premium version of Duolingo before I subscribed.	Hsieh (2021)
TR2	I wanted to use the premium version of Duolingo features during the free trial period before I subscribed.	
TR3	I want to try the premium version of Duolingo in enough time to experience the benefits offered.	
TR4	I consider the opportunity for a trial important before deciding to buy the premium version of Duolingo.	Chang et al. (2016)
SC1	I find the procedure to start subscribing to the premium version of Duolingo is very complicated.	Hsieh et al. (2021)
SC2	I felt it took a lot of effort and time to switch to the premium version of Duolingo	Ye et al. (2023)
SC3	I feel that I have to spend a lot of money to switch to the premium version of Duolingo.	
SC4	I don't believe that I can get a better foreign language learning experience if I switch to the premium version of Duolingo	Yuen, Ng, and Wang (2023)
SI1	My relatives or friends invite me to subscribe to the premium version of Duolingo.	Ye et al. (2022)
SI2	Many of my relatives or friends recommend the premium version of Duolingo to me.	
SI3	Many of my relatives or friends are dissatisfied with the free version of Duolingo.	
SI4	The opinion of my relatives or friends greatly influenced my decision to use the premium version of Duolingo.	Hsieh et al. (2021)
IN1	I never thought of switching to the premium version of Duolingo.	Wang, Douglas, and Hazen (2021)
IN2	I wouldn't switch to the premium version of Duolingo unless I'm very dissatisfied with the free version of Duolingo.	Hu et al. (2023)

Code	Measurement Items	References
IN3	I would still choose the free version of Duolingo because it has become a habit.	
IN4	I feel that the free version of Duolingo is enough to meet my needs.	
SW1	I would consider switching from the free version of Duolingo to the premium version of the Duolingo app.	Hu et al. (2022)
SW2	I will most likely switch to the premium version of Duolingo.	
SW3	I believe I will be switching to the premium version of Duolingo.	
SW4	I would choose to use the premium version of Duolingo over the free version of Duolingo.	

Appendix B: Sample Interview Questions

1. How do the ads that appear affect your learning experience on the free version of the Duolingo app?
2. What do you think about the impact of these feature limitations on your learning experience?
3. How do you feel when using the premium version of Duolingo?
4. What are your expectations for the additional benefits you should be able to experience in using the premium version of Duolingo?
5. What do you think about the learning value you can get by using the premium version of Duolingo?
6. How do you think the value of learning can influence your desire to subscribe to the premium version of Duolingo?
7. How was your experience when using the premium version of Duolingo free trial?
8. How do you rate the Premium version of Duolingo's sign-up process? (Example: choosing a plan, choosing a payment method)
9. How does the presence of people around you who use the premium version of Duolingo affect your interest in using the premium version? How
10. What do you think about how your experience using the premium version of Duolingo will keep you subscribed to the premium version of Duolingo?

Appendix C: AVE, CA and CR Values

Variable	AVE	CA	CR
DS	0.741	0.895	0.895
IN	0.673	0.889	0.889
PE	0.733	0.916	0.917
PF	0.691	0.898	0.899
PI	0.672	0.889	0.892
PU	0.788	0.937	0.937
PV	0.791	0.938	0.938
SC	0.624	0.827	0.830
THE	0.717	0.908	0.913
SW	0.839	0.940	0.941
TR	0.708	0.904	0.907

Appendix D: Goodness of Fit Results

GoF Criterion	Cut-Off Value	Result	Information
CMIN/df	≤ 3	2.136	<i>Good Fit</i>
RMSEA	≤ 0.08	0.034	<i>Good Fit</i>
NFI	≥ 0.9	0.959	<i>Good Fit</i>
CFI	≥ 0.9	0.978	<i>Good Fit</i>
GFI	≥ 0.9	0.932	<i>Good Fit</i>
TLI	≥ 0.9	0.974	<i>Good Fit</i>