LLT Journal, e-ISSN 2579-9533, p-ISSN 1410-7201, Vol. 26, No. 1, April 2023, pp. 134-141

LLT Journal: A Journal on Language and Language Teaching
http://e-journal.usd.ac.id/index.php/LLT
Sanata Dharma University, Yogyakarta, Indonesia

DUOLINGO SPANISH USERS: DISCUSSION BOARDS USE OVER TIME

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https://doi.org/10.24071/llt.v26i1.5767
received 23 January 2023; accepted 21 March 2023

Abstract
Spanish is one of the most popular foreign language subjects among learners, as there are currently 142 million users who have used Duolingo to learn Spanish. The Spanish language is projected to see even greater increases in the United States, both academically and demographically. The current research question asks, "How do individual Duolingo Spanish users use discussion boards over time among highly engaged, moderately engaged, and lower engaged users?" This study of Duolingo Spanish users is compared to a previous study about how highly engaged, moderately engaged, and lower engaged Duolingo German users use discussion boards over time. The results of the analysis showed that there were three themes: (1) highly engaged users make comments over a longer period of time over many years and have the highest proficiency in the Spanish language; (2) moderately engaged users make comments over a relatively shorter period of time during the duration of their studies; (3) lower engaged users are more likely to engage in the discussion boards socially about tangential topics over the span of months. The results of this study may inform researchers and educators on how discussion boards may facilitate language learning skills and Spanish knowledge to increase proficiency.

Keywords: discussion boards, language learning, usage over time, user type

Introduction
Duolingo is widely used as a free language learning software to study Spanish. Spanish is one of the most popular foreign language subjects among learners, as there are currently 142 million users who have used Duolingo to learn Spanish (Curry, 2021). Spanish is spoken by 460 million people as their native language (Thompson, 2021), while 100 million have partial proficiency in Spanish as a second or foreign language (Lacorte & Suarez-Garcia, 2016). Online, Spanish was considered the second most important language on Wikipedia by the number of visits in 2016, while it was in fifth place in 2014 (Rhodes & Puhfal, 2014). It is also the second most popular language used on Facebook and Twitter after English. As such, the Spanish language is projected to see even greater increases in the United States, both academically and demographically (Cho & Castañeda, 2019). In 2016, approximately eight million students studied Spanish as a foreign language, or 20.3 million globally (Rhodes & Puhfal, 2014). The Center for Applied Linguistics reported that approximately five million students studied Spanish

during elementary, secondary, and vocational education in 2014 (Rhodes & Puhfal, 2014). More recent data is not available as of the date of this publication because this study is repeated every 10 years (Lacorte & Suarez-Garcia, 2016).

Duolingo uses gamification, scaffolding theory, and artificial intelligence to create dynamic, engaging, motivational, and personalized learning experiences for its users (Jiang, Rollinson, Plonsky, & Pajak, 2020; Yakaeva, Salekhova, Kuperman, & Grigorieva, 2017). There are 159 Spanish units in the course, otherwise known as "skills" within the Spanish "tree." Users can progress onto more difficult skills as they demonstrate proficiency in easier skills, which is aligned with scaffolding theory (Wood, Griffiths, & Parke, 2007). This is a strength of the software because it supports users' learning goals in proficiency in common words and phrases, the enunciation of speech, and echoing (Yakaeva et al., 2017).

Duolingo also provides users with the opportunity to engage in asynchronous discussion boards, which allow them to share their questions, knowledge, and concerns with other learners (Neuschafer, 2021a). Discussion boards may benefit users' language acquisition and skills (Chang, Pearman, & Farha, 2012) because Duolingo mainly teaches learners how to construct grammatically correct sentences and phrases, while it does not show users how to speak with social appropriateness or with culturally relevant information (Neuschafer 2021a, 2021b). Using discussion boards may help users engage in more immersive foreign language learning (Kessler, De Costa, Isbell, & Gajasinghe, 2021), in line with sociocultural learning (Vygotsky, 1978) and intercultural competence (Deardorff, 2006; Neuschafer, 2021a, 2021b).

The current study builds upon prior studies on Duolingo's discussion boards using netnography (Neuschafer, 2021a, 2021b). The current research explored publically accessible discussions using the guiding question, "How do individual Duolingo Spanish users use discussion boards over time among highly engaged, moderately engaged, and lower engaged users?" This study of Duolingo Spanish users will be compared to a previous study about how highly engaged, moderately engaged, and lower engaged Duolingo German users use discussion boards over time. Neuschafer (2022) found that:

> (1) highly engaged users make comments over a longer period of time over a span of many years and have the highest proficiency in the German language; (2) moderately engaged users make comments over a relatively shorter period of time during the duration of their studies; (3) lower engaged users are more likely to engage in the discussion boards to engage socially about tangential topics over the span of months (Neuschafer, 2022, p. 4).

The results of this study may inform researchers and educators on how discussion boards may facilitate language learning skills and Spanish knowledge to increase proficiency.

Methods

This study used netnography to examine Duolingo Spanish discussion boards over time, per differing engagement levels. This type of qualitative methodology is unique to studies that examine online communities (Costello, McDermott, & Wallace, 2017). Kulavuz-Onal (2015) postulated that netnography is beneficial in

studying the culture of online language learning communities. Netnography is an appropriate methodology for examining the research question because it allows researchers to analyze online data on publicly available discussion board posts in a naturalistic setting (Heinonen & Medberg, 2018; Kozinets, Dolbec, & Earley, 2014). In addition, netnography is useful for identifying and contextualizing the ideas, questions, thoughts, and concerns among users through interactions on Duolingo discussion boards (Delaney, Kummer, & Singh, 2019).

Discussion boards

Two participants were selected at random for three levels of engagement as highly engaged, moderately engaged, and lower engaged. A total of six participants were selected out of a total pool of 18,281 Spanish users. Users who commented on discussion boards more than 151 times were called highly engaged users. Moderately engaged users commented on discussion boards between 51 and 150 times. Lower engaged users commented on discussion board posts fewer than 50 times. The comments analyzed were originally made during the years 2016 and 2022. Five discussion boards were selected for each participant, for a total of 30 boards to analyze.

Data analysis

The analysis used netnography to examine users' discussion board comments on Duolingo Spanish board forums. Kozinets (2010) described netnography in six steps: (a) coding; (b) noting; (c) abstracting and comparing; (d) checking information and refining; (e) generalizing; (f) theorizing. In the first step of coding, the researcher drew codes and categories from the discussion board comments on 30 boards. Noting was used to create reflective memos on the margins of the note-taking medium. Abstracting and comparing were used to identify similar phrases, patterns, relationships, shared sequences, and differences in the data. Abstracting involved the construction of categories to identify distinctions or discrepancies (Kozinets, 2010). Checking and refining filters and isolates information so it can be easily interpreted for patterns, differences, similarities, and processes (Addeo, Paoli, Esposito, & Bolcato, 2019; Discetti & Anderson, 2023). Generalizing was used to explain how the findings of the sample may be relevant for the greater population of Spanish users (Kozinets, 2020). Finally, theorizing was used to draw conclusive themes about the cumulative data.

Findings and Discussion

The current study examined discussion postings using the following research question, "How do individual Duolingo Spanish users use discussion boards over time among highly engaged, moderately engaged, and lower engaged users?" Additionally, this study compared the findings to a similar study on German discussion board users over time (Neuschafer, 2022). Two participants were highly engaged in Spanish board discussions and had an average total of 740 comments. Moderately engaged users had posted 102 total comments on average. Lower-engaged users posted 42 times on average. Similar to the findings in Neuschafer (2022), the Spanish board users made similar types of comments over time within users. Additionally, the frequency of engagement was associated with the content of the comments at high, moderate, and lower levels.

The results of the netnography showed that there were three themes: (1) highly engaged users make comments over a longer period of time over a span of many years and have the highest proficiency in the Spanish language; (2) moderately engaged users make comments over a relatively shorter period of time during the duration of their studies; (3) lower engaged users are more likely to engage in the discussion boards socially about tangential topics over months. Similar to Neuschafer (2022), the content that was characteristic of the users' engagement level did not change over time, but engagement level was associated with the type of content of the comments within users.

Theme 1: Highly engaged users

The highly engaged users commented 151 times or greater and included two users who made an average of 740 comments. Five discussion boards were analyzed per user, with 10 discussion boards in total. User 1 was active on Duolingo between the years of 2017 and 2022 and made 823 comments. Overall, highly engaged users made comments over a longer period of time over many years and showed the highest proficiency in the Spanish language. The post engagement for User 1 was 36 total months and 22.86 months on average. This user reached level 25 (the highest possible level) on Duolingo as of the date of this publication. This user was particularly prolific on Duolingo, having taken 12 courses, with five courses having reached level 25. User 1 was a Plus user (paid account) and did not appear to be a native Spanish speaker.

User 1 was an avid learner on the platform, but their comments indicated that they were not a native Spanish speaker. A self-professed "grammar nerd," User 1 primarily used the discussion boards to offer grammatical assistance and tutoring for other users, which may have also helped the user consolidate their own Spanish skills and proficiency. User 1 would also comment on the cultural context about appropriate word usage, such as those that are appropriate in Spain versus other Spanish-speaking countries, and appeared to greatly enjoy learning new languages.

In a 2021 discussion board post called, "Él está comprándoles los boletos para sus cumpleaños" (He's buying them tickets for their birthdays), User 1 explains why another user is not correct in their interpretation of the skill:

> No. Your own argument contradicts itself. As you said, possessive adjective, like all adjectives, change based on whether the noun they modify is singular or plural. The word cumpleaños, like most of the Spanish compound nouns using that form, ends in s and can be either singular or plural. The way to tell, therefore, whether it's intended to be singular or plural is to look at the possessive adjective, or article. El or su cumpleaños means the or his/her/your/their birthday. Los or sus cumpleaños means the or his/her/your/their birthday**s**. But since everyone only has one birthday his/her or singular you make no sense.

User 1 also gave background information about learning languages and spoke to another user about visiting Mexico, as seen below. The user explains their interest in grammar, which may help explain why they are so prolific on the Duolingo discussion boards:

> I am a self pronounced (or maybe self diagnosed) grammar nerd, so many people do not know or need to know some of the terms I use. But understanding the difference between the subject, direct object, indirect object and object of a preposition is one element of grammar that is essential to learning a new language in any academic environment. You can pick it up if you are in an immersed environment, like you did in English, but on Duo or in a classroom you'll get lossed (sic) if you don't.

Congratulations on the trip. Depending on where you are going, be careful to stay out of the more touristy areas. I don't know what percent of Mexicans, in general, speak English, but in the tourist-related industries, they essentially all do, and you will be bombarded with it rather than Spanish.

User 2 made 657 comments and was active on Duolingo between the years 2018 and 2022. Their post-engagement was 22 total months, with an average of 8.6 months. User 2 primarily made English comments and was more uncertain about their Spanish studies compared to User 1. User 2 appeared to make comments that expressed uncertainty to obtain explanatory responses from other users. Unlike the German discussion board users, who were highly engaged, the highly engaged Spanish users were not native speakers. User 2 made many English comments to socialize with other users. Although User 2 was not as proficient in Spanish as User 1, they nonetheless offered helpful information to other users. For example, in a 2020 discussion board post titled "Hace más o menos un año que viajé al extranjero" (It's been approximately a year since I traveled abroad), User 2 tells other users that Duolingo accepts another version of a correct answer to an item: "It's been more or less a year since I traveled abroad" is also accepted." In a post titled "Segun el pronóstico, hoy va a ser un diá nublano" (According to the forecast, today is going to be a cloudy day), the user also comments in English: "I think they're expecting us to translate "un dia." Overall, User 2 used the discussion boards to communicate in English to express uncertainty about their skills, while User 1 demonstrated mastery of Spanish as a foreign language. These results differ from German users who were native speakers (Neuschafer, 2022); however, the Spanish board users who were highly engaged also did not change the types of comments made over time.

Theme 2: Moderately engaged users

Moderately engaged users made between 51 and 150 comments. User 3 made 102 total comments and was active on Duolingo between 2020 and 2021. Their post-engagement was 17 total months with an average of 6 months. This user also completed level 25 of the Spanish course. This user's goal was to gain contextual information from other users and primarily used the discussion board to express gratitude by saying thank you or rewarding helpful users with the Duolingo currency, or "lingots." A post was titled, "No vaya al hospital hoy, la veo in mi consultorio" (Don't go to the hospital today, I'll see you in my office). In this post, another user commented, "lo or la is used for usted when usted is the direct object as it is here you can see a person directly ... they are the direct object of ver." User 3 replied, "Helpful! Thanks K****h. A lingot for you!"

User 4 commented 102 times and was active on Duolingo between the years 2016 and 2021. User 4 did not have a Spanish course badge and appeared to be a

proficient speaker. In a post titled, "Segun el pronóstico, hoy va a ser un diá nublano" (According to the forecast, today is going to be a cloudy day), User 4 briefly responded to a question posed by another user: "I'm still a bit confused when to use Estar and when to use Ser when discussing the weather. How is the weather uses Estar, but certain conditions require Ser?" User 4 responded, "ser un día nublado, estar nublado https://forum.duolingo.com/comment/17456637". Overall, moderately engaged users did not change the content of their comments made over time, in line with this pattern in German discussion board users.

Theme 3: Lower-engaged users

Lower engaged users were more likely to engage in the discussion boards socially about tangential topics over months. These users posted 50 times or fewer. User 5 commented 45 times and was active on Duolingo between 2019 and 2022. Their post-engagement was 16 total months and 3 average months. This user completed level 25. This user only used the discussion boards to ask questions about grammar and check if Duolingo's answers were incorrect. In a post titled, "Compramos un kilo de papas y estamos conciná de papas y estamos concinándolas" (We bought a kilo of potatoes and we're cooking them), User 5 playfully responded, "It may seem silly but grammatically are we cooking the potatoes or the Kilo?" In line with the German lower-engaged users (Neuschafer, 2022), the Spanish users communicated in English and made light-hearted comments to socialize with other users and gain additional help from other users.

User 6 made 35 posts and was active on Duolingo between 2020 and 2021. This user completed level 25. Their post-engagement was 13 total months and 2.69 average months. User 6 expressed light-hearted comments that appeared to criticize Duolingo in English. In a post titled, "El programa de enseñanza de idiomas es excelente" (The language teaching program is excellent), User 6 responded, "The irony here is excellent.. Similarly to the German lower engaged users, Spanish users at this engagement level also used the discussion boards to communicate in English and use the boards to socialize and post light-hearted and humorous comments.

Conclusion

The researcher analyzed Duolingo Spanish discussion board posts to understand how comments change over time at highly engaged, moderately engaged, and lower engagement levels. The research question was, "How do individual Duolingo Spanish users use discussion boards over time among highly engaged, moderately engaged, and lower engaged users?" The results of the analysis showed that there were three themes: (1) highly engaged users make comments over a longer period of time over a span of many years and have the highest proficiency in the Spanish language; (2) moderately engaged users make comments over a relatively shorter period of time during the duration of their studies; (3) lower engaged users are more likely to engage in the discussion boards socially about tangential topics over the span of months. Similar to Neuschafer (2022), the content that was characteristic of the users' engagement level did not change over time, but engagement level was associated with the type of content of the comments within users. These results replicated a study by Neuschafer (2022), which examined this research question among Duolingo German users. The results showed that the level of engagement is related to the content of the comments over

time, while the content did not change among users over time. These findings may help educators and researchers understand how discussion board users engage with others to tutor, socialize, and develop greater proficiency in a foreign language.

References

Addeo, F., Paoli, A. D., Esposito, M., & Bolcato, M. Y. (2019). Doing social research on online communities: The benefits of netnography. *Athens Journal of Social Sciences*, *7*(1), 9-38. https://www.academia.edu/download/66604942/ajss.pdf

Chang, C. W., Pearman, C., & Farha, N. (2012). Second language acquisition: Implications of web 2.0 and beyond. *Critical Questions in Education, 3*(2), 52-64. https://files.eric.ed.gov/fulltext/EJ1047008.pdf

Cho, M. H., & Castañeda, D. A. (2019). Motivational and affective engagement in learning Spanish with a mobile application. *System, 81*, 90-99. https://doi.org/10.1016/j.system.2019.01.008

Costello, L., McDermott, M. L., & Wallace, R. (2017). Netnography: Range of practices, misperceptions, and missed opportunities. *International Journal of Qualitative Methods*, *16*(1). https://doi.org/10.1177/1609406917700647

Curry, D. (2021). *Duolingo revenue and usage statistics.* Business of Apps. Retrieved from https://www.businessofapps.com/data/duolingo-statistics/

Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of Studies in International Education*, *10*(3), 241-266. https://doi.org/10.1177%2F1028315306287002

Delaney, D., Kummer, T. F., & Singh, K. (2019). Evaluating the impact of online discussion boards on student engagement with group work. *British Journal of Educational Technology*, *50*(2), 902-920. https://doi.org/10.1111/bjet.12614

Discetti, R., & Anderson, V. (2023). The value of netnography for research in HRD. *Human Resource Development Review*, *22*(1), 59-83. https://doi.org/10.1177/15344843221137506

Duolingo. (2021). About the course. *Duolingo for English Speakers.* Retrieved from https://www.duolingo.com/enroll/de/en/Learn-German

Heinonen, K., & Medberg, G. (2018). Netnography as a tool for understanding customers: Implications for service research and practice. *Journal of Services Marketing*, *32*(6), 657- 679. https://doi.org/10.1108/JSM-08-2017-0294

Jiang, X., Rollinson, J., Plonsky, L., & Pajak, B. (2020). *Duolingo efficacy study: Beginning-level courses equivalent to four university semesters.* Retrieved from https://duolingo-papers.s3.amazonaws.com/reports/duolingo-efficacy-whitepaper.pdf

Kessler, M., De Costa, P., Isbell, D. R., & Gajasinghe, K. (2021). Conducting a netnography in second language acquisition research. *Language Learning*, *71*(4), 1122-1148. https://doi.org/10.1111/lang.12456

Kozinets, R. V. (2010). Netnography: The marketer's secret ingredient. *MIT Technology Review*. Retrieved from https://www.technologyreview.com/2010/10/14/199923/netnography-the-marketers-secret-ingredient/

Kozinets, R. V. (2020). Netnography today: A call to evolve, embrace, energize, and electrify. In R.V. Kozinets & R. Gambetti (Eds.), *Netnography unlimited: Understanding technoculture using qualitative social media research* (pp. 3-23). New York: Routledge.

Kozinets, R. V., Dolbec, P. Y., & Earley, A. (2014). Netnographic analysis: Understanding culture through social media data. In U. Flick (Ed.), *Sage handbook of qualitative data analysis* (pp. 262-275). London: Sage.

Kulavuz-Onal, D. (2015). Using netnography to explore the culture of online language teaching communities. *Calico Journal*, *32*(3), 426-448.

Lacorte, M., & Suarez-Garcia, J. (2016). *Teaching Spanish at the university level in the United States.* Cambridge, MA: Instituto Cervantes at Harvard University.

Neuschafer, T. (2021a). *A netnographic analysis of the needs of learners' participating in Duolingo German discussion boards* (Doctoral dissertation). Indiana University of Pennsylvania, Pennsylvania.

Neuschafer, T. (2021b). A netnographic analysis of how Duolingo supports German and Spanish learning needs. *Digital Culture & Education*, *14*(3), 1-15.

Neuschafer, T. (2022). *Duolingo German users' discussion board use over time.* Forthcoming Publication, 1-14.

Rhodes, N., & Puhfal, I. (2014). *Panorama de la enseñanza de español en las escuelas de los Estados Unidos. Resultados de la encuesta nacional.* Instituto Cervantes at Harvard University. https://doi.org/10.15427/OR002-06/2014SP

Thompson, S. (2021, May 27). The U.S. has the second-largest population of Spanish speakers- How to equip your brand to serve them. *Forbes*. Retrieved from https://www.forbes.com/sites/soniathompson/2021/05/27/the-us-has-the-second-largest-population-of-spanish-speakers-how-to-equip-your-brand-to-serve-them/?sh=a2284ca793ae

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wood, R. T., Griffiths, M. D., & Parke, A. (2007). Experiences of time loss among videogame players: An empirical study. *Cyber Psychology & Behavior*, *10*(1), 38-44. https://doi.org/10.1089/cpb.2006.9994

Yakaeva, T., Salekhova, L., Kuperman, K., & Grigorieva, K. (2017). Content and language integrated learning: Language scaffolding and speech strategies. *Modern Journal of Language Teaching Methods*, *7*(9), 137-143.