

**EXPLORING FACTORS INFLUENCING STUDENTS' MOTIVATION:
A CASE STUDY OF DUOLINGO TO PROMOTE LEARNERS'
AUTONOMY**

UNDERGRADUATE THESIS

Submitted in partial fulfillment for Bachelor's degree in English Language
Education Study Program



by

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar
Sarjana Pendidikan pada Fakultas Pendidikan Bahasa dan Sastra

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APPROVAL PAGE

Undergraduate Thesis

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ABSTRAK

Dalam dekade terakhir, penelitian secara konsisten menyoroiti peran penting motivasi dalam pembelajaran bahasa serta dalam penggunaan Mobile-Assisted Language Learning (MALL), seperti Duolingo. Motivasi siswa bisa menjadi masalah ketika pelajar tidak termotivasi untuk belajar bahasa dan menggunakan aplikasi Duolingo. Oleh karena itu, penelitian ini bertujuan untuk menyelidiki faktor-faktor yang mempengaruhi motivasi siswa saat menggunakan Duolingo dan menentukan apakah Duolingo dapat mendukung otonomi siswa. Dalam menjelajahi faktor-faktor yang mempengaruhi motivasi siswa, peneliti akan menggunakan Teori *Self-Determination Theory (SDT)* sebagai kerangka untuk memandu penelitian. Penelitian ini menggunakan pendekatan studi kasus dengan 87 siswa SMA sebagai peserta. Dalam pengumpulan data, kuesioner dan wawancara digunakan sebagai instrumen penelitian. Studi ini mengungkapkan bahwa otonomi, kompetensi, dan keterkaitan, serta motivasi intrinsik dan ekstrinsik, mempengaruhi motivasi siswa untuk menggunakan Duolingo, seperti yang dibuktikan oleh perbedaan skor rata-rata antara kelompok siswa dengan motivasi tinggi ($M=3,87$) dan siswa dengan motivasi rendah ($M=3,34$). Selain itu, dari hasil penelitian dapat dikatakan bahwa Duolingo kurang efektif dalam mendukung otonomi pembelajar di tingkat SMA. Temuan ini merekomendasikan penelitian serupa dengan kerangka teoretis dan aplikasi yang berbeda untuk menyelidiki faktor-faktor yang mempengaruhi motivasi siswa dalam menggunakan Mobile-Assisted Language Learning.

Kata kunci: Duolingo, otonomi pembelajar, *Self-Determination Theory*, motivasi siswa

ABSTRACT

In the past decade, research has consistently highlighted the critical role of motivation in language learning, as well as in the use of Mobile-Assisted Language Learning (MALL), such as Duolingo. Students' motivation can be a problem when learners are not motivated to learn languages and use the Duolingo application. Therefore, this study aims to investigate the factors that influence students' motivation when using Duolingo and determine whether Duolingo promotes students' autonomy. In exploring the factors that affect student motivation, the researcher will use Self-Determination Theory (SDT) as the framework to guide the research. This study employed a case study with 87 high school students as the participants. In obtaining the data, a questionnaire and interview were implemented as the instruments of the research. The study reveals that autonomy, competence, and relatedness, as well as intrinsic and extrinsic motivation, affect students' motivation to use Duolingo as evidenced by the difference in the mean scores between the group of students with high motivation ($M=3.87$) and students with low motivation ($M=3.34$). Further, from the results it can be said that Duolingo is less effective in promoting learners' autonomy in high school level. The findings recommend employing similar research with different frameworks and applications to investigate factors influencing students' motivation in using Mobile-Assisted Language Learning.

Keywords: Duolingo, learners' autonomy, self-determination theory, students' motivation

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REFERENCES

- Al-Hoorie, A. H. (2018). The L2 motivational self system: A meta-analysis. *Studies in Second Language Learning and Teaching*, 8(4), 721–754. <https://doi.org/10.14746/ssllt.2018.8.4.2>
- Alele, F., & Malau-Aduli, B. (2023). An introduction to research methods for undergraduate health profession students.
- Amin, S. N. (2021). Gamification of Duolingo in rising student's English language learning motivation. *Jurnal Bahasa Lingua Scientia*, 13(2), 191–213. <https://doi.org/10.21274/lis.2019.11.2.219-236>
- Bandura, A. (1997) Self-Efficacy: The Exercise of Control. W.H. Freeman and Company, New York. DOI: 10.1037/10522-094
- Baumeister, R., & Leary, M. (1995). The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation. *Psychological bulletin*. 117. 497-529. DOI: 10.1037/0033-2909.117.3.497
- Beatty, K. (2013). Teaching and researching computer-assisted language learning. Routledge. DOI: 10.4324/9781315833774
- Benson, P. (2011). Teaching and Researching: Autonomy. New York: Routledge Taylor and Francis Group.
- Benson, P. (2013). Learners' autonomy. *TESOL Quarterly*, 47(4), 839–843. <http://www.jstor.org/stable/43267936>
- Bhandari, P. (2023, June 22). Triangulation in Research | Guide, Types, Examples. Scribbr. Retrieved April 2, 2024, from <https://www.scribbr.com/methodology/triangulation/>
- Bhattacharjee, A. (2012). Social Science Research: Principles, methods, and practices. Global Text Project. Retrieved April 2, 2024, from https://digitalcommons.usf.edu/oa_textbooks/3/
- Blaschke, L. M., (2012). Heutagogy and Lifelong Learning: A Review of Heutagogical Practice and Self-Determined Learning. *International Review of Research in Open and Distance Learning*. 13. 56-71. DOI: 10.19173/irrodl.v13i1.1076

- Botero, G. G., & Questier, F. (2016). What students think and what they actually do in a mobile assisted language learning context: new insights for self-directed language learning in higher education. *CALL Communities and Culture – Short Papers from EUROCALL 2016*, 150–154. <https://doi.org/10.14705/RPNET.2016.EUROCALL2016.553>
- Boyinbode, O. (2018). Development of a gamification based English vocabulary mobile learning system. *International Journal of Computer Science and Mobile Computing*, 7(8), 183-191.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2):77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3–26. <https://doi.org/10.1037/qup0000196>
- Brew, M. (2017). What is mobile learning?: Definition, benefits & top tips. *eduMe*. <https://www.edume.com/blog/mobile-learning#mobile-learning-definition>
- Brigham, T.J. (2015). An introduction to gamification: Adding game elements for engagement. *Medical Reference Services Quarterly*, 34(4), 471-480.
- Brown, H. (2007). *Principles of Language Learning and teaching*. Fifth Edition. Addison Wesley Longman, Inc. A Pearson Education Company.
- Caulfield, J. (2023, June 22). How to do thematic analysis | Step-by-Step Guide & Examples. Scribbr. Retrieved April 28, 2024, from <https://www.scribbr.com/methodology/thematic-analysis/>
- Christiana, I. O. (2009). Influence of motivation on students' academic performance. *Social Sciences*, 4. 30-36.
- Coles, A., & Mcgrath, J. (2013). *Your Education Research Project companion*. In Routledge eBooks. <https://doi.org/10.4324/9781315846965>
- Cooksey, R. (2020). Descriptive statistics for summarising data. In Springer eBooks (pp. 61–139). https://doi.org/10.1007/978-981-15-2537-7_5

- Corpus, J. H., McClintic-Gilbert, M. S., & Hayenga, A. (2006). Understanding Intrinsic and Extrinsic Motivation: Age Differences and Links to Children's Beliefs and Goals.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). SAGE Publications, Incorporated.
- Deci, E. L., & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. *Berlin: Springer Science & Business Media*. <https://doi.org/10.1007/978-1-4899-2271-7>
- Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Deci, E.L., & Ryan, R.M. (2008). Self-determination theory: A macro theory of human motivation, development, and health. *Canadian Psychology, 49*(3), 182-185. <https://doi.org/10.1037/a0012801>
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–436). Sage Publications Ltd. <https://doi.org/10.4135/9781446249215.n21>
- Deci, E. L., & Ryan, R. M. (2017). Self-determination theory. Basic psychological needs in motivation, development,
- Deci, E.L., Vallerand, R.J., Pelletier, L.G. and Ryan, R.M. (1991) Motivation and Education: The Self-Determination Perspective. *The Educational Psychologist, 26*, 325-346. <http://dx.doi.org/10.1080/00461520.1991.9653137>
- Deterding, S., & Dixon, D., & Khaled, R., & Nacke, L. (2011). From Game Design Elements to Gamefulness: Defining Gamification. *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, MindTrek 2011. 11. 9-15. 10.1145/2181037.2181040.*
- Dörnyei, Z., & Ryan, S. (2015). The Psychology of the language learner revisited. In *Routledge eBooks*. <https://doi.org/10.4324/9781315779553>

- Duy, H. P. (2018). Understanding the effect of game in an educational environment using game refinement measures. Japan Advanced Institute of Science and Technology.
- Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, 34(3), 169–189. https://doi.org/10.1207/s15326985ep3403_3
- Fisher, R. (2012). Diversity in learner usage patterns. In G. Stockwell (Ed.), *Computer-assisted language learning: diversity in research and practice* (pp. 14-32). Cambridge University Press. <https://doi.org/10.1017/CBO9781139060981.002>
- Fitriyani, F. (2018). *Analyzing Duolingo as Computer-Assisted Language Learning (CALL) in assisting language autonomous Learner* [Thesis, Universitas Islam Negeri Salatiga]. <http://e-repository.perpus.iainsalatiga.ac.id/4670/>
- Furrer, C., & Skinner, E. (2003). Sense of Relatedness as a Factor in Children's Academic Engagement and Performance. *Journal of Educational Psychology*, 95, 148-162. <https://doi.org/10.1037/0022-0663.95.1.148>.
- George, T. (2023, June 22). Semi-Structured Interview | Definition, Guide & Examples. Scribbr. Retrieved April 28, 2024, from <https://www.scribbr.com/methodology/semi-structured-interview>
- Gibbs, G. R., (2007). 4 Thematic coding and categorizing. *Analyzing Qualitative Data*. London: SAGE Publications, Ltd.
- Hadi, M. S., & Prisantika, F. I. (2022). English fun learning with Duolingo apps for 11th senior high school students during the covid 19 pandemic. *Jurnal Darma Agung*, 30(2), 516–519. <https://doi.org/10.46930/ojsuda.v30i2.2065>
- Hairunnisa. (2023). *Students' perception on using Duolingo application in increasing English learning motivation* [Thesis, UIN Syarif Hidayatullah]. <https://repository.uinjkt.ac.id/dspace/handle/123456789/70277>
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work? — A Literature Review of Empirical Studies on Gamification. *Proceedings of*

the Annual Hawaii International Conference on System Sciences.
10.1109/HICSS.2014.377.

Hancock, B. (2002). *An Introduction to Qualitative Research*. Nottingham, UK: Trent Focus Group.

Harahap, T. A. (2021). Improving students' motivation through English online learning: Speaking skills. *PROJECT (Professional Journal of English Education)*, 4(5), 870–875. <https://doi.org/10.22460/project.v4i5.p870-875>

Harmer, J. (2001). *The Practice of English Language Teaching*. Third Edition. Longman Pearson Education Limited.

Hidayati, T., & Diana, S. (2019). Students' motivation to learn English using mobile applications: The case of Duolingo and Hello English. *JEELLS (Journal of English Education and Linguistics Studies)*, 6(2), 189–213. <https://doi.org/10.30762/jeels.v6i2.1233>

Holec, H. (1981). *Autonomy and Foreign Language Learning*. Oxford: Pergamon.

Husna, A. H., & Murtini, R. T. (2019). A study on students' motivation in learning English as English foreign language (EFL) at STIKES Cendekia Utama Kudus. *English Education: Journal of English Teaching and Research*, 4(2), 207–220. <https://doi.org/10.29407/jetar.v4i2.13745>

Inayah, N., Yusuf, Q., & Fibula, N. (2020). Exploring undergraduate students' perception toward the use of Duolingo in learning English. *Humanities & Social Sciences Reviews*, 8(3), 76–85. <https://doi.org/10.18510/hssr.2020.839>

Indrawan, F., Daristin, P. E., & Laili, E. N. (2023). The influence of Duolingo application to EFL Classroom Students' motivation in learning English. *Journey Journal of English Language and Pedagogy*, 6(3), 626–633. <https://doi.org/10.33503/journey.v6i3.3695>

Jamshed, S. Q. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy*, 5(4), 87. <https://doi.org/10.4103/0976-0105.141942>

Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. San Francisco, CA: Pfeiffer.

- Lamb, M. (2017). The motivational dimension of language teaching. *Language Teaching*, 50(3), 301–346. <https://doi.org/10.1017/s0261444817000088>
- Landers, R. N. (2015). Developing a Theory of Gamified Learning: Linking Serious Games and Gamification of Learning. *Simulation & Gaming*, 45(6), 752-768. <https://doi.org/10.1177/1046878114563660>
- Little, D. (1991). *Autonomous learner 1: Definitions, Issues and Problems*. Dublin: Authentic Language Learning Resources.
- Little, D. (2011). Learners' autonomy, self- assessment and language tests: Towards a new assessment culture. *Independent Language Learning: Building on Experience, Seeking New Perspectives*, 25-40. <https://doi.org/10.5790/hongkong/9789888083640.003.000>
- Meşe, E., & Sevilen, Ç. (2021). Factors influencing EFL students' motivation in online learning: A qualitative case study. *Journal of Educational Technology and Learning*. <https://dergipark.org.tr/en/pub/jetol/issue/60134/817680>
- Miangah, T. M., & Nezarat, A. (2012). Mobile-Assisted Language Learning. *International Journal of Distributed and Parallel Systems*. 3. 309-319. [10.5121/ijdps.2012.3126](https://doi.org/10.5121/ijdps.2012.3126).
- Module 4: Methods of Information Collection - Section 1. (2001, February 7). ORI - the Office of Research Integrity. Retrieved April 2, 2024, from <https://ori.hhs.gov/module-4-methods-information-collection-section-1>
- Munasiroh. (2023). The effectiveness of “Duolingo for School” application on the students' motivation to learn English at SMP N 2 Kroya [Thesis, STATE ISLAMIC UNIVERSITY PROFESOR KIAI HAJI SAIFUDDIN ZUHRI PURWOKERTO]. <https://repository.uinsaizu.ac.id/18513/>
- Mutmainah, M. (2022). Students' perception and engagement in learning English with the use of gamification through Wordwall Educational website [Thesis, Universitas Pendidikan Indonesia]. <http://repository.upi.edu/81469/>
- Mulya, A., & Refnaldi, R. (2016). Using school.duolingo.com as an alternative E-Learning at Senior High School for teaching and learning English online.

Journal of English Language Teaching.
<https://doi.org/10.24036/jelt.v5i1.7315>

- Nikolopoulou, K. (2023, June 22). What is purposive sampling? | Definition & Examples. Scribbr. Retrieved March 30, 2024, from <https://www.scribbr.com/methodology/purposive-sampling/>
- Novitasari, I., & Purnamaningsih, I. R. (2022). Students' perceptions of using the Duolingo application as an online English learning medium. *PROJECT (Professional Journal of English Education)*, 5(3), 535–543. <https://doi.org/10.22460/project.v5i3.p535-543>
- Nushi, M., & Eqbali, M. H. (2017). Duolingo: A mobile application to assist second language learning. *Teaching English with Technology*, 17(1), 89–98. <http://files.eric.ed.gov/fulltext/EJ1135889.pdf>
- Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research*, 70(3), 323–367. <https://doi.org/10.3102/00346543070003323>
- Ponto, J. (2015). Understanding and Evaluating Survey Research. *Journal of the advanced practitioner in oncology*, 6(2), 168–171.
- Popping, R. (2015). Analyzing open-ended questions by means of text analysis procedures. *BMS. Bulletin De Méthodologie Sociologique/Bulletin De Méthodologie Sociologique*, 128(1), 23–39. <https://doi.org/10.1177/0759106315597389>
- Purnama, N. A., Rahayu, N. S., & Yugafiati, R. (2019). Students' motivation in learning English. *PROJECT (Professional Journal of English Education)*, 2(4), 539–544. <https://doi.org/10.22460/project.v2i4.p539-544>
- Reeve, J. (2006). Teachers as Facilitators: What Autonomy-Supportive Teachers Do and Why Their Students Benefit. *Elementary School Journal - ELEM SCH J*. 106. 225-236. 10.1086/501484.
- Reinders, H. (2018). Technology and Autonomy. *The TESOL Encyclopedia of English Language Teaching* First Edition. <https://doi.org/10.1002/9781118784235.eelt0433>.

- Ryan, R. M. (2009). Self-determination theory and well-being. *Social Psychology*, 84(822), 848. https://www.welldev.org.uk/wed-new/network/research-review/Review_1_Ryan.pdf
- Ryder, R., & Machajewski, S. (2017). The UIC German game app for the enhancement of foreign language learning: Case Study. *International Journal of Education Technology*, 4(1), 1-16.
- Saraswati, N. A., Anam, S., & Purwati, O. (2021). Autonomous Mobile-Assisted language learning for young learners using Duolingo. *Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics*, 8(2), 235–246. <https://doi.org/10.22219/celtic.v8i2.16959>
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, 60, 101832. <https://doi.org/10.1016/j.cedpsych.2019.101832>
- Sheldon, K. M., & Krieger, L. S. (2007). Understanding the Negative Effects of legal education on law Students: A Longitudinal Test of Self-Determination Theory. *Personality and Social Psychology Bulletin*, 33(6), 883–897. <https://doi.org/10.1177/0146167207301014>
- Siemens, G. (2013). Learning Analytics: The Emergence of a Discipline. *American Behavioral Scientist*, 57(10), 1380-1400. <https://doi.org/10.1177/0002764213498851>
- Suadarna, I. K. (2012). Implementasi Model Belajar Mandiri untuk Meningkatkan Aktivitas, Hasil, dan Kemandirian Belajar Mahasiswa. *Jurnal Pendidikandan Pengajaran*, 45(1), 56-65. <https://doi.org/10.23887/jppundiksha.v45i1.1785>
- Tsai, C. C. (2016). The role of Duolingo in foreign language learners' learners' autonomy. *The International Academic Forum*. <https://papers.iafor.org/submission26504/>
- Ushioda, E. (2020). *Language Learning Motivation*. Oxford University Press.
- Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, 44, 1-31. <https://doi.org/10.1007/s11031-019-09818-1>

- Wentzel, K. (1998). Social Relationships and Motivation in Middle School: The Role of Parents, Teachers, and Peers. *Journal of Educational Psychology*. 90. 202-209. 10.1037/0022-0663.90.2.202.
- Wiseman, D. G. & Hunt, G. H. (2013). *Best Practice in Motivation and Management in the Classroom*. 3rd Edition (Charles C. Thomas Publisher. (ed.); 3rd ed.). Charles C. Thomas Publisher, Ltd.
- Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods* (6th ed.). Thousand Oaks, CA: Sage.