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## LEARNING POLISH WITH DUOLINGO: A CASE STUDY IN TAIWANESE ACADEMIC SETTING

**Abstract:** Duolingo is one of the most popular applications used for learning foreign languages and, as such, has attracted attention of numerous scholars around the world. Majority of them, however, have focused on how the app supports English instruction. Not enough has been found about using it for mastering Polish by non-native speakers. What is more, a great deal of existing research is quantitative in character, which is why there is a growing demand for projects offering a deeper insight into the issue. The goal of this case study is to fill in this gap by providing a more detailed explanation of how Duolingo can be used for learning Polish in Taiwanese academic setting, as perceived by a female student majoring in Slavic languages whose mother tongue is Mandarin. The data obtained in a series of in-depth interviews enables a better understanding of how this highly motivated learner saw the product and its main features, with gamification, forum, and English-mediated instruction among them. Put briefly, Duolingo turned out to be useful as an addition to the regular course at school and the student demonstrated high engagement by using it almost every day. But still, more research is needed to better understand how to incorporate the app into an in-class instruction and to see what strategies of learning are efficient, so that the users can benefit even more.

**Keywords:** Duolingo, CALL, app, Polish language, Taiwan, university student

### NAUKA POLSKIEGO Z DUOLINGO: STUDIUM PRZYPADKU (TAJWAN)

**Streszczenie.** Duolingo jest obecnie jedną z najpopularniejszych aplikacji językowych, w związku z czym zwraca uwagę badaczy na całym świecie. Choć wiele artykułów poświęcono jak dotąd użyciu tego programu do nauki angielskiego, wciąż skromna jest nasza wiedza na temat zastosowania Duolingo w kontekście polonistycznym. Co więcej, znakomita większość dostępnych tekstów to badania o charakterze ilościowym. Ciągłe mało jest publikacji oferujących wnikliwszy

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wgląd w naturę omawianego zagadnienia. Celem niniejszego studium przypadku jest wykazanie, jak aplikacja ta przysłużyć się może poznawaniu języka polskiego na Tajwanie. Autorka prezentuje w nim dane zebrane podczas serii wywiadów ze studentką tajpejskiej slawistyki. Pozwalają one zrozumieć, jak użytkowniczka ta postrzegała produkt i jego główne cechy, wśród których wymienić należy grywalizację, forum oraz użycie języka angielskiego jako pośrednika w nauce. W dużym skrócie można stwierdzić, że – z punktu widzenia informatorki – aplikacja okazała się pomocnym dodatkiem do regularnych zajęć w klasie, studentka zaś wykazała duże zaangażowanie, ucząc się praktycznie codziennie. Rozważając kierunek przyszłych badań warto rozważyć analizę sposobów na wykorzystanie Duolingo podczas lektoratu oraz przebadanie strategii, które mogą przysłużyć się studentom.

**Słowa kluczowe:** Duolingo, nauka języków wspomagana komputerowo, aplikacja, język polski jako obcy, Tajwan, studenci tajwańscy

## 1. INTRODUCTION

Duolingo is a mobile application and a website designed for foreign language learners. As for March 2022, 41 different languages are offered.<sup>1</sup> Polish has 1.15m learners, which places it at the 19<sup>th</sup> position in the ranking.<sup>2</sup> **The purpose of this project is to examine how the software supports learning Polish by a college student in a public university in Taipei.** How does learning happen in this context? What features of the product contribute to the linguistic progress the most? The study has been hugely influenced by the work of Short et al. (2021), who reviewed a series of papers on Duolingo, concluding that most of them had been published in the United States, were quantitative in character, and focused on English as the target language. The author is hoping to share her observations regarding Polish learning experience in Asian academic setting. It is an independent project that has not been sponsored by Duolingo or any other institution.

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<sup>1</sup> [www.duoplanet.com](http://www.duoplanet.com) [11.12.2022].

<sup>2</sup> For comparison, there are 28.2m of users registered for the Spanish course, 17.3m for French, and 12.3m for Japanese, which make up for the top three. Among Slavic languages, only Russian and Ukrainian are more popular, with interest in the latter increased after the recent invasion. The app witnessed Ukrainian learning increase by 577%, moving from the 33<sup>rd</sup> position in the ranking to 13th most popular, as the language “has stepped into the global spotlight as a symbol of defiance, national identity and survival”, inspiring people to reassess “the way [they] go to study Slavic languages” and to manifest their support. Polish is said to have risen similar interest in 1980’s, when the country was resisting communism ([www.latimes.com](http://www.latimes.com), [www.huri.harvard.edu](http://www.huri.harvard.edu)).

## 2. LITERATURE REVIEW

**2.1. Popularity.** Released a decade ago, today Duolingo is the most frequently studied language learning platform, gaining its international recognition as the most gamified digital learning tool (Short et al. 2021) and receiving prestigious awards and nominations (Karasimos 2022, p. 155). Free of charge (at least in the basic form), the app remains within reach for Internet-connected users, regardless of their location or economic status, making it applicable in various teaching contexts. It has been researched around the globe, including places such as Taiwan (Charlene Tsai 2016),<sup>3</sup> my native Poland (Uchwat-Zaród 2020; Krajka & Białek 2021, or Aleksandrowska & Stanulewicz 2020) and many other European countries, including Eastern Europe (Federova 2018; Kvitka 2020) and Greece (Karasimis 2020). The current research has been informed also by research from Iran (Nushi & Eqbali 2017), Israel (Gafni et al. 2017), from the Arabic linguistic context (Ahmed 2016), from Borneo (Ajisoko 2020), as well as from the Americas, including Columbia (Abaunza et al. 2019) and, of course, the U.S. (Short et al. 2021; Jiang et al. 2021). Some of the studies involve international samples, like Tafazoli et al. (2018) or Cebbron et al. (2021). There is an abundant body of research on Duolingo-enhanced learning of English (see Short et al. 2021, for more detailed information; de Castro et al. 2016; Tafazoli et al. 2018) and other popular languages like Spanish or French (Jiang et al. 2021). Some studies include learning two or more languages (Ahmed 2016; Charlene Tsai 2016), up to fifteen, as the one conducted by Aleksandrowska and Stanulewicz (2020). Other branches of research mention purely technical aspects, with Istrate (2018, p. 475) and Slavuj (2021, p. 30) being good examples.

**2.2. Support.** Reportedly, individuals using the product reap substantial learning benefits, progressing towards significant achievements (Bustillo 2017, p. 63), comparable with these of the students enrolled in regular university courses (Jiang et al. 2021, p. 992). It must be noted, though, that some (not all) of the enthusiastic conclusions might lack credibility, due to the absence of more solid evidence (for more sceptic evaluation, see Short et al. 2021). Nevertheless, Duolingo has earned its reputation as a valuable tool supporting education, with the ease of use, the gamification, and the ubiquity as its key qualities stimulating the progress, one's willingness to continue, as well as their readiness to recommend the app to others (Gafni et al. 2017, p. 314). As concluded by Jiang et al. (2021, p. 992–993), “online language learning products can be effective methods for learning an additional language, at least in reading and listening.” The latter reservation is in tune with the vast amount of research qualifying Duolingo as a tool for promoting receptive skills, as opposed to productive ones. To be fair, though, the app is constantly

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<sup>3</sup> The similarity of the surnames is coincidental. To keep the distinction obvious, the researcher's first name will be added.

improving and, as for April 2022, free conversation practice is being offered to a wider audience.<sup>4</sup> Considerable number of scholars connected Duolingo-facilitated learning with substantial enhancement of vocabulary, pronunciation, grammar, and spelling (for instance Kosch 2019, p. 174–178). As found by Aleksandrowska and Stanulewicz (2020, p. 137), a beginner valued the opportunity to master expressions applicable in the real-life context that turned out useful during a trip to Spain. In their study, similar favorable attitudes were declared by 78% of the informants. Additionally, more than a half (56%) were positive about using the app for learning grammar. Participant in de Castro's project (de Castro et al. 2016, p. 62) reportedly experienced a growth in confidence and effectiveness, although it remains unclear how this phenomenon had been measured. No review would be complete without pointing out to the aspect of gamified learning, which enables the user to monitor the progress, receive constructive feedback and collect awards, many of which are said to increase motivation for further studies (Aleksandrowska and Stanulewicz 2020, p. 126). These two scholars additionally pointed to a friendly atmosphere of mutual support, bringing a hint of thrill and competition to the instruction, which, from their point of view, translates into excitement and growing interest in learning.

**2.3. Previous research design.** Abundance of studies dedicated to Duolingo results in variety of approaches and sample sizes. In terms of methodology, the scholars often relied on mixed design (Ahmed 2016; Charlene Tsai 2016; Tafazoli 2018; Karasimos 2022). The data could be collected in the form of questionnaires (de Castro et al. 2016; Cebon et al. 2021, Gafni et al. 2017), tests (Ajisoko 2020), or interviews (Ahmed 2016, Aleksandrowska & Stanulewicz 2020). Some projects included single participants, like Geben's case study of a Lithuanian female studying Polish (Geben 2020), where Duolingo was mentioned, or Ahmed's intervention involving a child. Larger samples can be found in Gafni et al. (2017), whose comparative study relied on 89 informants in two different populations, as well as in Jiang et al. (2021) who researched 135 Spanish learners along with 90 people learning French. Tafazoli's (2018) project involved 415 persons, while Cebon et al. (2021) worked with 1028 respondents in six European countries. Ages varied as well, including children (Ahmed 2016), teenagers (Gafni et al. 2017), college students (Charlene Tsai 2016), adults (Karasimos 2022; Jiang et al. 2021), or mixed samples (Aleksandrowska & Stanulewicz 2020). In larger groups, women prevailed (Aleksandrowska & Stanulewicz 2020, Tafazoli 2018). Some scholars looked for gender-based differences in perceptions of Duolingo, as Gafni et al. did (2017, p. 305). In their study, higher user satisfaction was found in boys (2017, p. 310). Interestingly, the same study looked at the correlation between voluntary vs. mandatory use of the app and its perceived enjoyability (*ibid.*), proving that when forced to study with Duolingo, students are far less enthusiastic.

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<sup>4</sup> Please visit [www.events.duolingo.com](http://www.events.duolingo.com) for more details.

Some scholars presented Duolingo in comparison with other applications, as done by Tafazoli (2018, p. 56), whose participants ranked it as the top translation software, expressing their general preference for Rosetta Stone, a paid app seen as “a comprehensive 4-skill instructional software”. Karismos (2022, p. 161) compared five applications, with Duolingo topping in three categories: interface, gamification, and reviewing. The app was also valued for offering pronunciation practice, a dictionary, as well as for reading, listening, grammar and vocabulary instruction. Writing and speaking training were given relatively lower recognition. Some scholars, with Gafni et al. (2017) among them, compared the use of the product alone versus as a complementary tool in addition to an in-class instruction. They found varying attitudes toward the use of the forum function and the social aspects of the app. For the participants in Jiang’s study (2021), Duolingo was the only learning tool. The latter project involved people with little to no proficiency in the target language, similarly to Ahmed (2016) and Bustillo (2017). Beginners have been found to observe the swiftest progress (Aleksandrowska & Stanulewicz 2020, p. 139), although such conclusions might be difficult to prove, if based mainly on informants’ self-perceptions. In the latter instance, the sample included individuals who had been using the app for 2 weeks, as well as users with 6 years of experience with Duolingo. The study designed by Karasimos (2022) included fluent EFL learners (C1–C2), but here, again, the information was collected after 4 to 6 hours of total exposure, which might have affected the results. To be fair, five hours of Duolingo instruction could translate into two months of a study, if done regularly for five minutes a day. It is, however, hard to imagine getting satisfactory results and improving a lot from such minimal investment of effort. An interesting method had been deployed by Ajisoko (2020) whose participants were asked to earn 20 XP in a single day, for thirty days, after class. (XP is a virtual reward system developed by the app designers. To gain this amount, one needs to focus on the task, but it will not necessarily take too much of their time to complete.)

**2.4. Duolingo in education.** Now, let us look at the educational value of the platform in question. Many scholars have examined the product in terms of its applicability to the currently dominating teaching approaches, emphasizing the contrast between the principles of communicative methods and the behavioristic rules underlying the app design. As characterized by Krajka and Białek (2021), in the first CALL materials, back in 1950’s, a lot of attention was given to mastering automatic responses to language stimuli, thus, the popularity of computer-supported games in language teaching. Nowadays, apps like Duolingo seem to continue the retro trend, offering more appealing solutions that encourage the learners to practice the skills. Translation-based exercises are provided to additionally reinforce the vocabulary. But, as the sceptics point out, neither automaticity nor translation remain in tune with the basic beliefs influencing communicative language learning, at least the way we want to see it in the West, as a process of “creative construction” involving

trial and error (Richards and Rodgers 2001, p. 172). In addition, much is being said about the necessity of “authentic and meaningful communication” in the classroom (ibid.), happening preferably within a supportive community of learners, as proposed by Piaget and Vygotsky, “both of whom stress the central role of social interaction in learning” (Richards and Rodgers 2001, p. 194). As suggested by Uchwat-Zaród (2020), relationships are at the very core of education and they need to be carefully recreated in the context of computer-assisted teaching and learning, no matter how hard the task is. Regarding the problem of community, the software enables its users to share their own progress with others via social media (Bicen & Kocakoyum 2017, p. 19) and to participate in discussion on the forum, which Short et al. (2021) saw as “the only feature of Duolingo rooted in the sociocultural view of language learning”, pointing out that this aspect had received relatively little attention by the scholars. One may find themselves wondering whether the forum receives any attention at all, as the discussions are often abandoned or locked eight years ago,<sup>5</sup> as it was the case in the Portuguese language section that the researcher is currently using. Another concern would be related to the reliability of the communal feedback. The problem is whether another learner would be able to offer us a better support than an expert. Where would they search for the answers to our questions? Given that the users come from so many linguistic backgrounds, are all questions necessarily that easily predictable and frequently asked?

**2.5. Benefits.** Nevertheless, the app might offer a host of advantages for language learners. First, as personalized and adaptive learning tool, Duolingo allows students to advance at their own pace and creates a sense of flexibility (de Castro et al. 2016, p. 62; Bustillo et al. 2017, p. 63; Harangus et al. 2021, p. 61–62; Karismos 2022, p. 155). Students have reported increased motivation to spend time learning (Aleksandrowska & Stanulewicz 2020, p. 126) and a greater sense of autonomy, related to improvement of time management and benefiting from the reminder function built in the app (Charlene Tsai 2016). The latter scholar reported that by learning with the product, students were also able to evaluate their own outcomes, find additional materials, and adjust learning strategies employed in the whole process (ibid.). It also allowed more privacy in comparison with collective practice in class (de Castro 2016, p. 62), which can be an issue if the number of students enrolled in a course is high.<sup>6</sup> As noted by Kvitka (2020, p. 1642), the app comes with a fair and objective assessment of skills. Besides, it has been proven to support instruction in students with special needs (Federova 2018, p. 634). From the technical point of view, one of the greatest advantages is suitability for both Android and iOS systems, as mentioned by Bicen & Kocakoyum (2017, p. 19), who also think that the app is enjoyable and, thus, motivating.

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<sup>5</sup> As for the beginning of April, 2022.

<sup>6</sup> The researcher once taught EFL conversation class to a group of 70 students. And yet, even more numerous groups are quite common in Taiwan.

**2.6. Downsides.** On the other hand, the app has evoked numerous controversies. Krashen (2014, p. 14) warned that the path to a true language competence does not lead through conscious learning, pointing out to the superior qualities of language acquisition, as opposed to mechanical learning. Nushi & Eqbali (2017, p. 97) observed that the short, decontextualized phrases and sentences used by Duolingo may not be that helpful in achieving a desired conversational level. Aleksandrowska & Stanulewicz (2020, p. 136) expressed their concern that many users have problems with English, if it is used to teach another language, especially one that has a more complex grammatical system. (At Duolingo, Polish is one of the languages taught only through English. For comparison, one can learn Spanish in ten different languages, while Russian is taught in five.) Karasimos (2022, p. 155) saw “no common ground theory behind its course design”, issues regarding vocabulary selection, as well as lack of suitable grammar or syntactic explanation. Nushi & Eqbali (2017, p. 95–96) wrote about unnaturalness of the sample sentences, lack of human interaction, and the inconsistency in teaching pronunciation: Some words look similar but are pronounced differently, but still, the app does not sensitize its users to such instances. In some circumstances, dependence on the Internet might pose a problem, especially when the connection is unstable, a noisy environment can pose distractions to the learners, if engaged in studying “on the go”, and the device used can show too many notifications and messages, which can disturb you if you are trying to focus (Gafni et al. 2016, p. 312).

### 3. THE CURRENT STUDY

**3.1. Setting.** In Taiwan, Polish is taught at several universities. However, since none of the schools currently offers a wide selection of Polish courses, apps like Duolingo might be of help, so that students can get exposed to the target language after they leave class. At the same time, using electronic devices and relying on the Internet is common, at least in major cities like the capital where the study is set. Put briefly, there is a demand for additional instruction, there are technical conditions enabling us to access the network anywhere, anytime, and there is Duolingo – an app that offers support in language learning. The latter one is available free of charge, at least in its basic option, which is why many young users came to know it, as it was the case with the student described in this paper. Perhaps surprisingly for some Western Readers, Taiwanese language education is very much test-oriented and a lot of attention is being paid to grammar and accuracy. Even in language labs, it is not uncommon for the participants to remain quiet most of the time. In other words, the communicative approach does not always fit the local tradition, despite the efforts of the policy makers and educators. At the same

time, students are accustomed to teamwork and collectivistic values are reflected in many aspects of life. Group coherence matters a lot.

**3.2. Focus.** The goal of this paper is *to highlight the relationships between particular features of the application and learning outcomes*, as perceived by a Taiwanese user learning Polish. First, we will try to understand how the participant saw herself as a learner. After that, various aspects of the product will be analyzed, including two often researched features, namely forum and gamification. We will also look at some issues regarding the use of English as a means of instruction.

**3.3. Participant.** The project described below offers an insight to this particular academic realm. To enable a more in-depth understanding, only one case is analyzed: a female Polish intermediate learner in her early twenties (b. 1999), speaking Mandarin as her mother tongue. She majored in Slavic studies and was completing her undergraduate program in a prestigious public university. Advanced in Russian and intermediate in English, she expressed her particular interest in Polish, a passion that resulted in hours of self-study and steady progress. In the course of the intervention, she got admitted as an exchange student to Warsaw, which was a dream coming true. Comfortable with technology, she rather used it as a supporting tool or to contact her family and friends. Unlike many of her peers, the girl displayed no symptoms of addiction to games, but she would occasionally engage in a virtual competition with her brother. Born in central Taiwan to a middle-class family, before coming to the north, she had been the top performer in high school. She was sharing a rented apartment with three other schoolmates, but having her own room allowed her to study with no interruption. The interviewee had taken classes offered by three different native speakers, including general Polish, conversation, and a course on Polish culture, in most of the cases receiving score between 91 and 98 (out of 100, but according to the school directions, 98 is the maximum one can get). Her GPA for the last semester was 89.95. By all means, she was a high achiever, an outstanding student in an elite university. Her case is representative because students like her, literally, have the grit to learn and explore the unknown territory of an exotic language. For many Taiwanese Polish is only a detour. For her, however, it became a target. Autonomous and focused, she would study by herself, re-attend the courses she had already completed, and get enrolled in on-line classes, just to keep in touch with the subject. Her self-reliance and determination opened the door to the exchange program, which means that she would soon study in Poland.

**3.4. Design.** Self-determination theory provided a comprehensive framework to understand the student's orientation and behavior. From three semesters of the researcher's observation in class, as well as from many conversations preceding this study, the participant could be classified as intrinsically motivated to improve her ability to use Polish and showing a great determination to pursue her goal. She was also highly autonomous, which found its expression in the way her work was organized and the problems solved.



This case study has been divided into five overlapping stages. First, during the immersion, the researcher herself signed up for two Duolingo courses: Polish and Portuguese. The former one was to see how the app works for the target learner, while undertaking the latter made it easier to realize the struggles she might be facing. The goal of that phase was to gain a better understanding of the methods and practices of the platform. This step resulted in an in-depth analysis of the learning process. Second, a series of papers on Duolingo were read to furtherly inform the inquiry, which allowed to see some of the trends in the study design and formulate the interview questions. Third, after the participant expressed her interest in supporting the project, she resumed her Polish lessons with the app. Initially, the researcher asked her to study for 30 days, but the student decided to proceed. She also made comprehensive notes throughout the process. This was how she could practice Polish at the desired level and get to know the software. Next, a series of in-depth interviews followed, four hours in total (as for the needs of this paper), which allowed to collect the information and better understand the student's perspective. (We talked in Polish.) Finally, the data was coded, labeled, and reorganized. This helped me to identify some of the reoccurring patterns and the relationships between them and, as it turned out, to ask even more questions. The reason why in the current study pre- and post-tests (or any tests at all) were not used is to avoid putting the participant under any sort of pressure. Her willingness to help and cooperate was deeply appreciated. The research did not aim to measure the learning outcomes, but to understand how the user saw the app in terms of its support for improvement.

## 4. FINDINGS

**4.1. The Participant as a Learner.** In the first section, the student's *self-image* will be presented, along with several other aspects of her experience as a Polish language learner. The woman believed she was both "gifted and diligent." In other words, she was aware of her inborn talents, but, at the same time, regular hard work was the key to her success.<sup>7</sup> I wanted to know what change in the self-image Duolingo made. What did the use of the software add to the equation? She said it additionally made her cheerful. On the other hand, she added, one may become slightly bored, if the exercises are too simple. The answer to my rhetoric question about her *attitude* toward the subject was: "I simply love Polish! Whenever I go

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<sup>7</sup> The comments will be offered in the *Discussion*. Let me, however, explain that her high self-esteem had not been an expression of vanity or ignorance. Her Taiwanese upbringing would not allow that, especially in a female learner. This might, at least partially, have been a result of my hard work to build up her positive self-image and a lot of appreciation that she got in my class.

back to learning, it is a pure joy!” This, however does not necessarily mean that her *motivation* always stayed high. It could be diminished, she explained, by an overwhelming experience of finding too many new words in a single sentence, it is when the material was too difficult for her current level. Asked if she had ever felt like to stop learning, she answered: “Polish? Never!” So, for her self-study session with Duolingo, the interviewee would arrange an hour daily. “Five minutes – in her own words – is too little and it leaves me with a feeling of no progress at all. That slogan [*five minutes a day*] is just to get you in touch with the language. If you stay with something, you become familiar with it and develop an instinct for that.” Completing single unit that allows earning the basic number of points (equal to 10 XP) usually took her five up to ten minutes. Her daily goal was to complete five of these sessions. My suggestion that she was very self-reliant brought her immediate response: “That’s because I have a goal and I know how to get there. So, I am doing my best and keep fear away.” *Doing her best* involves extra work to systematize the material used by the app, like creating visuals or looking up the new vocabulary in other sources; not in Duolingo, but PWN,<sup>8</sup> Glosbe, etc. When asked about *self-evaluation and monitoring* her own progress, two important components of autonomy, the student explained that the offline classes are when she does that; she would see how much she understands. In other words, the traditional classroom provides a tangible setting for testing how much she got from the digital input. Both learning situations are of value.

**4.2. Expectations.** Now we will see a little closer what the student actually hoped to get from the app-assisted learning. First of all, what she was looking for was mainly a linguistic progression. Depth of the discourse, or lack thereof, was not an issue. In a lesson about superlative forms of adjectives she encountered the following question: “Co jest najważniejsze w życiu?” (‘What’s the most important thing in life?’). It was one of the dictation exercises when the learner needs to put the word tiles in the right order. She found it interesting, but when I asked if she would like to go further and try to answer that, she rejected: “My goal is to learn the language, not philosophy.” To my major surprise, she also explained that she did not expect the software to increase her learning *confidence*. “No need to get confidence through an app,” she said. So, what did she expect? Put briefly, pleasure. “If I enjoy the learning process, I will study more,” the case explained. My next question was, “Does it feel real to study with an app?” In her opinion, it did not, since acquiring knowledge through a game did not give her the feeling of genuine learning. At the same, she thought, it did support the whole process, as it offered a chance for continuous daily exposure: “Using it daily allows me to hear the Polish words on a regular basis and switch my thinking to the target language. This, in turn, lets me develop some sort of instinct. Now I do need to think for too long.”

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<sup>8</sup> Polish publishing house famous for academic publications.

**4.3. The Role of the App in Learning.** My informant expressed her belief that Duolingo might be more helpful for those who already know some grammar, adding that the product in itself is not enough: “You cannot make it with Duolingo alone. The software is great as an addition, to review the material or expand your vocabulary.” It might be, however, insufficient for Taiwanese learners trying to overcome the difficulties with pronunciation of Polish *r* or to learn the cases – two obstacles if your mother tongue is Mandarin. Interestingly, she noted that it was hard to enhance the writing skills because her phone would automatically generate the correct answer, so the problem was in the device. At the same time, she found it helpful to write things down by hand – a habit that led to a collection of 700 of sentence entries in her notebook in the first month of learning. She was positive about the app’s ability to promote her communication skills: “I know more words and I can use them when I see you.” In similar vein, she was optimistic about the software’s usefulness as she was going to study in Poland: Jokes and teasers was what she enjoyed the most: “Z jakiej jesteś planety?” (“What planet are you from?”), “Przegrałaś.” (“You lost.”) – expressions that in a suitable context would allow her to have fun with peers.

**4.4. Duolingo’s Teaching Methods.** When asked about the elements of the app that are most *helpful in learning*, my student pointed out that the bells and the progress bar were most impactful. The former ones were great because she now associated the sound with a task well done. This gave her satisfaction and strengthened her persistence. Simply as it sounds, she liked it. The latter tool was a precise indicator of the improvement, which boosted her motivation to learn even more. The metaphor was vivid: “When the bar is moving, I am moving, too.” When approached about the *images and illustrations*, she said they were “good and nice”, especially the cute expressions some of them did. She had noticed the lack of Asian faces among the characters, but it did not bother her much, since it was “just a game.” I also wanted to know what she thought of the way of presenting *chunked* information. She believed that what mattered is the quality of the utterance, not its length. From her point of view, it was more important how much the speaker wanted to express. She noted that some texts (used at school) could be long but have little meaning, which would not please her. Next, I inquired about the strong tendency of Duolingo classes to be *repetitive*. The units seem to follow certain pattern and one is not likely to be surprised by the content of the session. She said that was fine, as long as the material was challenging, because if too easy, she would doze off. I also wanted to know whether it was possible to teach a relatively complicated language using such *simple methods* as Duolingo does. My informant did not mind. Building up the difficulty was the key. “First, they show you simple examples, she said, gradually adding something more of a challenge.” At the same time, the teaching method left her feeling a bit unsatisfied. Her mother tongue and Slavic languages belonged to remote linguistic systems, which the app

designers had not addressed yet. For her it was easier because of the fluency in Russian. In her opinion, *quizzes alone were definitely not enough* to present the complexity of the language. What is more, she believed that the opportunities to practice grammar were too few: “Duolingo does not teach how to apply this grammar. You cannot keep moving on.” From her experience, grammar preview was available in the computer version, but she used her smartphone. She saw that as a technical limitation. The Russian course which she had taken several years before left her with similar reservations. Asked if the new paradigms, which in Polish can come with various alternations, could get acquired just by doing daily language exercise, she declined and said: “The app teaches in context, but if I don’t know much about the case, I won’t learn this way. Studying in class is better, because Duolingo doesn’t give you the rules, only the examples.” At the same time, my student welcomed anything that was difficult and posed a challenge to her. At the time of our first interview, she was learning past tense and expressed her great excitement. If there was a struggle, there was an enjoyment and accomplishment.

The Readers who have encountered Taiwanese learners might have noticed how often they emphasize the importance of things being *close to life*. One would hear that in many contexts, usually when the speaker wants to accentuate the practicality of the item. The phrase comes back over and over, oftentimes automatically. This case was not an exception. I, however, was determined to dig a little deeper. Here is what I found: My interviewee enjoyed the utterances generated by the app as possessing that particular quality, illustrating her point with the following: “Teraz jest moja kolej.” (‘Now is my turn.’), “Jakie masz marzenie?” (‘What’s your dream?’), and “To jest kłamstwo” (‘It’s a lie.’). In our next interview, she mentioned that “*good* means *useful*”, which shed a little light on the problem, but I was not satisfied. Thus, during our third session, I decided to pin her down a little bit. Her explanation was that she wanted a sentence that can be learned and recalled verbatim in a proper situation, like in the examples: “Czy on używa mózgu?” (‘Does he make use of his brain?’) or the above mentioned “Z jakiej jesteś planety?” (‘What planet are you from?’). From the less risky repertoire, she cited: “Zostawiam cię z tą myślą.” (‘I’m leaving you with this thought.’), “Mogę dać ci jedną szansę.” (‘I can give you a chance.’), or, on an even more positive note, “Będziemy szukać rozwiązania.” (‘We will be looking for the solution.’)

Additionally, my student expressed her conviction that Duolingo is a valuable source of *exciting collocations and phrases*. When asked if the vocabulary was not too simple, she explained that even though she already knew many of these words, the combinations were new. This was what encouraged her to practice at that particular level, even though she could have chosen a higher one. To help me understand, she recalled a sentence “Nasi pacjenci są w dobrym stanie.” (‘Our patients’ condition is good.’). No single word was unknown, but the way they were

brought together had surprised her and, most importantly, glued to the phone to learn more. As we can see, the context could work for the software's advantage, especially if it accurately illustrates the words' use, but if it is not very practical, the result can be opposite, like in "Jesteś koniem." ('You are a horse.') or "Krab pije mleko." ('The crab is drinking milk.'). From her perspective, such examples might help to remember the cases, but otherwise are useless.

**4.5. Positivity.** At the immersion stage, I personally found the software's appearance light and easy, probably due to its visual side: limited amount of text or illustration against pure white background. So, I brought this question during one of our interviews. The student explained that for her, *simplicity* was in the way she interacted with the software: "If I encounter a new word, I just click it and voila! I instantly get to see its meaning." Little to no effort is needed, which made it easy to proceed. Approached about the program's *positivity*, the woman saw it in the overall meaning behind the sentences: "Mężczyzna pomyślał o rodzinie." ('The man thought about the family. '), "Musiałyśmy pomóc pracownikom." ('We had to help the employees. '), "Znowu wygrali." ('They won one more time. '), "To dobra zmiana." ('It's a good change. ') Easy to notice, these instances may resonate with universally valued behaviors, often explicitly valued in Taiwanese cultural context: responsibility, helpfulness, ambition, and progress. The next example was positive as well, but I suggested a change in the possessive pronoun: "Oni naprawiają ich związek." "Ich" was changed to "swój", which now clearly meant 'They are repairing their own relationship.' Since the informant had focused on the positivity of the sentences, the next question was whether there were any *negatively loaded* instances. She immediately found these three: "To kłamstwo." ('It's a lie. '), "Nie wierzę ci." ('I don't believe you. '), "Nie chcę twojej rady." ('I don't want your advice'). In her native culture, such utterances ought to be avoided, as associated with open confrontations and hostility.

**4.6. Feedback.** Still in terms of positivity, my student mentioned also the app's mascot, the green owl, whose task is to provide feedback: "It looks cute, she said, and makes me feel better. And when you answer five questions, the owl says *Yeah!*" She declined when asked if the mascot does not burst with enthusiasm a little too often. At the same time, from her point of view, the owl had a robot quality to it, repeating the same words over and over, unlike humans did. In the long term, it did not evoke strong emotions the way a "real" teacher would do. To give them their due, sometimes the application would be far more friendly than an instructor in class. The interviewee shared with me a traumatizing memory of a language teacher who repeatedly told the freshmen that they were not talented enough and did not work hard enough, a practice that resulted in students quitting the course one by one. As a user of Duolingo, she did not experience anything of this sort. But let us look at the feedback from another angle, in terms of its *accuracy*. As the informant reported, oftentimes the system accepts your answer even "one letter in the ending

is wrong”. However, for those of the Readers who speak any language with more complex paradigms, it is rather obvious that a single letter in the end of a word can make the whole difference. From the researcher’s experience with the Portuguese module, some of the mistakes might still get rewarded with points, which makes the entire process slightly puzzling.<sup>9</sup> From what my student said, I could see that there was one more issue related to the feedback, namely the use of English as a means of instruction. Due to her limited fluency in the latter one, the woman repeatedly reported problems regarding the word order or the language usage. This is when she found the feedback unfair, frustrating, and clearly discouraging.

Using English is what enables the product to be popular worldwide, but she would be glad to see the instruction in traditional Chinese, as used in Taiwan. At the same time, she understood that the application’s *universal character* made it available to “anyone who wants to learn.” She thought that the app would not help her to talk about Taiwan or bring her any closer to the target *culture*, but this did not pose a problem to her. “If you want to know, you will find a way” seemed to be her motto, showing that for her, determination and self-reliance were the key. At the same time, she admitted that “Duolingo itself would not be enough.”

**4.7. Forum.** The next big theme, reoccurring in plenty of papers, is the forum, where users can socialize, which supposedly compensates for the limited human interaction. My findings did not confirm that. First of all, my case did not want to get in touch with other users, observing that, technically, we knew nothing about who they really were. For her, consulting them made no sense, because there was no evidence of their credibility and expertise. She recalled her experience as a user of the Russian mode, where “everybody gave different answers” and she was left even more puzzled. That experience taught her to search for the information by herself and “stay away from the problems.” At the same time, there was no tough linguistic challenge that she would not be able to tackle by herself: “Each sentence is easy and I can use a dictionary,” she assured. (In some instances, she would simply contact me.) This was not the case at the university, where it just did not make sense to work in isolation, as students were assigned much more demanding tasks and a group effort was of help. Translation class was a good example: The informant would collaborate with her classmates to solve these problems. The woman also said that the presence of other users did not matter much to her. What was more important was her place in the ranking. She also did not intend to connect with other users via social media. She did not use Facebook, so searching for extra connections was not an option. Asked if she did not need a sense of belonging to the Duolingo community, she explained that the app was just for learning. The lack of human interaction did not bother her at

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<sup>9</sup> I notoriously mixed “um homem” with “um homem”, meaning ‘a man’, which, honestly, meant I did not remember the correct spelling. My answer was, however, treated as a correct one, but “with a typo.”

all. “The whole community thing is more of a propaganda. They say it is important, because they hope to attract more users. They always want us to invite our friends. I don’t like that because I want to learn by myself. The tasks are easy and discussions are not necessary.”

**4.8. Gamification.** This study would not be complete if we did not examine the relationship between the gamified character of the app and learning, as seen from the user’s point of view. In my student’s case, it was motivating, for it eliminated boredom. “We can enjoy the process and, then, feel like studying even harder. Whenever I get to work, I am so cheerful.” When asked if this strengthened her desire to learn, she nodded. She also found it quite stimulating because it gave a feeling of dynamic progression: “You answer and you keep moving.” When asked if the app would still motivate her to study if there were no games, she said it would not. So, let us see how the individual components, *nomen omen*, changed the game. Setting the **daily goal** (how much one wants to learn in a day) was helpful, as it increased the amount of input. In her case, it was 5 times higher than the basic option; the woman aimed to earn 50 XP per day. She believed this motivated her to learn more. The **ranking** provided an extra stimulus to earn additional points, which translated into even more time spent on task. This was especially helpful when her motivation was poorer, which happened when she was tired or sleepy (usually after lunch or in the evening). At the same time, the competition did not matter, for “one studies for themselves, not to fight.” The case explained that at that stage, she did not like to compare with others. This was the last semester of her college education, her next step had already been planned, and the rankings were not as important as before. Besides, not winning would make her feel down. The **progress indicators** mattered to a certain degree: “I don’t need that when my motivation is high.” It was, however, helpful when it was not. Keeping the **daily streak** was helpful. In her own words, “If I discontinue, they will send me an e-mail, along with a message, and it will come many, many times, and then I know I need to go back to it.” She had lost the streak twice (within the six-week period of the intervention), 5<sup>th</sup> of March 2022 and then one month later, 6<sup>th</sup> of April 2022. She had wanted to sleep. I also asked about the **reward system**, which apparently worked, since the student explained: “To get a diamond, I’m going to work even harder.” She also proudly recalled earning double XP. Nevertheless, there were some failures, too, when she had lost the hearts due to her limited ability to translate the text into English. (By the way, this experience was connected to using the app on her smartphone. Due to the cross-platform character of the tool, the participant could also use her computer, where the hearts did not occur.) She found these experiences frustrating and discouraging, because they did not accurately reflect her progress in learning the target language. She felt punished for a mistake that was of secondary importance: English was only a tool for learning Polish, which brings us to the next section.

**4.9. English as a Tool of Instruction.** For a person fluent in Russian whose mother tongue was Mandarin, this presented considerable difficulties and interrupted the otherwise smooth flow of learning. Once again, she saw it as the downside of the international character of the app. What caused her confusion was the language use, especially when it did not confirm the rules she had learned in class. Sometimes the word order in her English translations was the reason why the answers were rejected, like in “\*Why the computer is warm?” It also prevented her from moving upward in her own pace. She could not skip a unit that was too easy to learn advanced material, more suitable for her current level. This, actually, was her main, if not only explicitly stated reservation regarding the use of the platform.

**4.10. Other remarks.** So, what else did she enjoy? Finding something that connected the learning content to the first language was a pleasant experience. “Ściany mają uszy.” (‘Walls have ears’) could be a good example, which the student encountered while learning medical terminology (the body parts). It was, again, a form of a listening exercise her job was to hear the sentence and put the word tiles in the right order. Another type of task that was of value was anything that inspired her to think and stay with it for longer, like “Czy ta szklanka jest do połowy pełna, czy do połowy pusta?” (‘Is the glass half empty or half full?’). This “interesting concept” had occurred when she was reviewing adjectives. My informant also expressed her appreciation for such “beautiful, philosophical sentences.” Next, when asked which component of her Polish proficiency had gained most thanks to the app, as seen from her own point of view, she said that, first, it was her ability to *comprehend written text*, as she had seen a vast abundance of examples. Second, it was *grammar*, especially gender, nouns, and the word order (syntax). *Listening* had not improved that much, because she would often press the button allowing her to skip the dictations for an hour. In terms of *speaking*, my interviewee believed that you could train this skill mainly by reading the sentences aloud. From her perspective, the app would be more helpful, had this need be addressed more carefully, as it was the case for the Russian mode. “Saying things aloud helps me to remember them,” she told me. (I pointed out that there are some real-time events that learners can apply for, so that could re-shape her experience afterwards.) *Drills* were something she would be glad to see getting adopted from the app to the class. She really enjoyed these substitution-based exercises. She would also appreciate having more things that were “*close to life*”. On the other hand, she thought that *rankings* should not be revealed in off-line settings, for some students might find it hurtful or discouraging. “The instructors should keep it in their hearts,” she noted. My student declined when asked if she would recommend the product to her classmates. She had mentioned it to her friends, but they had expressed no interest in knowing more. “Those who want to learn will find their way to do so,” my case added. She would not use the app if she had to pay: “I have other opportunities to study.” – “What sort of opportunities?” – “Your class.”



## 5. DISCUSSION

**Motivation.** The findings reveal that Duolingo can be a useful tool for supporting the learning process at the university level. It should be clear that the student who participated in the study had demonstrated absolute determination to learn Polish, anyway. She was by all means highly motivated, and yet, there were days when even she benefited from the booster of ranking and rewards. On some occasions, though, especially when the software deducted her points, which would be a result of her limited ability to translate sentences into English, she reported growing frustration and discouragement. These complementary insights provided more nuanced characterization of the learner's determination that grows and drops, even if the individual is generally determined to study. **Gamification** was a great motivator, a kind of spare wheel that kept her going when she did not really feel like doing it. Similarly positive correlation has been reported by Huynh & Iida (2017, p. 28), who focused on the streak, pointing out that it "helps to increase users' attention to their learning purpose when the challenges increase." Aksenova et al. (2015, p. 245) also concluded that "the gamification that lies in the basis of this educational site is a great mean to achieve necessary results and apply linguistic knowledge to practical use." It should be noted that a decrease in motivation would take place when the participant was simply sleepy after lunch or tired in the evening. This did not occur due to any sort of neglect or doubts if she was doing the right thing at all. The results might have been different for students lacking interest in the subject or struggling at school, which might be an interesting point to study in the future. For her, it was just a software accompanying her rewarding journey as a learner, a tool that she used for extra training. She was not interested in finding friends or community. Confidence, too, was to be nurtured in other, more traditional, ways. The instruction provided in class was to her satisfaction, with her current needs honored and answered. The abundance of data and the responsiveness she showed revealed her deep concern for the relationship with me, the teacher. I also cared a lot about her needs as a learner and individual. Put briefly, she felt respected and accepted as a human being and the app was just an app. **Forum**, although widely discussed in literature, did not attract my student's attention at all. She found it risky to trust whoever posted a word of advice and it felt safer to consult me or well-established on-line resources like those by PWN. (Teacher's guidance during Duolingo interventions, especially in terms of grammar, was also recommended by Psychogiou & Karasimos 2019, p. 378). Making friends with other users did not appeal to her at all. Similar phenomenon was explained by Gafni et al. (2017, p. 305) who found that joining the Duolingo community did not appeal to the users who studied by themselves and out of their own willing. From their point of view, other learners "were not a part of their normal social network." As the researcher's experience showed, the access to

the forum might not be so rewarding, for some discussions had been locked seven or eight years ago. **English** as a means of instruction posed a daunting obstacle to the learner. It was a source of frustration and disorientation. Even though she was a millennial who had spent years learning English, even though she lived in a country that aspires to become bilingual in 2030, she was just not that comfortable with it. Chances are that she was not an exception (Aleksandrowska & Stanulewicz 2020, p. 136), which is another interesting issue for the further research. Besides, as the data shows, learning with Duolingo was **more than just fun**. Plenty of hard work and self-discipline was needed to ensure steady progression. Within the first six weeks, the student had written down more than 700 example sentences. One may wonder how much effort had been paid by other millennials who had reported low satisfaction, seeing the product mainly as a game (Geben 2020, p. 39). Another valid question is how handwriting supports memory (Bache 2018, p. 325) and, as such, is highly beneficial even in the context of CALL (more on that in Karavani-dou 2017, p. 155). As suggested by Short et al. (2021), teachers should find more creative ways to incorporate Duolingo in their instruction, so this provided me with an impulse for further studies. Is the material worth further elaboration? How can the educator build on the knowledge gained through the app to reinforce it? What to do with the abundance of material not to waste the student's work? **Was Duolingo helpful?** Thanks to the daily exposure, the student was able to think in Polish more often and allow it to become a part of her routine. In her own words, she had developed an instinct. The language just felt more natural, which started showing in the way she spoke. From the interviewer's point of view, she could speak faster than at the beginning of the semester when the intervention began and correctly used past tense. The app was not applied in isolation, but complemented the classes at school, thus the student did not express many concerns regarding the lack of explicit instruction, contrary to some other opinions (Nushi & Eqbali 2017, p. 94). It should be noted that Polish is not very popular in Taiwan and chances off-line practice are few. If the software allows a learner to stay in touch with the subject, it matters a lot (Karasimos 2022, p. 153, Hidayati & Diana 2019, p. 205). In terms of **classroom implications**, it seems quite unlikely that products like this would dethrone human teachers. Looking at the data, the student still valued my feedback more, probably because it is soulful and individualized. Rather surprisingly for those of the Western educators who turn away from behavioristic techniques (Short 2021), the informant liked substitution drills and routine. She enjoyed the predictability that can be provided in a regulated classroom. Regularity, if coupled with meaningfulness of the input, was welcome (Jiang, et al. 2021, p. 981). She especially valued items that seemed "close to life". The last point is a little tricky, because many students do not possess enough knowledge to judge what is, and what is not, really useful in the foreign context. They are happy to pick catchy phrases that can be repeated in various situations, but it does not necessarily mean they learn the complexity of

the language. Many Taiwanese enthusiastically repeat certain slogans but shy away when asked to explain what they really mean. Put briefly, it makes sense to focus on items that are practical, but, on the other hand, the instructor should include the content that might be appreciated as the time goes on.

## 6. CONCLUSIONS

In this particular case, Duolingo, despite its shortcomings, turned out to be *a supportive and helpful software for learning Polish in Taiwan*. (Interestingly, the student kept studying with it also after the project was completed.) It allowed the woman to expand vocabulary and polish grammar, which she had already learned off-line. Sometimes the app would introduce funny, even cheeky phrases that, in the user's opinion, could be good for communication with native speakers. And yet, the informant saw the product only as an addition to the traditional courses provided by the school, not as an independent tool. She invested a lot of effort from her side, by all means exceeding the five-minute-a-day recommendation. The downsides of the platform seemed obvious, but the student did not mind, because for her it was simply a fun way of improving her linguistic competence. Unlike many other users (as reported in literature), she did not want to join the learner community and kept studying on her own. What this might mean for us, language instructors, is that the software does provide a substantial support for the most enthusiastic students, who otherwise do not have enough opportunities for practice, as it is in the case of Polish learners in Taiwan. Incorporating it as on the side of the regular lesson may promote more autonomous behaviors. At the same time, *one should be cautioned against applying the most comforting findings to all students*. Hoping that what works for a high-achiever will save the neglected kids who are way behind will not solve all problems. An app is what it is: a technical tool. Expecting it to promote motivation to learn when it is actually not there would not be a wise choice. Providing personalized and meaningful feedback that students can remember for years is not a task for a green mascot: Only a human can do it. We have the power to inspire the students to set a goal and show them how to achieve it. More research is needed to prove how to incorporate the app-enhanced learning into a regular instruction or how to creatively build on the information gained by our students who use it. It will be also interesting to better understand the strategies that users deploy while learning with the software. Maybe not all of us can learn with Duolingo, but we all can learn *from* it. What we decide to take from this lesson is our personal choice.

**Limitations.** Due to the length requirements, some aspects of Duolingo-supported learning could not get presented in this paper. The researcher had focused on the learner's perceptions, giving practically no attention to the purely technical aspects of the app. Those of the Readers who show preference for more quantified data might be concerned about the lack of thereof, but I truly believe that in order to understand someone's point of view, asking in-depth questions can be the right solution.

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