

# **Playing to Learn: The Role of Input and Output in Language Development via Duolingo and World of Warcraft**

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Bachelor's Thesis

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**Playing To Learn: The Role of Input and Output in Language Development via Duolingo and World of Warcraft**

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This thesis compares how digital games can support English as second language (ESL) acquisition by comparing an input-heavy serious game, Duolingo, with an output-heavy entertainment game, World of Warcraft. The aim is to explore how different digital game environments provide opportunities for second language acquisition, with particularly focusing on three language skills: reading comprehension, listening comprehension and vocabulary acquisition. The framework for this thesis consists of two widely respected second language acquisition (SLA) theories, the input hypothesis proposed by Stephen Krashen and the output hypothesis by Merrill Swain. The study is qualitative, and the primary material of the thesis was gathered through gameplay sessions where I played both games myself. The analysis shows that Duolingo offers structured input that supported gradual skill development, while World of Warcraft provides learners with opportunities for context-based language productions.

**Key words:** digital games, input hypothesis, output hypothesis, digital game-based language learning, second language learning

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## 1 Introduction

Over the last few decades, gaming, both as a pastime and even as a career, has become increasingly popular but is still often regarded primarily as a source of entertainment (Entertainment Software Association 2025, 5). At the same time, games have also taken up a place in educational contexts, and developers have created multiple learning-focused games in recent years, such as Duolingo, Kahoot, and Influent. One of the reasons why these games have become increasingly popular is gamification, which is defined as the use of game design in non-gaming contexts (Deterding et al. 2011, 3). According to Mee Mee et al. (2021, 1) such design in classroom contexts can spark curiosity and engagement within students, making learning much more dynamic than traditional classroom teaching with traditional learning tools, such as using the blackboard. In the case of English as a second language teaching (ESL), such a design can also foster motivation and immersion in learners, encouraging the opportunity for continuing interest in practicing the target language (de Carvalho and Coelho 2022, 2).

In the field of linguistics, both serious and entertainment games have been studied within frameworks like Digital Game-Based Language Learning (DGBLL), with the most focus being on massively multiplayer online games (MMOs) (Hung et al. 2018, 96). Serious games are digital games that aim to complete at least one goal in addition to being entertaining (Dörner et al. 2016, 3). Entertainment games, on the other hand, are games designed purely for pleasure or player enjoyment (Sweetser and Wyeth 2005, 1; Drachen and Nacke 2011, 2). Games like Duolingo combine gamified elements with pedagogical strategies to support vocabulary acquisition, listening, and reading comprehension. In contrast, entertainment games such as World of Warcraft (henceforth known as WoW), while not explicitly designed for language learning, can still offer an environment where incidental learning can happen within the game's world through quests and interaction with other players.

Both serious games and entertainment games have been studied separately, but so far, a direct comparison is missing. This research gap is especially relevant since gaming is extremely popular among young people, and its popularity continues to rise. According to Kinnunen et al. (2022, 15–17), about 76.2% of Finnish 10–19-year-olds play digital games weekly and 42.2% daily, while among 20–29-year-olds, 66.7% play weekly and 24.4% daily. If digital

entertainment games occupy this much of learners' time, understanding these games could offer valuable information on second language learning strategies.

Comparing these two games provides a chance to explore how different gaming contexts can create linguistic opportunities and support second language acquisition. Thus, this study aims to see how these games perform in vocabulary acquisition, listening, and reading comprehension. In addition, this study examines if entertainment games could even provide stronger support in learning and surpass serious games in education potential. Specifically, this study seeks to answer the following research question: How do input-focused (serious) or output-focused (entertainment) game environments provide opportunities for second language acquisition?

This study will focus on Duolingo, as an example of a serious game, and WoW as an example of an entertainment game. In analyzing my material, Krashen's Input Hypothesis will be used in the case of Duolingo to see how it provides structured and comprehensible input, whereas Swain's Output Hypothesis will be employed to see how WoW encourages language production through social interaction and gameplay.

In the following sections of the thesis, I will first introduce previous studies in relation to gamification and DGBLL, after which the theoretical frameworks, Krashen's Input Hypothesis and Swain's Output Hypothesis, will be outlined. After that, the two games, Duolingo and WoW, will be introduced. This will be followed by the methodology, which explains the methods used in the study. The thesis then moves on to the analysis section, where the focus is on vocabulary acquisition, listening and reading comprehension in both games. Finally, the thesis concludes by summarizing the findings and discussing their implications.

## 2 Background

This section provides an overview of games in language learning, going over previous studies and what they have discovered in relation to using games to facilitate language learning.

Following that, the theoretical frameworks that will be used to analyze the games of this study will be introduced.

### 2.1. Digital Games explored in Language Learning

Several studies have explored the potential of both serious and entertainment games and have generally reported positive results. Results showed that peer engagement, motivation and enjoyment were increased when game-based elements were integrated into learning contexts (Hartt, Hosseini and Mostafapour 2020, 589; Hamari, Koivisto, and Sarsa 2014, 3028).

However, some studies have reported mixed results (Dichev and Dicheva 2017, 17–18). For example, Dichev and Dicheva (ibid.) point out that the research on gamification shows both positive and negative results, and that the strength of evidence varies between studies.

Gamification has been proven to increase motivation in students. When specifically talking about successful language learning, motivation is proposed as a key factor alongside personality and age (Mahadi and Jafari 2012, 231–232).

Research on second language acquisition in gaming contexts has focused on concrete language skills, such as vocabulary acquisition, reading comprehension and listening comprehension. Vocabulary acquisition has been studied extensively and studies have mostly found that digital game-based vocabulary learning is effective, with game design features fostering stimulation, engagement, and meaningful interactions (Chen, Tseng, and Hsiao 2016, 72–73; Tsai and Tsai 2018, 351). However, there have also been mixed or even negative results in vocabulary acquisition through games (Sundqvist and Wikström 2015, 74). Sundqvist and Wikström (ibid.) found that gamers who play regularly do not always outperform non-gamers in vocabulary acquisition and vocabulary richness, suggesting that the evidence is not strong enough to support the claim that gaming directly leads to better vocabulary acquisition. Studies have also explored how games can assist in reading comprehension through visual game-like designs (Smith 2012, 16). Game design, specifically those with immersion in the game's world, like WoW, and other role-playing games, were found to enhance reading comprehension (Hanghøj, Kabel, and Jensen 2022, 13). In the case of listening comprehension, studies have found out that, for example, listening to second

language (L2) input from non-player characters' (henceforth known as NPC) speech improved learners' L2 listening comprehension (de Haan 2005, 280–282). Whereas Berry's (2021, 12) study on SpaceteamESL found that Korean EFL university students who played the game improved their listening comprehension more than the control group, who only engaged in traditional learning activities. However, de Haan (2005, 280) also found out that some gameplay designs that are highly interactive or too fast-paced hinder comprehension in activities that need active listening, as the players' focus is on the gameplay itself.

Thus, research on DGBLL has shown how games can support vocabulary acquisition, listening, and reading comprehension specifically. Many studies report positive effects of gaming in language learning. However, both successful and less successful learning outcomes seem to be dependent on qualities like game design, player characteristics, and the type of language skill practiced. This suggests that the strength of evidence varies across many variables, meaning findings can't be generalized. To get a clear understanding, relevant second-language acquisition theories are introduced in the next section. These frameworks act as the basis for analyzing Duolingo and WoW.

## **2.2. Two Sides of Language Learning: Input Hypothesis and Output Hypothesis**

Krashen (1982, 20) has proposed the Input Hypothesis, where he suggests that learners acquire language by taking it in and understanding it, especially when the input is just out of their current language proficiency level ( $i + 1$ ). This is what he calls *comprehensible input*. He emphasizes that learners acquire language through understanding input, rather than studying rules (Krashen 1982, 21). He states that grammatical rules come after meaning. This is why he has also proposed that successful communication provides  $i + 1$  automatically, thus specific structure learning can be even counterproductive. All in all, fluency emerges naturally over time as learners are exposed to comprehensible input (Krashen 1982, 22).

In contrast, Swain (1985) has proposed the Output Hypothesis. Later, Swain (2005, 471) identified three main functions of output that contribute to second language learning. (1) *Noticing*: when learners attempt to express a meaning, they currently are unable to, they become aware of a gap in their knowledge. In practice, this could mean that in a conversation, they are for example missing a word or are unfamiliar with the correct grammatical structure they would need to produce. (2) *The hypothesis-testing function*, where producing the

language allows the learner to try out grammatical structures and words and see, through feedback or successful communication, whether their hypothesis about the language is correct. (3) *The reflective function*, in which learners use language to reflect on their own or others output and negotiate meaning. Together, these functions she has defined, represent output as an active process that supports language development rather than just demonstrating the learner's existing knowledge (Swain 2005, 471).

The games will be analyzed with different theories, the input hypothesis providing the framework for analysis of Duolingo, whereas the output hypothesis will be used in analyzing WoW. In the study, Duolingo represents an input-focused environment, with exercises specifically designed for gradual skill development. WoW on the other hand represents an output-focused environment, as its game design allows for incidental learning through quests, communication with others and exploration of the game's world.

### **3 Methods and Materials**

In this section I will present the materials used in the thesis, and explain the choice of games, language skills, learner perspective and finally data collection methods.

#### **3.1 Research Materials**

Duolingo (Duolingo, Inc. 2011) is a gamified language learning app, designed for mobile gameplay. It includes different types of language exercises focusing on language skills such as vocabulary acquisition, reading comprehension and listening comprehension. Its structure includes lessons with a variety of different exercises, such as multiple choice, and larger listening and reading tasks.

WoW (Blizzard Entertainment 2004), on the other hand, is a massively multiplayer online role-playing game (MMORPG) where players interact in chat with other players and NPCs, complete quests, engage in battle and explore an immersive world. WoW's game design allows for an environment where incidental learning can happen over time through interaction with and within the game.

The selection of games was straightforward: Duolingo was chosen for its accessibility, as it is free to use and a very well-known and used game for language learning. In contrast, WoW was chosen as it is one of the most well-documented MMORPGs and has a significant amount of material available from previous studies, that have explored its potential for language learning. WoW focuses on output, encouraging interaction through gameplay. Studying these two together offers an opportunity to explore the contrast between input- and output-driven games and explore their potential in facilitating language learning.

#### **3.2 Selection of Skills and Learner Perspective**

Primary material for this thesis is first-hand gameplay of both games, Duolingo and WoW. The focus is on finding opportunities for second language acquisition focusing on input for Duolingo and output for WoW, specifically looking out for opportunities for vocabulary acquisition, listening comprehension, and reading comprehension. These skills were specifically chosen as they are especially relevant in gaming contexts. They are also widely studied and proven to be vital building blocks for second language acquisition. Vocabulary, while a key element for second language acquisition, is also important for reading, listening,

writing, and speaking (Nation 2013, 161–162, 181, 205). Without a sufficient vocabulary or lexical knowledge, effective communication is not possible (Schmitt and Schmitt 2020, 194). Thus, vocabulary supports understanding spoken language. Listening comprehension is important for language learning, as learners need to first understand spoken input in order to communicate successfully (Rost 1996, 7). The learner's vocabulary also plays an important role in reading comprehension, as they use their vocabulary to understand written text. Reading comprehension is important as reading improves learners' vocabulary, grammar understanding and even cultural understanding.

First-hand gameplay offers the most direct way to observe these skills, since it allows me to gather exactly where they occur in game and how they provide opportunities for input and output, as opposed to relying on theoretical assumptions. In addition, I am able to put myself in the learners' position and see how they would experience the game and its features around them. Specifically adopting an intermediate learner's perspective, as beginner learners may have a hard time benefitting from WoW's communication-heavy environment, whereas advanced learners do not benefit from Duolingo's content. A study found that intermediate to advanced students reported much lower enjoyment and satisfaction compared with beginners: only 43 % agreed that they enjoyed using Duolingo, and just half considered the app helpful. Only 6.7 % continued using Duolingo after the study (Munday 2016, 91–92). While not an intermediate learner myself, an intermediate learner's perspective allows me to evaluate how each game would support users who already have a foundation in English but are not yet advanced.

### **3.3 Data Collection and Analysis**

In Duolingo's case, the data was collected through five sessions, each lasting approximately 20 minutes in an Intermediate English course. During each of these sessions, notes were taken. Specifically, during notetaking, the focus was to identify the linguistic features the exercises feature and how they are featured. To find this out, I observed, and completed numerous types of exercises available on Duolingo, such as multiple choice, fill-in-the-blank grammar exercises, pronunciation tasks and more. During these sessions, focus was also on the actual structure of the units and sections to see how Duolingo structures its lessons for supporting language learning. In addition, I observed some game-design features Duolingo uses to engage and motivate students.

In the case of WoW, the data was collected through five sessions, each lasting from 30 to 45 minutes. Notes were taken in the same manner as in Duolingo's case. The focus was mostly on finding linguistic interaction opportunities the game offers, and how they facilitate vocabulary acquisition, listening comprehension and reading comprehension. Thus, the focus was especially on quests and their linguistic components such as vocabulary, NPC dialogue and dialogue choices, and interaction between players in general chat.

The data was then analyzed through skill-based categorization that focused on three key areas of second language acquisition: vocabulary acquisition, listening comprehension, and reading comprehension. After that, each activity was further examined and categorized whether they were input-based or output-based. Activities were classified as input-based when they required processing written or spoken language without explicitly producing original language. In contrast, output-based activities were those that required language production in order to communicate. Although especially WoW demonstrated a mix between input and output-based activities, it was primarily analyzed through output hypothesis, as progression in the game includes a significant amount of language production to complete.

## 4 Analysis

This section analyses the data collected from both games, with a focus on how each game provides opportunities for second language acquisition. The analysis is organized around three key language skills: vocabulary acquisition, reading comprehension and listening comprehension.

Observations from the gameplay of these games revealed the following: Duolingo's game design focuses on gradual increase of difficulty through lessons with short exercises, ranging from short fill-in-the-blank exercises to longer, more demanding texts that require deeper comprehension and application of items learnt previously. In WoW's case, its environment provides for incidental language learning through quests and communication with NPCs, and other players.

### 4.1 Duolingo in Practice: Gamified Input at Work

The gameplay session from Duolingo revealed recurring patterns in exercises that highlight the platform's approach to language learning. The data revealed that Duolingo's main core exercises target vocabulary acquisition, listening comprehension and reading comprehension. Speaking and pronunciation practice are also available, but only for users with the paid version of Duolingo. Duolingo's game design focuses on moving from section to section and from unit to unit. Exercises are often repeated in the units to provide the learner constant exposure to the familiar vocabulary,

#### 4.1.1 Learning New Words: Input-Focused Acquisition

The exercises designed for vocabulary acquisition generally introduce new vocabulary through short, contextualized sentences, that are otherwise unfamiliar to the learner. The exercise types Duolingo has are for example fill-in-the-blank questions, matching the word and its meaning, and multiple-choice questions. Here's an example of a fill-in-the-blank exercise:

(1) Complete the sentence: "Zari is sad because she's homesick. She really wants to see her \_\_\_\_."

- a) family
- b) sock
- c) onion
- d) snack

In example (1) the learner is expected to complete the sentence by choosing the most suitable word from four options given. Here the overall sentence gives guidance to the learner by the means of semantic clues, such as the concept of homesick and its association to home and further its association to family which makes the target word ‘family’ comprehensible based on these clues. Knowing the word is enough, but Duolingo connects it to a meaning, which promotes deeper understanding. This is a key part in input hypothesis, that is, learners acquire language best when exposed to language just a bit above their level. Duolingo provides this by challenging learners with new words while framing them with familiar structures.

#### 4.1.2 Stories as Learning Tools: Reading in Duolingo

In addition to vocabulary, Duolingo offers reading comprehension focused exercises, in the means of short stories, dialogues and isolated sentences. In these exercises the learner must answer questions regarding the material given, select appropriate responses, or fill in missing words based on the text. The stories are typically based on everyday topics, that the learner has previously learnt through other sections. In addition, a distinctive feature of the story is that the story is advancing in smaller paragraphs, so the learner does not have to comprehend everything at once. The following excerpt is an example of a short story task:

##### (2) Strawberry Circle

Bea stands in her new sustainable container shop. She puts all the containers in careful lines. Signs say “Soap,” “Tea,” and “Strawberry Scent.” This shop looks perfect now. Everything is in the right container. All the strawberry-smelling containers are together.

----

“Why do you need so many rules for containers? Boxes, cans, bags — anything can be a container.”

----

“Labels are important. People want to find things fast! Did you even smell these? The strawberry ones are amazing.”

**Question:** Bea thinks labels help customers

- a) choose bigger containers
- b) find things quickly
- c) smell everything first

In example (2) the learner reads three paragraphs before answering a question. The task is to find the correct answer from the excerpt they read. The task encourages the learner to focus on finding meanings, instead of merely focusing on the exact same words. The correct answer and what is written in the story, are not identical in phrasing as the story states *People want to*

*find things fast*, while the correct answer is *find things quickly*. This requires the learner to notice that *fast* and *quickly* are synonyms. In addition, much of the vocabulary in these short stories are typically introduced in earlier lessons, with a smaller portion being completely new to the learner, thus Duolingo is framing familiar vocabulary with new lexical items, exactly what comprehensible input is, meaning that the language is comprehensible with help from the context.

#### 4.1.3 Tuning in to Input: Listening on DuoRadio

In 2023, Duolingo introduced a new type of exercise, DuoRadio. These exercises, according to the Duolingo blog post by Dastrup et al. (2023), are designed to be short podcast-like audio experiences. DuoRadio exercises do not have subtitles or transcripts, thus the learner must rely on listening to complete exercises that appear during the podcasts. Here's an example of a task that can occur during a DuoRadio exercise:

(3) Select the words you hear

Audio sentence: "I have visited other countries before but never on another continent."

Available words: sister, content, continent, countries, visited

Task: Select the three words you hear in the sentence

A central challenge in example (3) is the learner's ability to distinguish words that sound similar to a learner, such as *content* /'kɒn.tent/ and *continent* /'kɒn.ti.nənt/. The learner must be able to distinguish the pronunciation between the two to answer correctly. The distinction can also be viewed from the input hypothesis' standpoint as slightly challenging input. Most of these words were introduced right before the podcast started, with a task that required the learner to connect the correct pronunciation to the word. Thus, the items in the story are at least slightly familiar, increasing comprehensibility.

## 4.2. Learning Through Play: Output Opportunities in WoW

Even though WoW is not designed for language learning the game nonetheless provides a rich environment for second language learning. Through its vast open world map, a substantial number of active players and a variety of quests, the learner is constantly exposed to output through narrative quests with complex and diverse vocabulary and real-time communication with other players. WoW provides an authentic environment for interaction, which makes the game a suitable fit for exploring Swain's Output Hypothesis.

#### 4.2.1 Questing for Words: Vocabulary in a Fantasy World

As the game does not provide step-by-step instruction, new players might have to rely on social interactions with more experienced players to fill the gaps in understanding quest objectives. A major support mechanism for new players is WoW's newcomer chat, a channel where new players are automatically added, where they can ask questions and more experienced players can answer. This creates a chance for players to practice language production. The example below illustrates how WoW encourages language output. During the quest "The Best Way to Use Sheep", the player must learn to cast polymorph, to successfully complete the quest. The player is only given an objective "Practice polymorph with Herbert or Throg", without explicit instruction on how this should be done. This created an interaction with another player in newcomer chat:

##### (4) Interaction in newcomer chat

- 1 Experienced player: You have to use Polymorph.
- 2 Newcomer (me): How?
- 3 Experienced player: Find the sheep icon.
- 4 Newcomer: (finds the icon and uses the spell)
- 5 Experienced player: Great job.
- 6 Newcomer: Thank you.
- 7 Experienced player: Np :)

In example (4) the interaction with another player was spontaneous. This is a great example of Swain's Output Hypothesis, especially in the scope of what she calls 'noticing'. In this instance, the newcomer, who is also the researcher, identified a gap in their knowledge (how to cast Polymorph) and needed to communicate to gain knowledge. Even though the question was a straightforward 'How?', it required the player to go beyond their current language proficiency, because the interaction is socially meaningful and spontaneous. The player also tested what Swain calls a hypothesis-testing function, by producing language they thought would make them understood. By choosing the simple form of "How?" the player essentially is testing if the simple question would be understood as the longer form of the question "How do I use polymorph?". The experienced player's relevant response to the question in line 3 confirms to the learner that their message was interpreted correctly. Simply put, the learner's hypothesis was successful, and the learner received positive feedback through the continuation of the conversation.

The newcomer chat interaction is meaningful but not simply because the learner asked one simple question, but because the entire exchange between two players formed a whole communicative event. According to Swain (2005, 472) producing a language that is socio-linguistically appropriate plays an active role in language development. This also demonstrates how MMORPGs create opportunities to produce meaningful output in a way dependent on the context.

#### 4.2.2 Processing Dialogue: Reading Comprehension as a Game Mechanic

WoW provides the learner with plenty of written content, from quest descriptions to cinematics embedded in the game. Quests introduce players to storylines embedded in the world of Azeroth. The quests in the game usually have a written description, and in addition some spoken lines the NPCs utter. However, these utterances are also written in speech bubbles above the characters' heads, meaning that the game offers a plenty of input at the same time. Thus, reading comprehension is vital in completing quests, as players must infer meaning from written text to be able to complete quests and progress in the story. A quest in which the player must rescue an NPC, Herbert Gloomburst, provides a clear example of the quest types in WoW. The following example is an excerpt from the quest:

##### (6) Rescue Herbert Gloomburst

Quest Description given in written form:

“The harpies plan to sacrifice the expedition's mage, a Forsaken by the name of Herbert Gloomburst. Our foes seek to use this vile necromancy even on the undead. Herbert's ethics are... questionable, but he always strives to serve the Horde. We'll need his magic to stop the ogres. Let's move.”

*After the player locates Herbert, they must read additional dialogue and then decide how to proceed:*

Herbert Gloomburst:

“Isn't this ironic! The harpies were JUST discussing using me as bait to capture more members of the Horde. And now you come strolling up here! By the way, they're going to attack you at any moment.”

*The player then receives a dialogue option:*

“I'll fight the harpies that come. Can you use your magic to break free?”

The quest provides the learner with rich input, but it also pushes the player to produce output. First, to find Herbert, the player must interpret the written description of the quest, then locate Herbert by using a map in the game, where Herbert's location is highlighted with a circle.

Here the circle on the map conveys information of where to go, which can be seen as a rule in a semiotic domain. Reading comprehension, on the other hand, conveys to the player of what actions they need to take in that specific spot shown on the map. By selecting the dialogue option given to the learner: "I'll fight the harpies that come. Can you use your magic to break free?", it prompts the learner to actively produce language. Even though this output is highly structured and limited to pre-written options the game provides, it still encourages the learner to produce meaningful language connected to the game's story. Thus, example (6) requires the learner to not only understand the language used in the dialogue option, but also what is required of the player.

#### 4.2.3 Hear It, Do It: Listening that Drives Gameplay

Listening in WoW does not occur on its own and is usually supported by written content. As a result, the player is not only relying on their listening comprehension in most cases. Instead, audio input might be preferred to not miss any important instructions. While most instructions are provided in written form before the quest begins, some quests also include spoken dialogue as the quest progresses, requiring players to actively comprehend the language to successfully complete it. Such dialogue is present in the quest "Right Beneath Their Eyes", where the player must infiltrate an ogre citadel:

(7) Acting like an ogre

Warlord Breka Grimaxe: "Good. Now act like an ogre and get us inside."

Shuja Grimaxe: "Don't speak. Just smile and wave. The dumber you look, the better."

##### **At the front steps**

Ogre Shadowcaster: "More sacrifices! Go to cooking pit, wave at Gor'groth. Show what you got!"

Warlord Breka Grimaxe: "Keep moving. See if we can learn anything about the ritual."

##### **At the cooking pit**

Gor'groth: "What do we have here... all the sacrifices we thought we lost!"

*Player action:* /wave to Gor'groth

Gor'groth: "Take them to the back. We'll seal them in with the ward stones like we did their leader."

Gor'groth: "It is time to complete the ritual atop the citadel. Then all will bow before us!"

Example (7) is a transcript of the NPCs' spoken dialogue that guide the player through the quest. Listening comprehension is therefore essential as the player must follow spoken instructions to know where to go and what to do. For example, the player receives an

instruction to go to the cooking pit, where Gor'groth is and then wave at him. This requires the player to process the sequence of actions it is expected of them to successfully complete the quest. What challenges the player further, is the expectation that the player can distinguish different speakers and their intentions to fully comprehend the story. This could also be described through Swain's concept of pushed output (1985, 248–249), as the player not only must understand instructions but also act on them, such as using the in-game command /wave to wave to Gor'groth. In a way through comprehending, and then performing an action is a cycle of listening and responding. The learner engages in an output that is supported by comprehension, illustrating how the game provides interactive listening opportunities rather than passive listening.

## 5 Discussion

The aim of this thesis was to compare a serious language-learning game, Duolingo, with an entertainment game, WoW and explore how each gaming environment supports ESL acquisition.

The findings show that Duolingo's approach to language learning is heavily input-focused with limited options to produce the language. The design aligns closely with Krashen's Input Hypothesis, as the app provides the learners with comprehensible input slightly out of their level. This is exactly what should facilitate language learning (Krashen 1982, 21). In addition, the plethora of different tasks available in Duolingo, ranging from fill-in-the blank tasks to even short pronunciation practice that gradually get more difficult, might support a learner's existing knowledge and vocabulary, and gradually expand it. In Duolingo, prior knowledge is typically built through earlier lessons, as most of the words appearing in the story have been previously introduced at least briefly. From Krashen's perspective, short story tasks provide comprehensible input as the learner can infer the meaning from prior knowledge. Thus, the players do not need to decode every word, which makes the exercise both accessible and slightly challenging, so the learning is meaningful rather than mechanical. This design might encourage further interaction with the game and its lessons and foster positive learning experiences.

However, the limited opportunities to produce the language might restrict the development of language skills, particularly those with spontaneous language production such as speaking. In addition, certain aspects of Duolingo's gamified design, such as the energy system, while encouraging the learner to make the least number of mistakes possible, might also interrupt learning, as the learner cannot continue the lesson when energy runs out in the middle of a lesson. This might affect engagement in the game and, consequently, motivation towards learning. Based on gameplay sessions, Duolingo's feedback system also has some limitations, as the feedback the game provides is only an indication whether the player is correct or not. In the event of a wrong answer, the feedback doesn't explicitly explain why that's the case.

In the case of WoW, the analysis shows, that the game offers opportunities for both input and output, depending on the player's style of play. Players may choose to engage in group-based activities that involve communicating with other players, or alternatively choose to play alone with minimal interaction. In addition, while you can communicate with others in the

beginning, the game's interaction-based activities, such as raids and dungeons, become only available at higher levels. Thus, the limited amount of communication with other players observed during gameplay can be explained by the game's structure in the beginning. The beginner quests revolve largely around solo play, without need for other players. Given the large number of quests available, this suggests that communication may have a bigger role at the later stages of the game.

Strong promise of WoW in language learning lies in quests, since they expose players to new vocabulary, longer narrative texts, and instructional language in a context where understanding is important to complete the quests. In addition, quests also include different output opportunities, such as dialogue interaction, whether it's spoken or written. As a whole WoW seems to support a bunch of language skills together, as for example in quests, while directions are given in a narrative text form, some instructions are also given in a spoken form, suggesting that the game supports more than one language skill at the same time. In addition, the dialogue in quests is also quite interactive, while the game offers a limited number of responses, players must choose one. This makes language practice meaningful, as the player can immediately see how the choice affects the story. Swain (1985, 248–249) argues that pushed output encourages the learner to process linguistic forms more deeply, moving on from syntactic processing to semantic processing. In a way, WoW allows an environment where language learning is also connected to meaning, which might promote deeper language learning.

Unlike in Duolingo, where the material is adjusted based on the player's weaker points and increases in difficulty over time, WoW lacks this structure and does not adjust its input to the learner's language proficiency. In addition, the language is quite informal and context dependent, with vocabulary fitting for a fantasy world. While this can be engaging for some, it might also pose a challenge for others, as too much unfamiliar vocabulary can hinder comprehension and affect motivation to play the game.

Overall, both games offer opportunities for English language learning, though in different ways. Duolingo provides structured lessons and linear growth through slowly building skills along the way with familiar daily contexts. In line with Duolingo's design, previous literature suggests repetition and practice exercises enforced vocabulary knowledge, increasing students' fluency over time (Kurbanova et al., 2024, 6400). They also found that contextual

learning enhances vocabulary retention and comprehension (Kurbanova et al., 2024, 6399). On the other hand, WoW's immersive environment, especially communication with both NPCs and other players allows learners to notice gaps, negotiate meaning and receive corrective feedback. Such feedback, for example through completing a quest or successful communication, mirrors real-life interaction, can positively affect learners' overall language proficiency (Sadigzade 2025, 177–178). This suggests that the type of game and its specific design features affect learners' language development, both positively and negatively.

## 6 Conclusion

By analyzing Duolingo through Krashen's Input Hypothesis and WoW through the lens of Swain's Output Hypothesis, the findings suggest that both entertainment games and serious games support language learning in complementary ways, rather than one outperforming the other. Input-focused, structured learning games such as Duolingo, are strong in building foundational skills for later language learning, enforcing vocabulary and grammar through repeated exercises. This suggests that Duolingo is more suited for beginner or lower-intermediate learners. In contrast, story-driven entertainment games, such as WoW can offer opportunities for learning in social, meaningful language contexts that interest the learner, which benefits learners with a stronger foundation in English. Thus, suggesting that input-focused games excel in building foundational skills, while output-focused games support language production after a certain language proficiency has been reached. Overall, both types of games contribute to language acquisition, but at different stages of the learner's language development.

As the study and its analysis only focused on the researcher's gameplay, these results may not generalize to all learners with different proficiency levels and gaming backgrounds. In addition, the findings are solely based on Duolingo and WoW, and may not be applicable to other games with different designs or social features, even in the same genre. Finally, learner motivation, previous engagement with these games, or familiarity with context-specific language, such as in WoW may have influenced the outcomes since some of the data analysis is quite subjective and available to other interpretations.

Further research could expand on a comparison between these game types, for example, by including a more diverse sample of learners from varied proficiency levels. Additionally, research could explore the combination of a structured serious game and a story-driven entertainment game to see whether a hybrid approach could maximize positive language learning outcomes. Finally, the social manner of especially many MMORPGs could offer an opportunity to examine the social aspects of the game, and possibly shed light on how collaboration with others in game affects language development.

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