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Mobile Medien

The usage of gamification in language learning apps

Can Bartle's player types from game design be applied to gamification, particularly within language learning apps?

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Stuttgart, 16.02.2023

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Abstract

This study investigates the possibility of using Bartle's player types for gamification in the context of language learning apps. By taking user preferences into account, this might assist in selecting the most suitable game elements. Learning apps are gaining popularity as an innovative method for obtaining an independent and flexible learning experience. Gamification keeps users motivated and involved with the content.

After the research on the usage of gamification and its effects on the user, a language learning app prototype was created. The evaluation consisted of a user test with interview questions and the short User Experience Questionnaire (UEQ). The Bartle test of gamer psychology was used to determine the player types of the participants. The results show that, while player type and gamification preference can partially coincide, there are too many deviations to confidently say it can be transferred into gamification contexts. We conclude that game elements should not be chosen based on a user's Bartle player type and are more effectively used by incorporating a variety of different gamification components.

Zusammenfassung

Diese Studie untersucht die Möglichkeit, Bartle's Spielertypen für Gamification im Kontext von Sprachlern-Apps zu verwenden. Durch die Berücksichtigung von Nutzerpräferenzen könnte dies bei der Auswahl der am besten geeigneten Spielelemente helfen. Lern-Apps gewinnen zunehmend an Beliebheit als innovative Methode zur Erlangung einer unabhängigen und flexiblen Lernerfahrung. Gamification sorgt dafür, dass die Nutzer motiviert bleiben und sich mit den Inhalten beschäftigen.

Nach den Recherchen zum Einsatz von Gamification und deren Auswirkungen auf die Nutzer, wurde ein Prototyp einer Sprachlern-App erstellt. Die Evaluation bestand aus einem Nutzertest mit Interviewfragen und der Kurzversion des User Experience Questionnaire (UEQ). Der Bartle-Test der Gamer-Psychologie wurde verwendet, um die Spielertypen der Teilnehmer zu bestimmen.

Die Ergebnisse zeigen, dass Spielertyp und Gamification-Präferenz zwar teilweise übereinstimmen, es aber zu viele Abweichungen gibt, um mit Sicherheit zu sagen, dass sie in Gamification-Kontexte übertragen werden können. Wir kommen zu dem Schluss, dass Spielelemente nicht auf der Grundlage des Bartle-Spielertyps eines Nutzers ausgewählt werden sollten und durch die Einbeziehung einer Vielzahl unterschiedlicher Gmification-Komponenten effektiver genutzt werden können.

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Acronyms

FBM Fogg Behavior Model. 1, 8

HCD Human Centered Design. 21, 22, VII

HCI Human Computer Interaction. 21

SDT Self-Determination Theory. 8, 9

UEQ User Experience Questionnaire. 22, 33–35, 39, 44, 46, 49–51, III

XP experience points. 13, 14, 16, 27, 28

1   Introduction

Obtaining educational resources is getting much simpler in the era of online technology. Since the coronavirus pandemic there has been a significant growth in the e-learning market (Ceci, 2022). Following the prospect of being able to travel again after quarantine, there appeared to be an increased interest in language learning apps in particular. However in learning contexts it is always a challenge to keep the users motivated and engaged in the process (Surendeleg, Murwa, Yun, & Kim, 2014). One strategy that prevents people from losing interest is gamification. Gamification adds element from game design into other contexts (Deterding, Dixon, Khaled, & Nacke, 2011). The Fogg Behavior Model (FBM) states that there are three factors that drive human behavior: motivation, ability and triggers (Fogg, 2009). Gamification addresses these factors by increasing the users motivation and adding triggers that encourage the users engagement.

The objective of this research paper was to create a method that utilizes gamification in the most efficient way. For this purpose a graphic was created to illustrate the effects of gamification and which game elements are used to produce each of them. The research question is defined as "Can Bartle's player types from game design be applied to gamification, particularly within language learning apps?". We can use Bartle's player types to learn more about the user's preferences and apply the most appropriate and efficient gamification elements. There are four different player types, each with distinct preferences in gaming contexts (Bartle, 1996).

The theoretical section of the thesis discusses existing information about what gamification is and how it differs from other gaming-related concepts. To categorize user preferences in gaming context, the Bartle player types were investigated and displayed. Language learning apps were used as specific example for educational applications which make use of gamification. A summary of the effects of gamification has on users describes why it is beneficial to include gamified elements in learning contexts. For a more comprehensive look at the utilization of gamification, a competitor analysis with three existing language learning apps was conducted.

For the thesis' practical component a language learning app prototype was created, that utilizes four different gamification patterns for each of the four Bartle player types. After conducting user tests with participants of different player types, the results were evaluated and discussed. The final chapter offers a conclusion to the research question and proposes an outlook on the future.

2 Theory

2.1 Gamification

2.1.1 Definition

It is unclear where the term "gamification" originated, but one of its earliest online occurrences can be traced back to 2003 on a website run by game developer Nick Pelling (Werbach & Hunter, 2020). He claimed to specialize in gamification, which he defined as helping "manufacturers evolve their electronic devices into entertainment platforms" (Pelling, 2003). Since the second half of 2010, the term has become more commonly used and therefore various sources use different interpretations to explain gamification (Deterding et al., 2011). One of them defines the term as "[t]he process of game-thinking and game mechanics to engage users and solve problems" (Zichermann & Cunningham, 2011, p. xiv). Werbach (2014) considers gamification to be the process of transforming activities into more game-like experiences.

The most widely known definition of gamification, sometimes also referred to as gameful design, is described by Deterding et al. (2011): Gamification uses elements of game design in a non-game context to improve the motivation and engagement of the user. All of the discussed definitions share the emphasis on adding game related aspect to certain activities outside of games. A non-game context is defined as an application whose primary purpose is not solely entertainment (Tondello, 2016). Example fields where gamification was already applied are business, marketing, health and education. In these contexts, game design elements are the components that create a gameful experience rather than technologies such as audio or graphics. Some specific examples of these elements that are used in gamification are points, badges, leaderboards, quests, competition/challenges, virtual goods, gifting/sharing and levels (Wood & Reiners, 2015). Other important elements to mention would be progress bars and feedback (Nah, Zeng, Telaprolu, Ayyappa, & Eschenbrenner, 2014). The following are brief explanations of the mentioned components:

1. **Points** can be collected to provide a measure of success.

2. **Badges** as visual illustration of success or achievements. To motivate users, badges can be made known in advance.

3. **Leaderboards** are lists were users are ranked based on their progression in comparison to others.

4. **Quests** are tasks that users need to complete in order to receive a reward.

5. **Competition/Challenge** can be between two users as they try to exceed the other.

6. **Virtual goods** can be any kind of item that gives users an advantage in some way.

7. **Gifting/Sharing** resources with other users to help each other.

8. **Levels** are used to gradually raise the difficulty to prevent users from becoming overwhelmed.

9. **Progress bars** are used to reveal the overall progression to the users.

10. **Feedback** is a frequent and immediate response to the learning process of the user.

A game has four distinguishing characteristics: a goal, rules, a feedback system, and voluntary participation (McGonigal, 2011). To achieve an effective usage of gamification the game design elements should be used in combination with these four traits (Brull & Finlayson, 2016).

2.1.2 MDA framework

The MDA framework (Mechanics Dynamics Aethetics framework) is a formal approach to help game designers and developers understand games (Hunicke, LeBlanc, Zubek, et al., 2004). It is also useful to better comprehend the concept of gamification.
The framework provides a break down into three components: rules, system and fun, which are tied to their design counterparts:
Mechanics refer to the different rules, controls or behaviours the player is given within the game. Basically all the actions a player can perform (Arce & Valdivia, 2020). The mechanics and the content of the game support the realization of the dynamics.
Dynamics help create aesthetic experiences and describe the behaviour of the mechanics depending on the player input (Hunicke et al., 2004).
Aesthetics describes the players emotional response, which is being educed by the game.

The game elements used in gamification can be sorted into the outlined components of the MDA framework. Elements that can be interpreted as particular rules and rewards like badges, leaderboards or quests are game mechanics (Kim, 2015). Game dynamics influence the interaction between the mechanics and the player and are elements like feedback, progress or constraints. Game aesthetics create the outcome experience and therefore examples are achievement, challenge and discovery.

2.1.3 Differentiation from game, serious game and playful design

Games

All games have a specific goal that the player wants to achieve, specific rules that limits the player in how they can achieve said goal, a feedback system to tell the player when the goal is achieved and voluntary participation which suggests that all players accept the goal, rules and feedback (McGonigal, 2011). Gamification is in that sense related to games but not necessarily to play or "playfulness" which is a much broader term (Deterding et al., 2011). The main emphasis of so called "gamified" applications lies in the implementation of design elements for a goal-oriented play in contrast to a free-form play. Games are specifically designed for entertainment purposes (Kiryakova, Angelova, & Yordanova, 2014).

Playful Design

The goal of a playful design is to draw the attention of the user by implementing game-based aesthetics in a non gaming context (de Sousa Borges, Durelli, Reis, & Isotani, 2014). In contrast to gamification or gameful design, playful design does not include aspects like a specific goal or rules (Kim, 2015). A Twitter webpage called "Fail Whale" is an example of a playful design (figure 1). Instead of a standard error message, whenever a server went down due to system overload, the user was shown an image of a whale being lifted into the sky by birds.
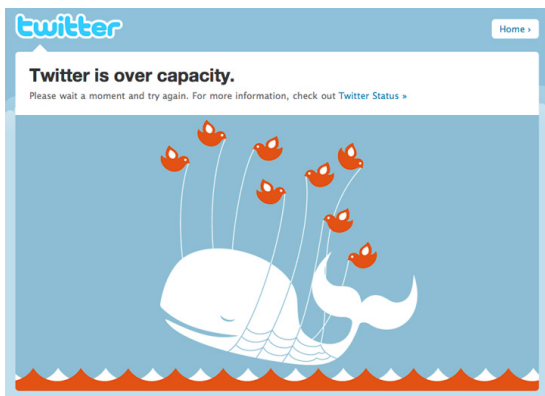
Figure 1 Twitter's Fail Whale (*Twitter's Fail Whale*, 2010)

Serious Games

Refers to games that combine serious aspects like teaching or learning with the playful part of games (Alvarez, Djaouti, et al., 2011). While gamification and serious games do share similar game design elements, there is a distinct difference between the two (Wood & Reiners, 2015). Gamification employs game elements to elicit more engaging behavior in the user, whereas serious games are full-fledged games that include the same components for non-entertainment purposes. An example for a serious game could be to simulate a real-world situations or processes, like a flight simulator (de Sousa Borges et al., 2014).

2.2 Bartle's player types

It is critical to consider the user expectations when designing an experience in order to achieve the desired behavior (Zichermann & Cunningham, 2011). To categorize these various prospects in a gaming context, we can refer to a study conducted by Richard Bartle (1996). The objective was to find out about the aspects that players enjoy most when playing in a multiplayer online game world, as well as the varying playing styles that can be derived from it. As a result he developed a categorization into the four player types killers, achievers, socializers and explorers (figure 2). Even though the majority of the players appeared to fit into one of these categories, there is always the possibility that some players may drift between more than one or even all four categories depending on their mood or current interests. A person could be for example 80% socializer, 50% explorer, 40% achiever and 20% killer (Zichermann & Cunningham, 2011). That means even though they mostly enjoy the socializing aspect, they also find pleasure in parts that are compatible with the other player types.

For a visual representation of each player type, Bartle refers to the symbols of playing cards (Bartle, 1996).
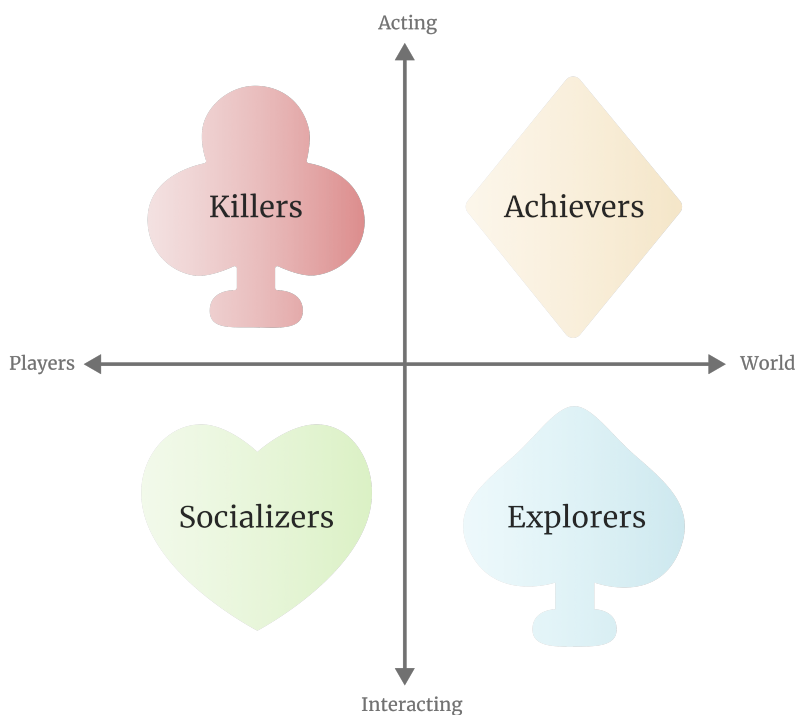
Figure 2 Bartle's Player Types (Bartle, 1996).

Achievers are most interested in acting on the world (Bartle, 2009). Their main goal is gathering points and rising in levels. They want to succeed in the context of the game.

Explorers get the most pleasure in discovering new things and gain knowledge about everything. They like interacting with the world.

Socializers enjoy interacting with other players. It is essential for them to empathize with those around, to be a part of a group, and to support others. They primarily use the virtual world to make new contacts.

Killers like acting on other players and often strive to dominate them. This can be achieved by building a reputation where they are either feared or respected by other players.

Bartle's model is based on the behaviour and pleasure of the player (Dixon, 2011). Since gamification uses elements from game design, we can try to apply Bartle's player types for gamified applications as well.

In online games it is important to keep a balance between all four player types (Bartle, 1996). For instance, if there are too many players in the killers category, their style of playing may drive away the achievers, causing the killers to leave as well because they no longer have other players to dominate. We can assume that this should not be a major concern in the case of gamification because users cannot directly interfere with each other's processes in this manner.

2.3   Language learning apps

2.3.1   Definition

Online Education is being offered through the internet and can be accessed with devices like computers, smartphones or tablets (Xie, Siau, & Nah, 2020). It has become popular due to the benefits of being a flexible, innovative and efficient approach to learning that is easily accessible and has a global reach. One instance of online education are language learning apps. Wang et al. (2022) define language learning apps as tools that assist learners in carrying out language learning tasks. They can provide personalized and detailed instructions by tracking the users learning activities. In recent years learning a new language must no longer rely on physical classrooms, teachers or books (Ceci, 2022). Mobile apps are presently one of the standard formats that learners assume to find when deciding to study a language online. To satisfy these expectations, products of education have been adapted to fit new technological standards. Since the COVID-19 pandemic there has been a substantial surge in the usage of language learning apps and e-learning in general. In February of 2022, the leading language learning apps generated nearly 27 million US dollars through in-app purchases from users worldwide.

To get a better understanding of the different varieties of language learning apps, they can be categorized into three groups according to Rosell-Aguilar (2017).

1. **Apps designed for language learning** are apps that offer a complete learning package. This includes a number of lessons, explanations of grammar, and opportunities to interact with other learners or native speakers. Example: Duolingo.
   There are also language learning apps that only supply activities to improve specific skills such as vocabulary, reading and writing, or listening and speaking. Example: HelloTalk.

2. **Apps not designed for language learning but useful to language learners** can be device-native tools like the language settings to help in the process of learning or additional apps for communication among learners and speech-to-text tools to improve pronunciation and spelling. Example: Netflix

3. **Dictionaries and translation apps** give learners the option to quickly get information about vocabularies and pronunciations by entering text or speaking. They are especially helpful when drafting texts, but have to be used with caution since translations can contain errors and should always be evaluated by the learner before being employed. Example: Google Translate.

This study focuses on apps from the first group which are offering a comprehensive learning experience. Apps specifically designed for learning languages are able to include gamification to improve the learning process.

2.3.2 The effects of gamification

Humans have a natural desire to learn new things (Surendeleg et al., 2014). However, because it can be challenging for learners to remain motivated or involved in certain activities at times, it is essential to consider how to make education more interesting. According to the Fogg Behavior Model (FBM), human behavior is driven by three factors defined as motivation, ability and triggers (Fogg, 2009). If the goal is to elicit a specific behavior, all three factors must be satisfied. In the case of language learning, the target behavior might be for instance completing a task. It must be compatible with the learners' skills in order for them to have the *ability* to complete it successfully. They should be given something to boost their *motivation* as well as a *trigger* that encourages them to continue learning. Gamification reinforces the desired behavior by integrating game elements such as levels, badges, and feedback.

de Sousa Borges et al. (2014) have identified seven possible objectives of gamification:

Mastering skills: gamification as a use to improve certain abilities of the learners.

Challenging: improve the learning process by adding challenges.

Engagement: creating more interesting learning experiences to keep users engaged in the process.

Improving learning: gamification enhances the learning process, resulting in a higher intake of knowledge.

Behavioral change: causing a change in the learners' behavior by adding rewards for accomplishments or penalties for mistakes.

Socialization: gamification gives opportunities to socialize and learn together.

Guidelines: solves the problems of learning by motivating the users.

Although gamification can help to improve learners' knowledge and skills, it is only caused indirectly by influencing their behavior, motivation and commitment (Kiryakova et al., 2014). Leaving aside the proposed influence on improving skills, the objectives found by de Sousa Borges et al. (2014) can be further specified into the effect on user engagement and motivation through socialization with competition and collaboration, as well as changing their behavior by adding the factor of fun and a sense of achievement.

Motivation

The Self-Determination Theory (SDT) is focused on the "different types of motivations based on the different reasons or goals that give rise to an action" (Ryan & Deci, 2000, p. 55). It distinguishes between intrinsic and extrinsic motivation (Grolnick, Deci, & Ryan, 1997).

Intrinsic motivation occurs when a person is doing an activity solely for the fun and the positive experience that comes from it (Ryan & Deci, 2000). The effectiveness of intrinsic

motivation is determined by the fulfillment of three psychological needs. competence, autonomy and relatedness (Grolnick et al., 1997). Competence is the urge to feel effective and capable. Autonomy means people want a sense of self regulation and own choice for their behavior. Relatedness is about feeling connected, loved and the interaction with others.

Extrinsic motivation can be defined as performing an activity to attain a separable outcome (Ryan & Deci, 2000). The SDT developed four subtypes of extrinsic motivation according to Ryan and Deci (2020). *External regulation:* motivated by external rewards and punishments. *Introjected regulation:* get motivation from internal rewards like self-confidence and by avoiding anxiety for failure. *Identified regulation:* motivation comes from the fact that they identify with the value in the activity. *Integrated regulation:* the most autonomous extrinsic motivation. Additionally to identifying with the value of the activity it is also in alignment with their own interests.

The difference between autonomous extrinsic motivation and intrinsic motivation is that the latter comes from the desire to engage for the pure enjoyment or fun of the activity, while the former rests upon a sense of value. Extrinsic motivation can be internalized into intrinsic motivation when external regulations are being developed into personal values because the user feels more self-determined (Grolnick et al., 1997).

Gamification uses game elements as intrinsic and extrinsic factors to enhance the user motivation (Surendeleg et al., 2014). Rewards like badges or points are addressing extrinsic motivation, while intrinsic motivation can come from achievements, autonomy or communication (Flores, 2015).

Fun/Enjoyment

The use of gamification elements can contribute to a fun learning experience (Torres-Toukoumidis, Carrera, Balcazar, & Balcazar, 2021). Especially the interaction with other learners like working together to accomplish a common goal seem to be one of the most enjoyable aspects. Fun and enjoyment can also play a part in improving the engagement and cognitive absorption of learners (Nah, Telaprolu, Rallapalli, & Venkata, 2013).

Achievement

Gamification allows users to feel a sense of achievement by earning badges or different reward systems such as ranks or trophies (Nah et al., 2013). A sense of fulfillment can lead to increased engagement and motivation. Incorporating some sort of level progression can also provide a sense of accomplishment. (Alsawaier, 2018).

Socialization

By adding the option to share their learning process with others who have the same interests, gamification also poses as a socialization tool (Bovermann, Habla, & Weidlich, 2021).

Through collaboration the users can communicate with each other and work together to reach a common goal (Alsawaier, 2018). Competition between learners can enhance the intrinsic motivation (Bovermann et al., 2021). A competitive learning environment can be created by including points and leaderboards. Competing with others can motivate the users to work harder and result in a positive learning experience (Alsawaier, 2018).

Engagement
Fredricks, Blumenfeld, and Paris (2004) have defined three definitions for engagement: behavioral, emotional and cognitive. *Behavioral engagement* is based on participation and involvement in activities. It is important for accomplishing positive outcomes. *Emotional engagement* comprises positive and negative reactions of learners while performing a task. *Cognitive engagement* entails the willingness to put in the effort required to comprehend and master certain skills.

It may be difficult to distinguish between the definitions when analyzing user behavior (da Rocha Seixas, Gomes, & de Melo Filho, 2016). Engagement can also be identified as autonomous. Therefore, engaged learners are likely to be intrinsically motivated because they feel competent in succeeding in the activities. Gamification elements such as badges, points, and leaderboards have been shown to be effective in increasing user engagement (Bovermann et al., 2021).

After gathering information about the proposed gamification objectives, we make the assumption that each game element can be used to elicit specific effects on the user. Furthermore, we believe that each Bartle player type is associated with a set of elements that are most likely to motivate them. Figure 3 depicts proposed gamification solutions that can be used to achieve the desired effect on the user.
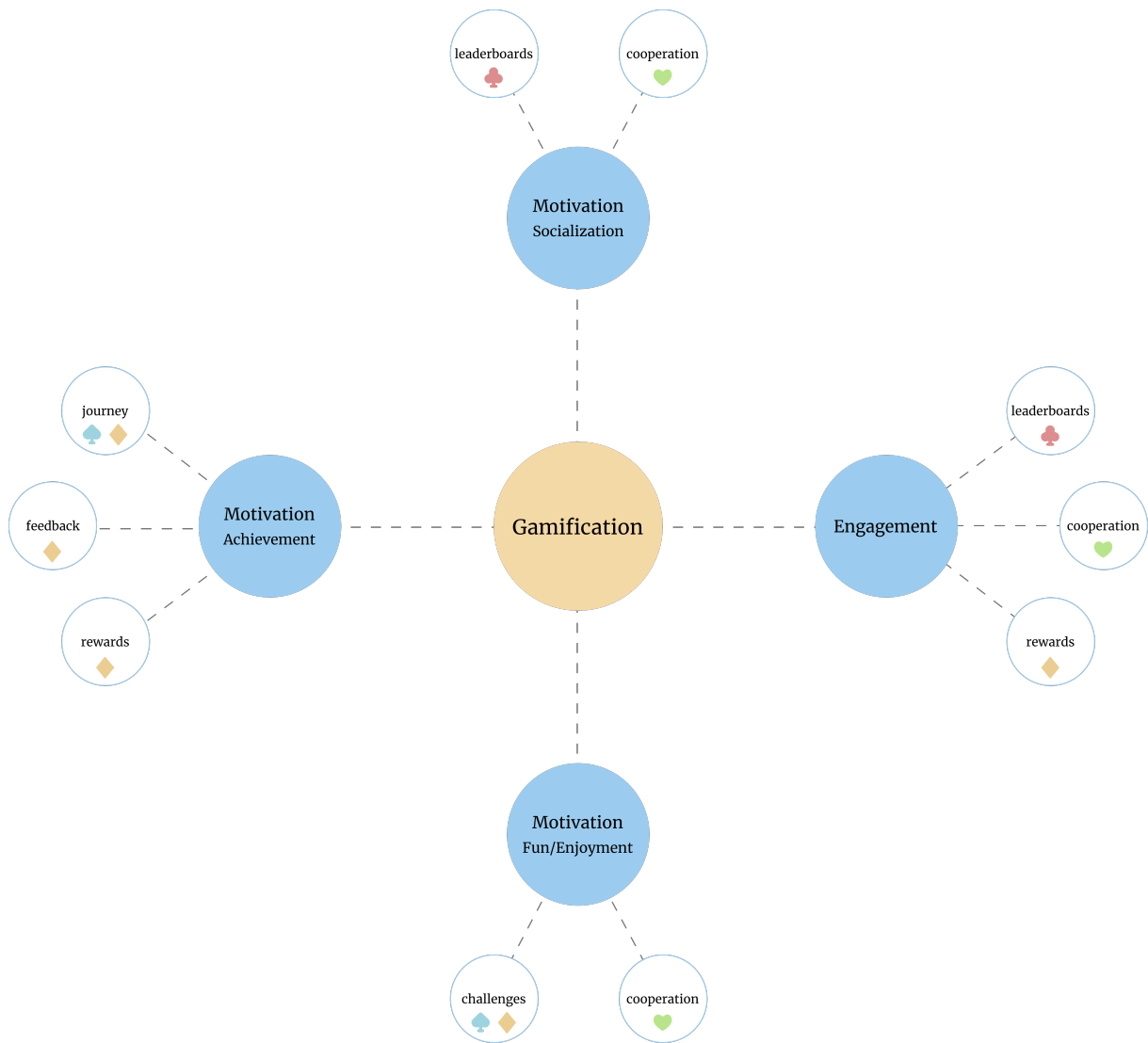
Figure 3 Gamification effects and suitable gamification patterns

2.4   Competitor analysis

2.4.1   Duolingo

Duolingo is currently the most popular language learning app worldwide (Ceci, 2022). They provide a wide range of languages for users to explore and are constantly looking for ways to improve the user experience. They introduced new changes to the design of their learning path in November of 2022 to ensure the most effective way of guiding learners through their lessons (Munson, Yu, Rajgarhia, & Noh, 2022). Duolingo implements gamification to help users establish consistent study routines while also making the overall experience more enjoyable (Chasse, 2021). The App, among other things, employs the game mechanic of levels to increase both the learning value and user engagement.
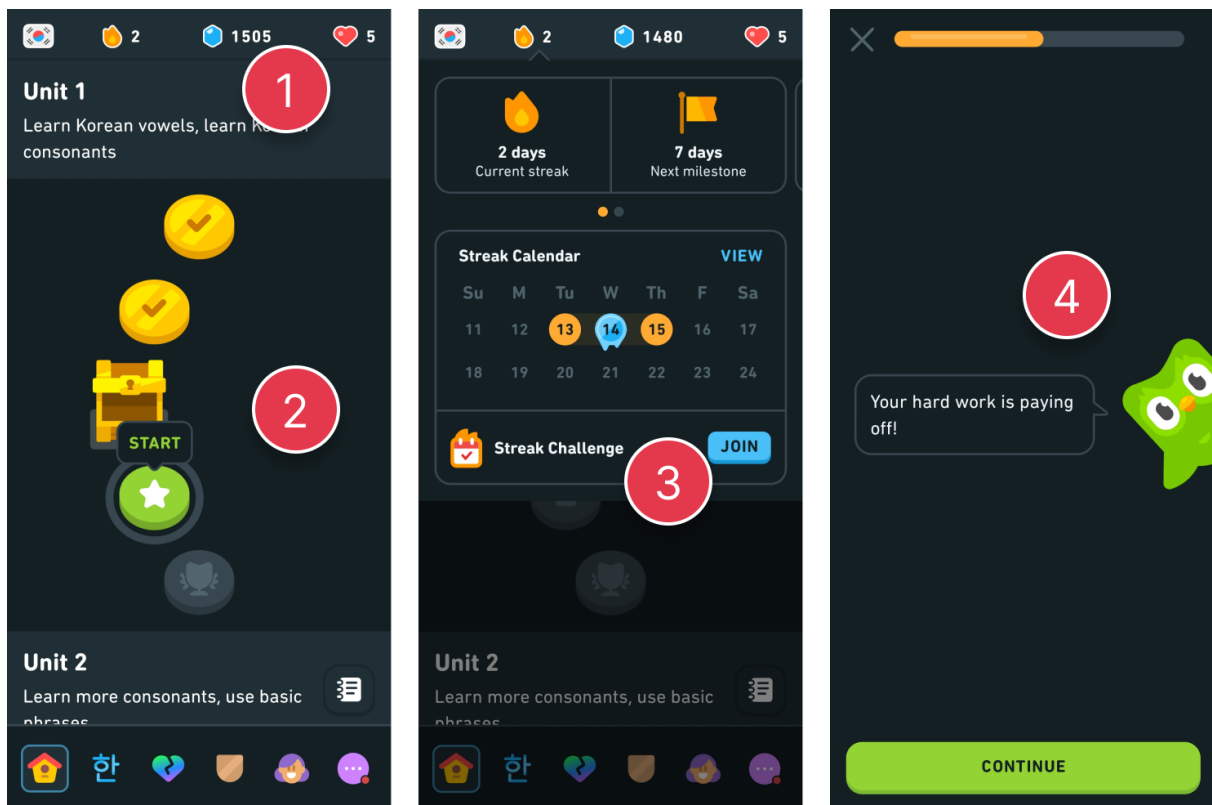
Figure 4 Screenshots Duolingo (taken 2022-12-15)

The markers 1-4 in figure 4 are used to describe the different gamification elements in this app.

Marker 1 Reward: Here the user can find gems and hearts. They can acquire gems by completing daily quests or as a reward for practicing. With the gems they earn, they can purchase power-ups that will aid them in the challenges. With every mistake in a lesson, the user looses a heart. New hearts can be acquired by using the gems, completing a special lesson or waiting a certain amount of time until they refill.

Marker 2 Journey: Every unit has multiple chapters with various lessons that have to be completed. A progress circle surrounds each chapter to show learners how far they

have proceeded. Every few chapters, they can open a treasure chest and receive a reward. The user can also skip to a unit further ahead. They must take a test to assess their knowledge of previous lessons. If successful they can continue with the next unit.

Marker 3 Reward: By practicing everyday the user maintains their streak. If they use the option to "freeze" the streak, it will be preserved even if they miss one day of practice. Learners can set a target goal for how many consecutive days they want to practice, and if they meet that goal, they will be rewarded.

Marker 4 Feedback/Avatar: The user receives feedback as to whether an answer is correct (green checkmark) or incorrect (red x). In between lessons, the user will be given encouraging messages from an owl.

Figure 5 Screenshots Duolingo (taken 2022-12-15)

The markers 5-11 in figure 5 are used to describe the different gamification elements in this app.

Marker 5 Reward: The more the user practices the higher the skill league will be.They can advance to the next league if they are in the top 15 of the leaderboard when the timer expires.

Marker 6 Leaderboard: Every skill league has their own leaderboard. Users can climb up the score board by gaining experience points (XP) after finishing a lesson.

Marker 7 Feedback: The user gets an overview of their progress including their longest streak run, total XP, current skill league and how many times they finished the leaderboard in the top 3.

Marker 8 Challenge: Under "achievements" the user can find different accomplishments. For example earning 1000 XP or completing 20 lessons.

Marker 9 Cooperation: The user can also add friends and work together to complete new challenges.

Marker 10 Challenge: The user gets daily quests. After completing them, they earn rewards like gems or freeze streaks.

Marker 11 Challenge: The app provides monthly quests as well. Learners can win a badge when they succeed in those challenges.

2.4.2   Memrise

Memrise was one of the first language learning apps to integrate a video feature to improve the learning experience (Ceci, 2022). The learning courses of the app include videos of native speakers to provide learners with an authentic way to explore a new language. Furthermore, they apply multiple gamification elements to keep the user interested.
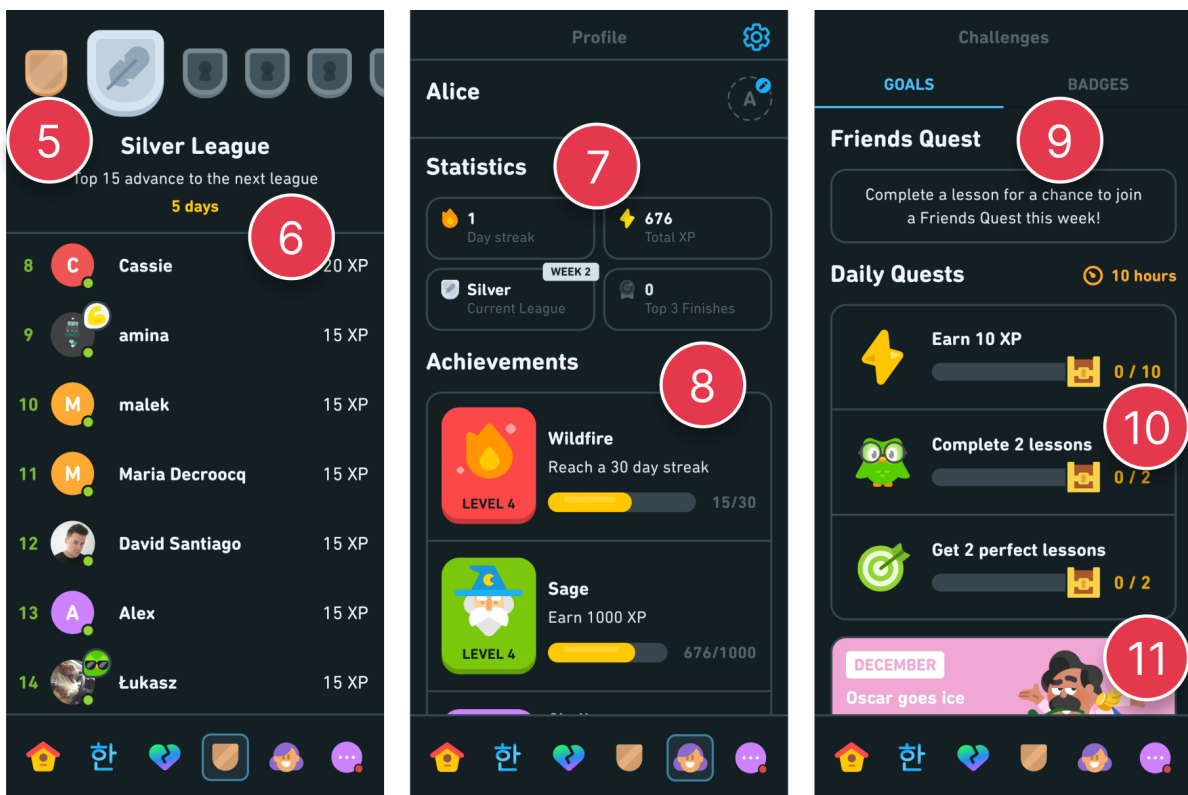

Figure 6 Screenshots Memrise (taken 2022-12-15)

The markers 1-7 in figure 6 are used to describe the different gamification elements in this app.

Marker 1 Feedback: Shows the current level's progress and how many words or sentences are left to complete the lesson.

Marker 2 Challenge: The user also gets the opportunity to repeat vocabulary in a query or take on the challenge of finishing it with a time constraint.

Marker 3 Feedback: Learners are given an overview of their daily goal as well as the longest streak they have ever achieved. There is also a statistic showing how long and how much the user has learned on the day.

Marker 4 Challenge: A daily learning goal can be set by the user. It's a challenge on how many words they can learn in a day. There are three options: 5,15, or 30 words per day.

Marker 5 Journey: The user advances through courses comprised of multiple lessons. In every lesson they get to learn various words or phrases which will be repeated multiple

times to help the user memorize them. A progress circle indicates how far they have progressed in each lesson.

Marker 6 Feedback: This displays how many consecutive days of the week the user has reached their daily goal with the app.

Marker 7 Journey: When a new word is being introduced the app calls it "planting a seed". With each time the word appears again the seed will grow. When the word is memorized, a flower will appear as shown with marker 7 on the left.

Figure 7 Screenshots Memrise (taken 2022-12-15)

The markers 8-11 in figure 7 are used to describe the different gamification elements in this app.

Marker 8 Leaderboard: There is a highscore list that reveals the user's position in comparison to other users. It can display the overall ranking, the ranking for this week, or the ranking for this month.

Marker 9 Feedback: Learners are given an overview of their progress. They can check their XP, learned words and their longest streak. There are also different skill ranks depending on how many experience points they have collected.

Marker 10 Leaderboard: In addition to the standard highscore list, users can compete with their friends and see who is doing the best in their own leaderboard.

Marker 11 Feedback: Adding points to an XP counter and growing a flower serve as visual indicators for correct answers. When the user makes a mistake they receive an encouraging feedback to continue learning.

2.4.3   Drops

Drops focuses on visual learning by using illustrations to assist the learning process of one or more of the 45+ offered languages (*The Drops Story*, n.d.). The user gets the opportunity to choose from different topics, allowing them to focus on what interests them the most without having to complete tedious basic skills first. Users can study for 5 minutes a day. They complete exercises by swiping the vocabulary in the direction of the correct answer. The app also utilize some gamification elements to make learning fun and simple.
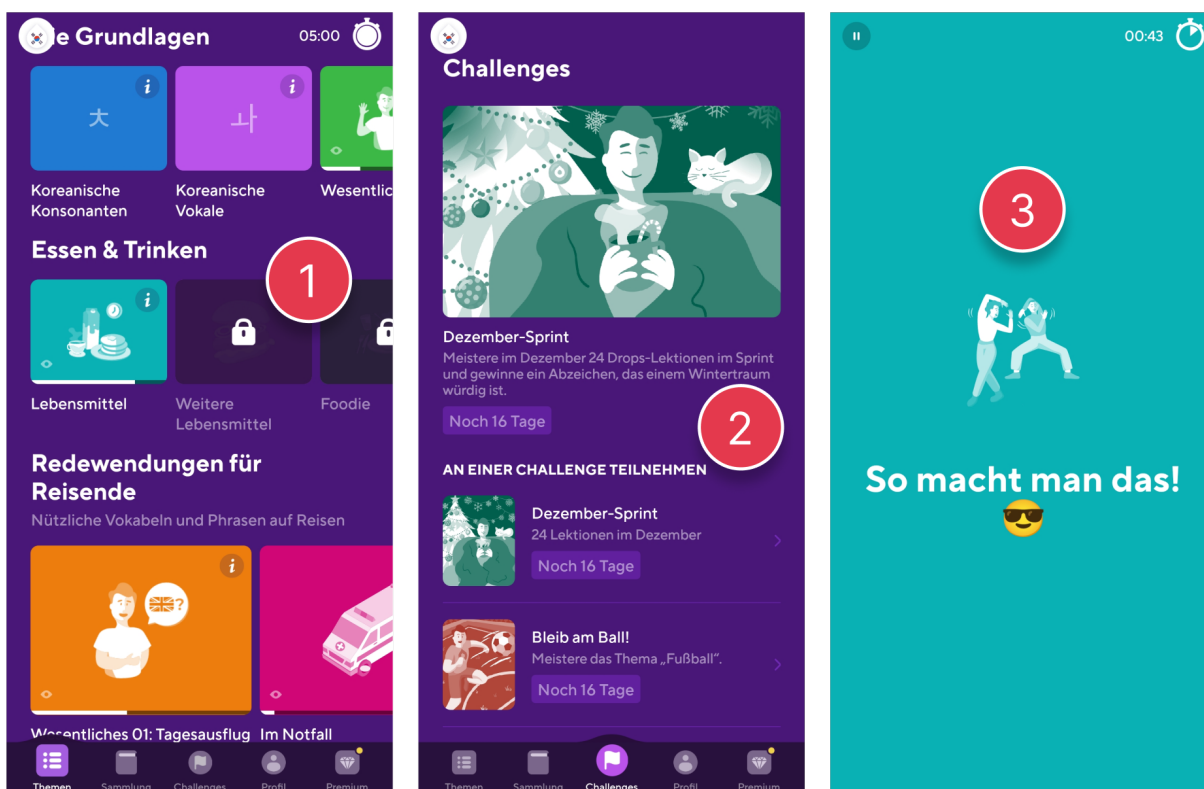
Figure 8 Screenshots Drops (taken 2022-12-15)

The markers 1-3 in figure 8 are used to describe the different gamification elements in this app.

Marker 1 Journey: There are different categories with multiple topics to explore. Each topic contains a number of words or phrases to be learned.

Marker 2 Challenge: Every month, learners can participate in a new set of challenges. To be successful, the challenge must be completed within a few weeks. For example, a challenge could be to complete a certain number of lessons.

Marker 3 Feedback: If the user is able to correctly answer a few exercises in a row they get a motivating message along with funny illustrations. In addition, for each correct answer, learners receive a green checkmark, while incorrect answers get a red x.
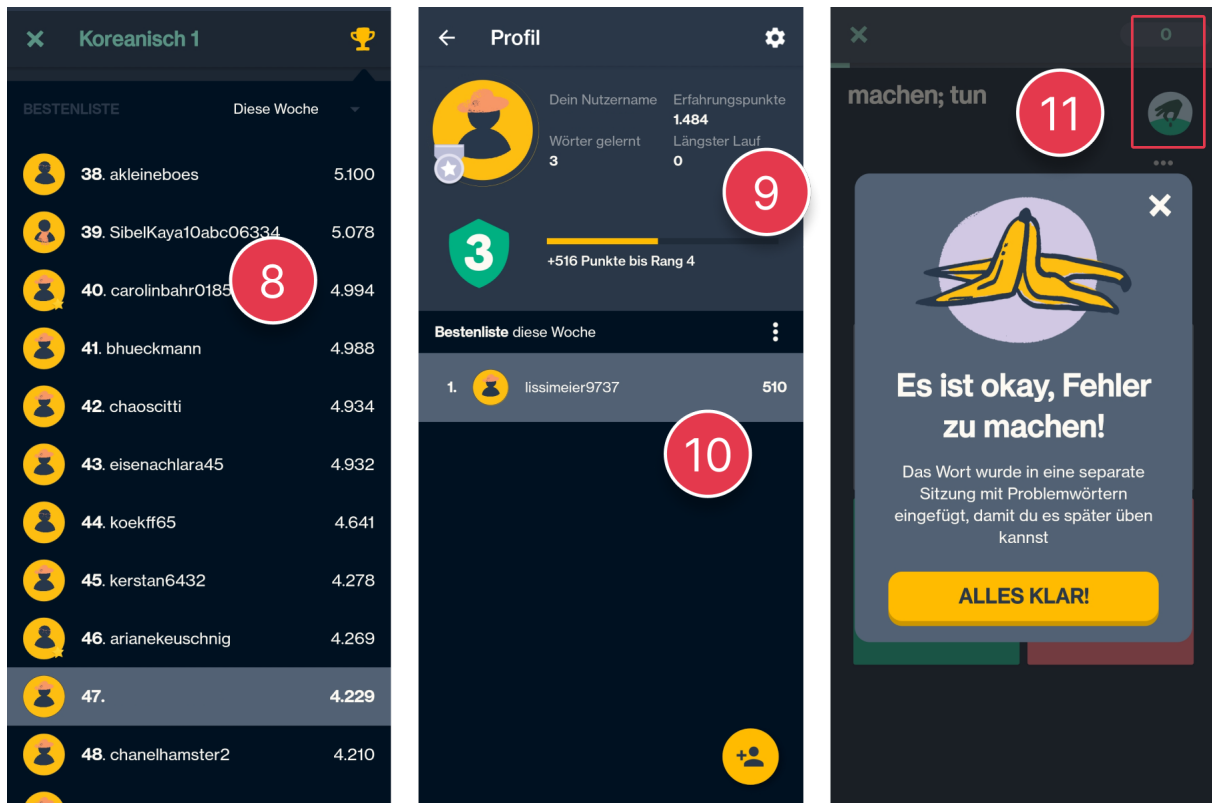
Figure 9 Screenshots Drops (taken 2022-12-15)

The markers 4-7 in figure 9 are used to describe the different gamification elements in this app.

Marker 4 Feedback: After completing a 5-minute learning session, the user is presented with an overview of the process they made on that day. The information includes newly learned words, accuracy, and practiced vocabulary.

Marker 5 Feedback: The user can maintain their streak by learning with the app on a daily basis. They can review their current streak run as well as the length of their longest streak.

Marker 6 Cooperation: The user can invite friends to learn together with them. They can observe one another's learning processes and compare who advances more quickly.

Marker 7 Reward: The app provides different goals for the user to achieve. One example would be finishing 10 lessons 100% accurately. When they reach that goal they are rewarded with a badge.

2.4.4 Result

Duolingo utilizes many of the existing gamification elements. With this they cover the demands of all four Bartle player types. Rewards and challenges for achievers, leaderboards for killers, journey for explorers and cooperation for socializers.

Memrise focuses on giving users the opportunity to listen to and learn the language diligently, while also incorporating some game mechanics to keep player types such as killers, achievers, and explorers interested.

Drops, on the other hand, reinforces a fun learning experience through their approach to content delivery. They also have some of the typical gamification elements like challenges and rewards for the achiever player type.

Based on the information gained from analyzing some of the existing language learning apps, we can outline some gamification patterns, why they are being used, how they are being implemented and for who they are most interesting (table 1).

What?	Why?	How?	For Who?
Rewards	• Motivation • Achievement • Engagement	• Freeze streak • Gems • Hearts • Badges • Power-ups • XP • Skill league	• Achievers
Challenges	• Motivation • Fun	• Goals • Achievements • Daily/monthly quests • Time limit • Streak • Skill league	• Achievers • Explorers
Leaderboards	• Motivation • Socialization • Engagement	• Highscore lists	• Killers
Journey	• Motivation • Achievement	• Storyline • Different units • Checkpoints • Levels	• Explorers • Achievers

What?	Why?	How?	For Who?
Cooperation	- Motivation - Fun - Socialization - Engagement	- Challenge with friends - Chats	Socializers
Feedback	- Motivation - Achievement	- Avatar - Text/illustrations - Progress bar	Achievers

Table 1 Categorization of gamification patterns

3   Methodology

Human Computer Interaction (HCI) is a design which focuses on creating the ideal experience between user, machine and necessary services (Karray, Alemzadeh, Abou Saleh, & Arab, 2008). The most important terms to consider in the design of HCI are functionality and usability. Functionalities are a set of services or actions given to the user, whereas usability alludes to how efficiently these functionalities can be employed by the user to achieve a specific goal. In interaction design it is important to understand the devices and their limitations, as well as the people and the social aspects (Dix, Finlay, Abowd, & Beale, 2003). During the whole design process, it is essential to always consider the user. This is where the Human Centered Design (HCD) research method comes into play. Human Centered Design is defined in the ISO 9241-210:2019 and focuses on making systems useful by considering the users needs and applying human factors as well as usability techniques (*Human-centered design: User-friendly products that actually solve problems*, 2020). This study was constructed using the four phases of HCD (figure 10) (*Human-centered design: User-friendly products that actually solve problems*, 2020):

Understand - understanding and clarifying context of use.
Define - defining the user needs.
Design - creating design solutions.
Evaluate - testing the design solutions.
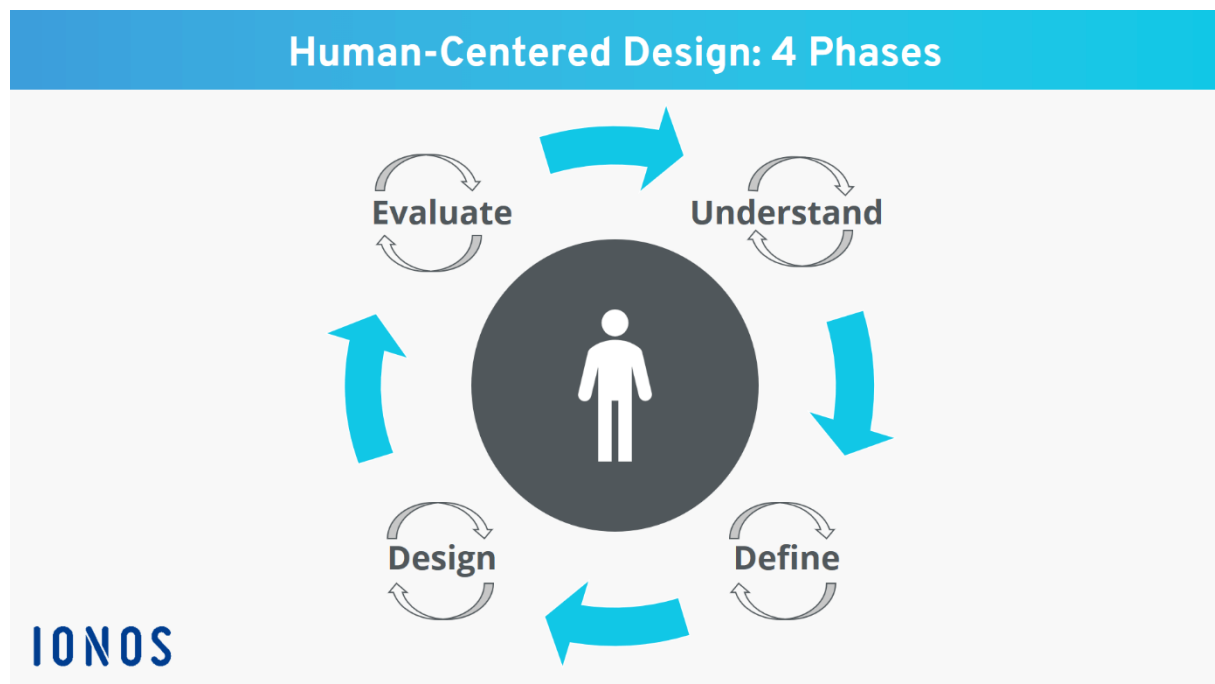
Figure 10 The four phases of HCD (*Human-centered design: User-friendly products that actually solve problems*, 2020).

Following research on the subject, an interactive prototype was created to investigate the impact gamification has on different player types and whether a connection can be found. In interaction design, a prototype is used to simulate the look and behavior of a fully finished product(Houde & Hill, 1997). It is intended to represent the design idea defined during the HCD process.

In the last stage, the prototype is used to evaluate the design solution. For this, we employ the usability testing method.

"Usability testing" or often called "user testing" is used by researchers to identify possible problems, discover new opportunities to improve the design of a user interface and to learn about the users' behavior (Moran, 2019). The core elements of user testing are the facilitator, the task and the participants. In usability testing, as seen in figure 11, the facilitator or moderator guides the participant through the tasks and observes their behavior. After that, they listen to the users' feedback and obtain additional information by asking questions.
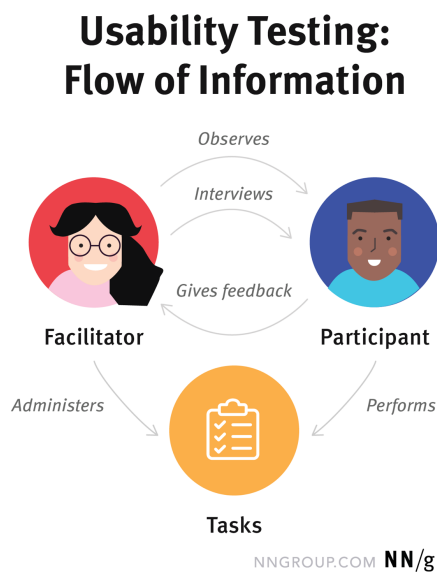
Figure 11 Usability Testing: Flow of Information (Moran, 2019).

During the evaluation, both qualitative and quantitative data was gathered via interview questions and the short User Experience Questionnaire (UEQ). The Questionnaire is meant to measure usability and user experience aspects of interactive products (Hinderks, Schrepp, & Thomaschewski, n.d.). The short version includes eight components that have to be rated on a scale from -3 to 3. Each component entails one positive and one negative extreme, which symbolize each end of the scale. The first four depict pragmatic qualities, while the second half examines the hedonic qualities. Pragmatic qualities concentrate on a task-oriented experience, while hedonic qualities investigate the originality, fun, and appeal of a product (Lewis & Sauro, 2020).

4 Prototype

The prototype was constructed with the interface design tool "figma" (*Figma: the collaborative interface design tool*, n.d.). The program gives the opportunity to create dynamic and interactive design solutions. Nevertheless, there are some constraints for interaction methods that had to be worked around for this prototype. The user can only interact with objects by tapping them; they cannot be dragged. Other than that, there is no function to type text while operating the prototype. The exercises were designed in such a way that these interactions are avoided.

The prototype consists of three levels and an additional level overview through which they can be accessed. The focus of the testing lies in the gamification elements. Each instant was created with the intention of responding to a specific Bartle player type. The chosen gamification patterns are:

- **Journey** for Explorers

- **Leaderboards** for Killers

- **Cooperation** for Socializers

- **Rewards** for Achievers

The design takes inspiration from the apps analyzed in chapter 2.4 "Competitor Analysis". The color pattern was selected following the style of dark mode settings. Supplementary it was important to keep the usability aspects in mind. Contrasts and font sizes were closely regarded in the design process to ensure that users would have no difficulty reading the provided content. All the illustrations were also created using the design tool figma. The most essential factor was to design them in bright colors to contrast with the dark backgrounds.

Because the testers' first language is German, English was chosen as the language to learn. Since the gamification elements are supposed to be the prototype's main focus, the exercises were designed to be not overly complicated while also keeping the users interested. The lessons' manageable design was also advantageous for the user flow and gamification elements to function as intended. Each level includes a different type of learning method, such as a word quiz, a word search, and a picture quiz. They will be further explained in the following pages.

The user flow is displayed in figure 12 on page 24 in a shortened version. It contains a preview of the exercises in each level as well as the four gamification patterns mentioned above.
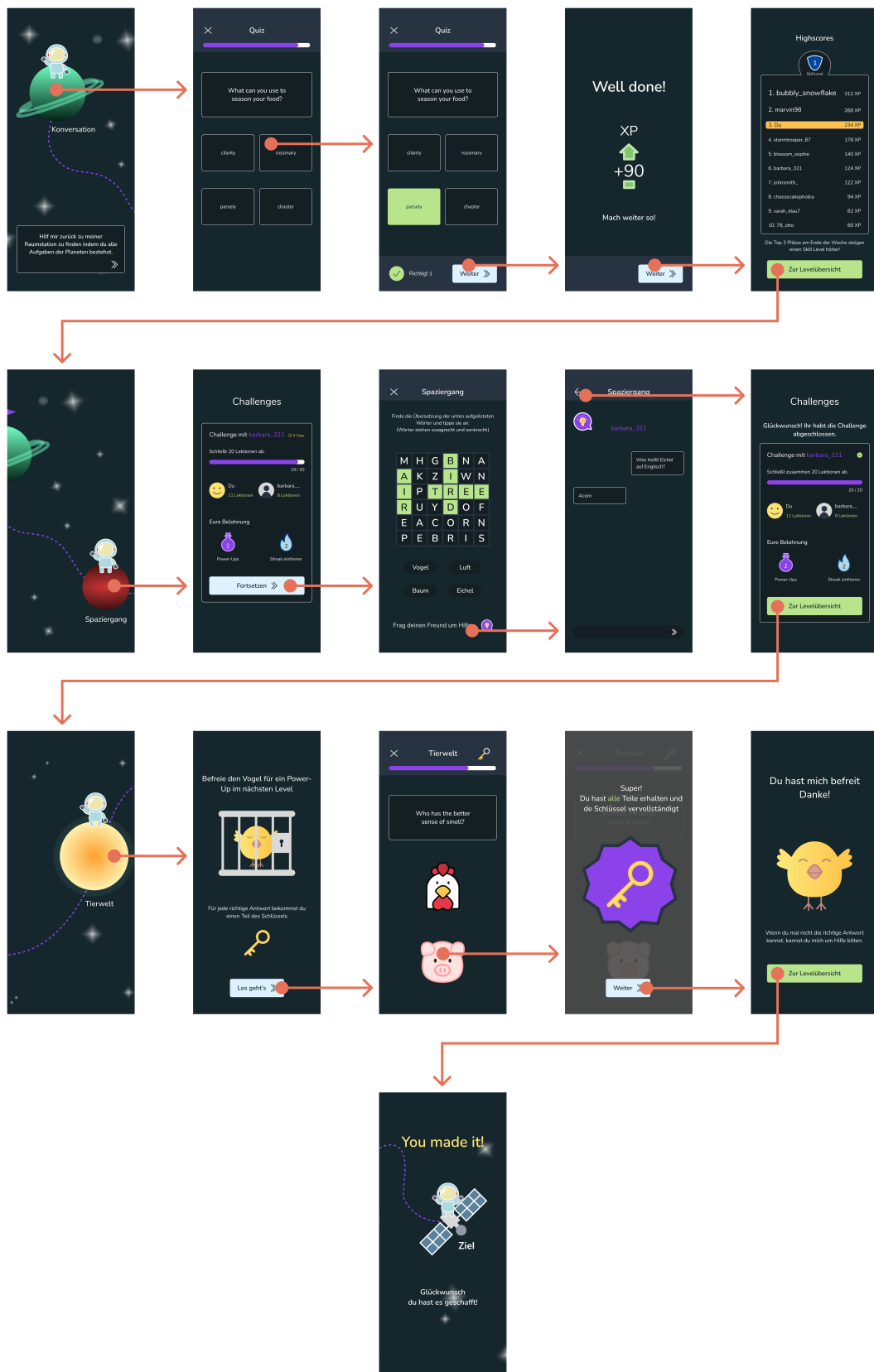
Figure 12 Short user flow of the prototype

4.1 Explorer - Journey

Explorer types strive to discover new things and interact with the world. The used Gamification element for explorers was "journey", using a storyline and different levels. The objective was to build a world for the learners, that they would want to revisit and thoroughly explore. The desire to advance and explore the world of the storyline would be a motivating factor. As shown in figure 13, the setting of the prototype is in outer space. Every planet represents one level. The storyline is conveyed to the user through a dialog field. Here, the astronaut requests assistance in navigating back to his space station.
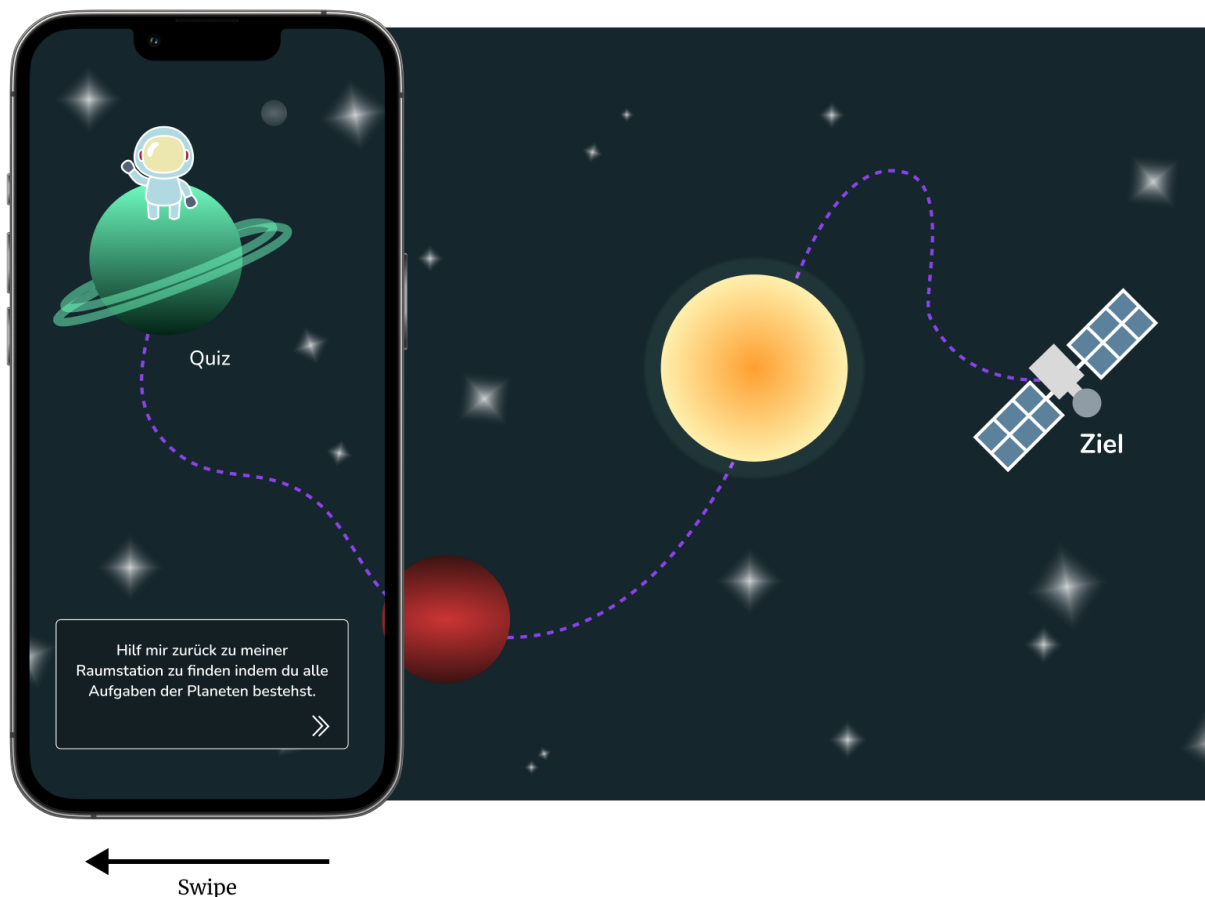
Figure 13 Prototype Explorer - Overview

By swiping the screen, they can get an overview of all levels and the goal at the end. The planets are connected through a line which represents a map to show the user the designated path. A lesson is started by tapping on a planet. The user has to finish each level to get to the next, until they reach the goal. Two indicators demonstrate how far the user has progressed. The astronaut on the planet and the level title indicate which lesson they are currently working on. For a more dynamic design a small waving animation was added to the astronaut. This also contributes to focusing the user's attention on the object with which they must interact.
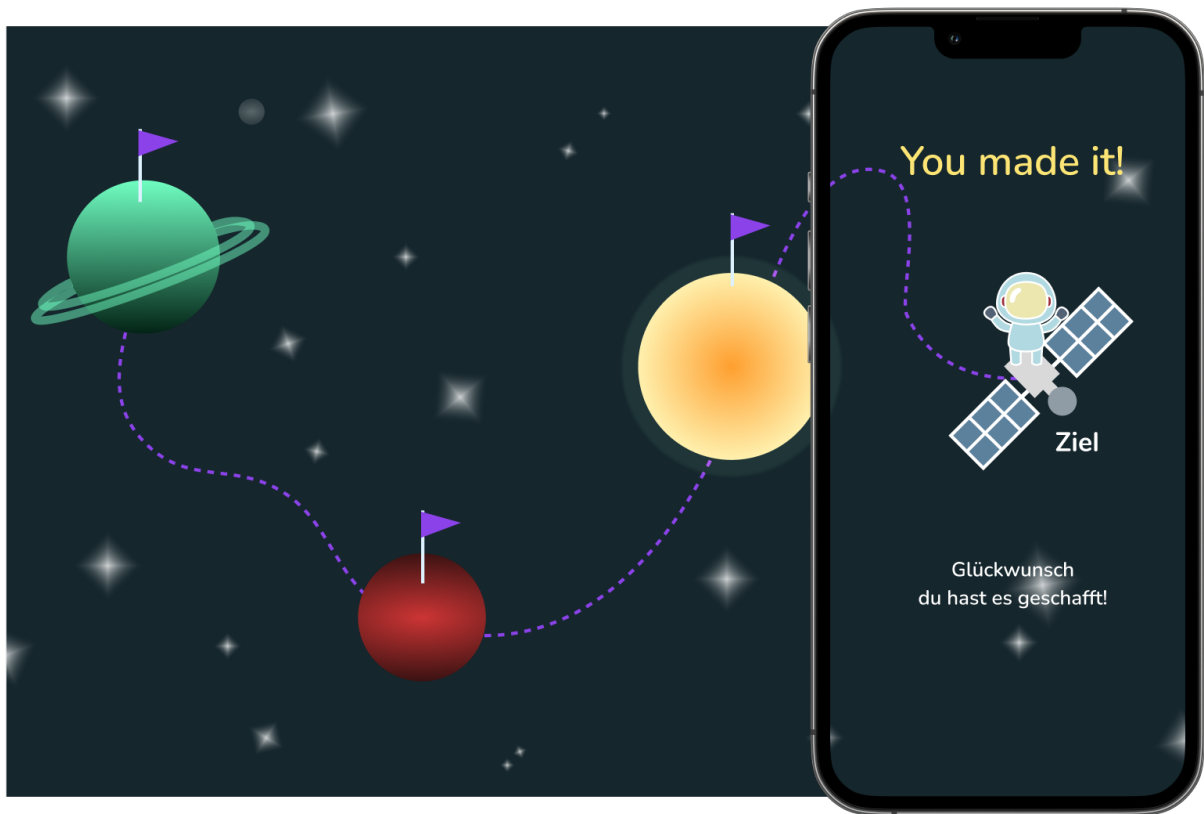
Figure 14 Prototype Explorer - Finish

The second indicator appears when they have successfully completed a level. As shown in figure 14 the visited planet of this lesson will be marked with a flag. Each of the levels consist of a lesson and one gamification pattern to resonate with a specific player type. Level one is for "killers", level two for "socializers" and level three for "achievers"
After completing all levels, the user reaches the end goal. A final message congratulates them on completing each level and assisting the astronaut in reaching the space station.

According to the MDA framework, the game mechanics in this case would be the pre-defined rules of having to complete each level in order proceed to the next. The game dynamics are the progress and feedback through dialogue fields and the progression markers. Lastly the discovery of levels and the achievement in the end would be the game aesthetics.

4.2   Killer - Leaderboard

People of the Bartle player type "killer" enjoy to dominate or compete with other players. For this, the most fitting gamification pattern would be "leaderboards". To progress to the point where learners can be ranked on a highscore list, they must first finish an exercise and gain experience points. In this level they have to complete a quiz.
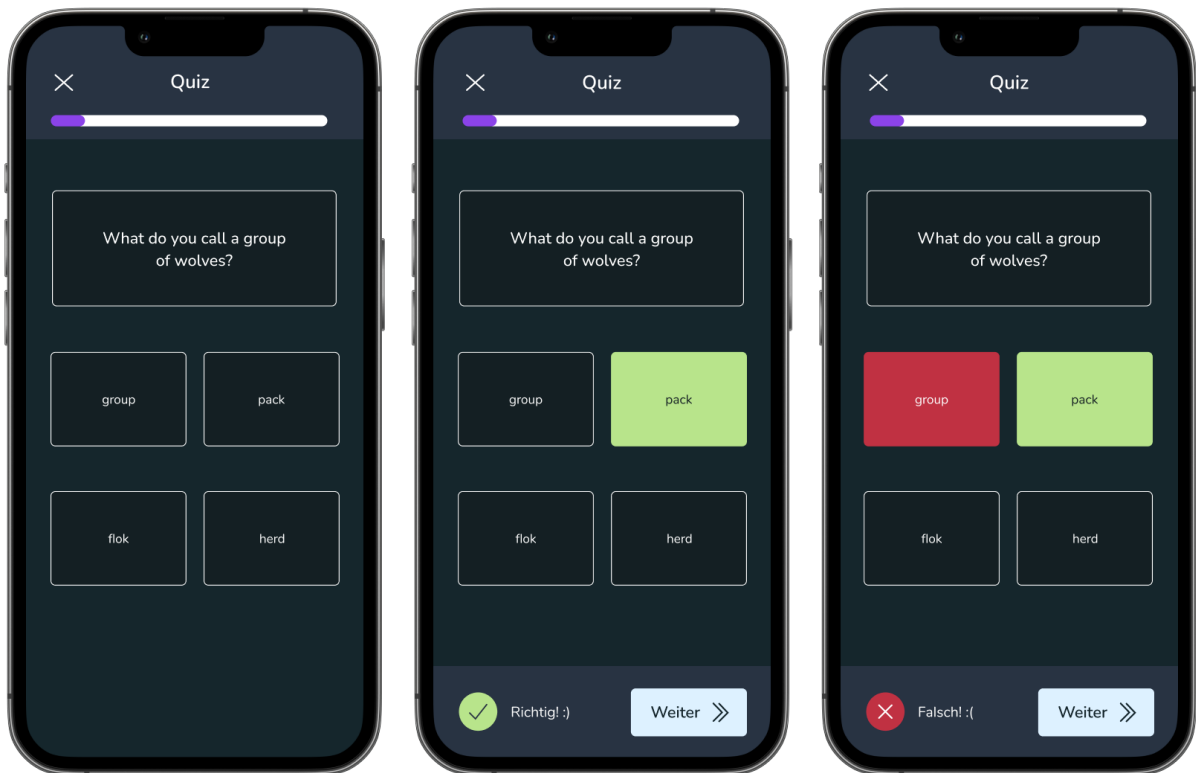
Figure 15 Prototype Killer - Lesson

There are three questions in English, each with four possible answers in English. For learning purposes, this would test the users' vocabulary knowledge as well as their overall understanding of the questions. If they answers a question correctly, the selected component turns green (figure 15). In addition a message on the bottom appears that tells the user the answer was "right". If the answer is incorrect, the chosen component turns red, while the correct answer turns green. This time, the message on the bottom says "wrong". To proceed to the next question, learners must tap the blue "next" button. A progress bar was added to the top of the screen to indicate how far the lesson has progressed.
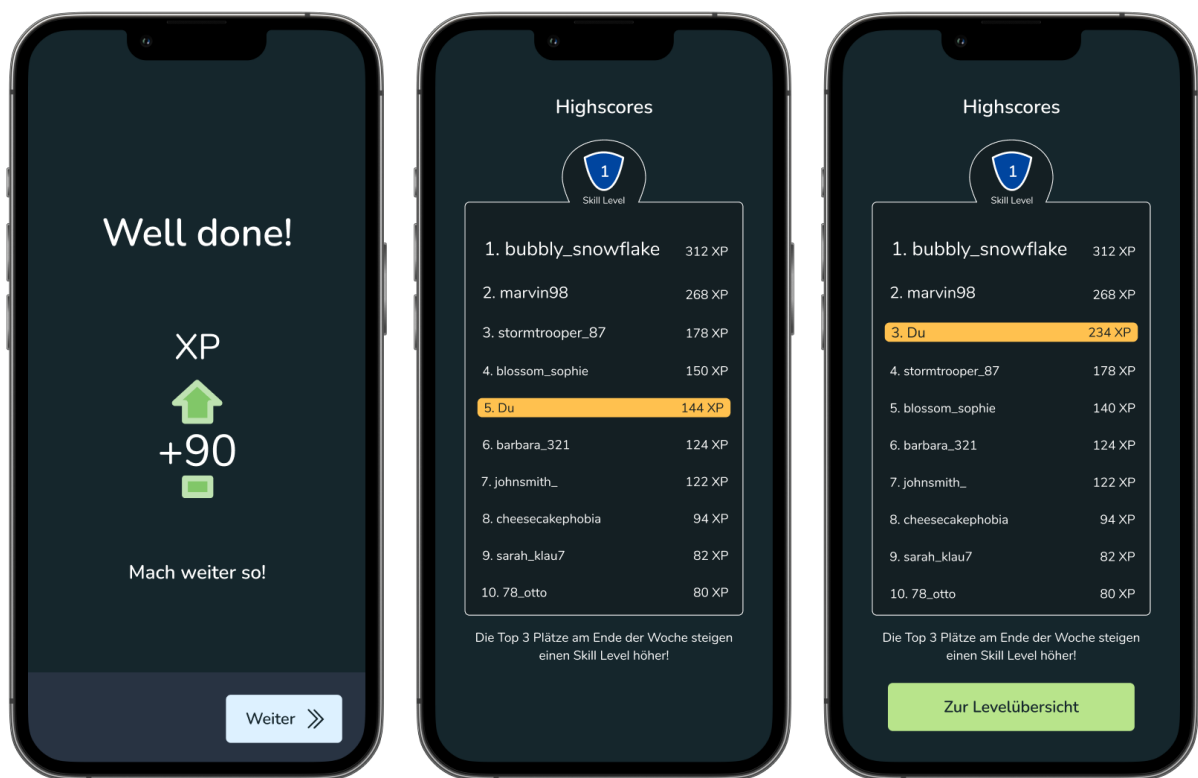
Figure 16 Prototype Killer - Highscore

After answering all three questions, the users gets redirected to the next page, which can
be seen in figure 16. The amount of XP they earned during this lesson is displayed for
them there. After that, the highscore list pops up and display the user's current rank with
the accumulated experience points. In order to make it easier to locate the users current
placement, their position will be highlighted in color. The points collected are added
to the score, and their new rank is revealed with a short animation. To make it more
realistic, a note on the bottom informs the user that the top three places will proceed into
the next skill level. This also implies that every skill level has its own highscore board,
with a realistic chance of rising to the top of the list. In the end, the green button can be
used to get back to the level overview.
The utilization of highscore lists is intended to motivate and engage the user in the
learning process by introducing the element of competition. They want to complete more
lessons in order to gain more experience points than other learners and surpass them in
the ranking.

The mechanics of the MDA framework are the rules of having to answer correctly to gather
XP and the resulting leaderboard. Game dynamics are the progress and the feedback the
user gets throughout the lesson. The aesthetics come from the feeling of achievement and
challenge of the experience.

4.3   Socializer - Cooperation

Socializers enjoy supporting and interacting with others the most. To appeal to this player type, the prototype uses the gamification pattern "cooperation". As seen in figure 17 the user has to complete a challenge together with a friend.
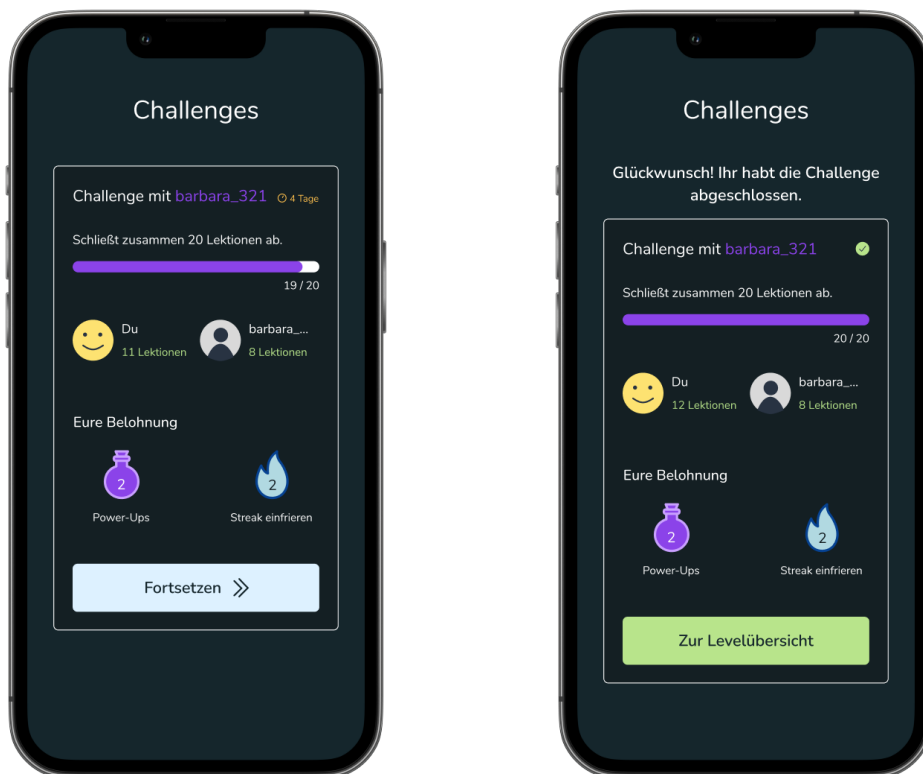
Figure 17 Prototype Socializer - Challenge with friend

In this scenario the challenge was to finish 20 lesson between the learners. They are supposed to be motivated by the aspect of comparing their learning accomplishments and working together to achieve a common goal. When trying to learn something new together, encouraging one another can improve their engagement and make the experience more enjoyable.

The progress bar in figure 17 shows how far they have progressed in the challenge. To increase the stakes, the challenge must be concluded within the given time limit of a few days. As an additional motivator, they both would receive rewards after completing the challenge.
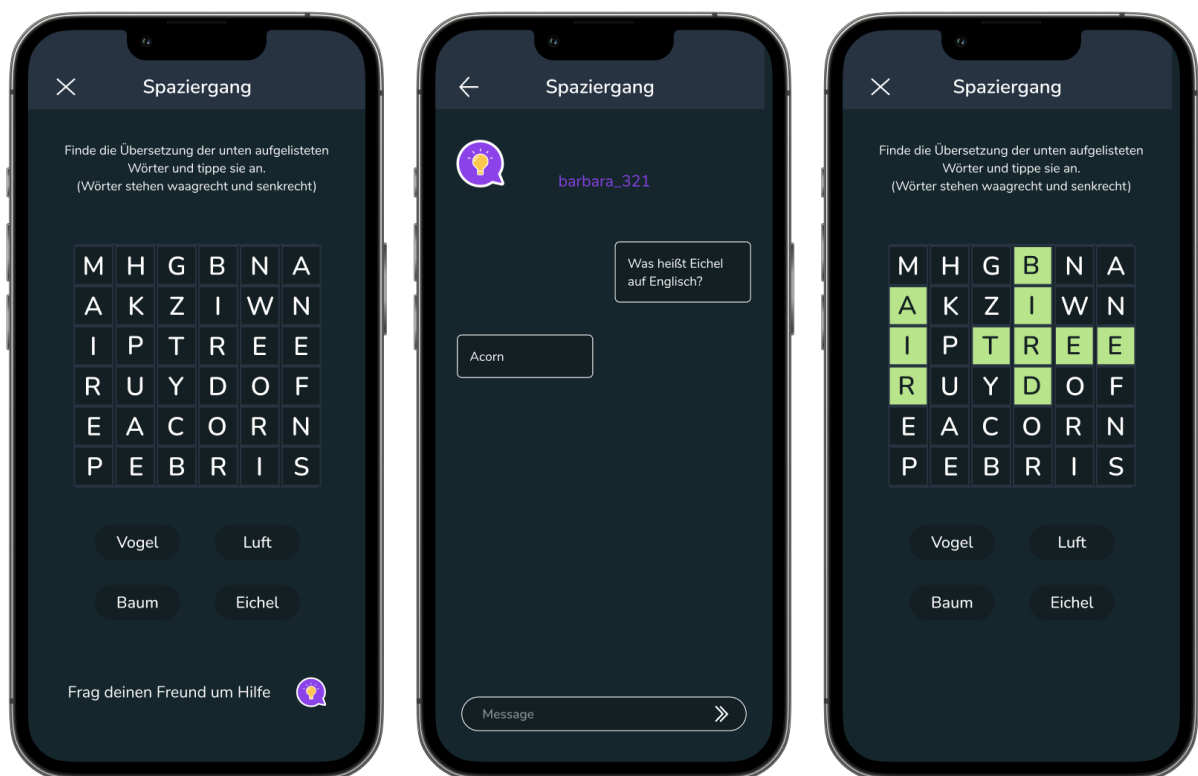
Figure 18 Prototype Socializer - Lesson

In the lesson of this challenge (figure 18), the user has to find the translations for the four given words in a word puzzle. This allows for a more enjoyable assessment of vocabulary knowledge than a standard query. If they spot the right translation, they can mark each letter by taping on it. In this case, it would have been more intuitive for users to simply drag along the complete word. However, the design tool figma does not facilitate this kind of screen interaction. The chosen alternative was for users to tap each letter individually. When the correct letter is selected, the box turns green. To include a more cooperative aspect, a feature that allows the user to ask a friend for help was incorporated. Since figma does not have a typing function for prototypes, this created another barrier in the available interaction methods. As a workaround, the user can simply tap on the message field, and a prewritten message will appear on the screen. After a short delay the answer from the friend will pop up. With this information the user can go back to the word puzzle and find the translation for the last word. After finishing this lesson they return to the first screen in figure 17, but now the challenge is completed.

For this level, the game mechanics are the rules of having to find each word in order to complete the challenge and the option of asking a friend for help. The feedback when selecting a correct word are the game dynamics. The aesthetics compose of the sense of achievement when completing the exercise, as well as the feeling of being challenged and discovering the words.

4.4   Achiever - Rewards

The Bartle player type achiever is said to be most interested in gathering points and rising in levels. The chosen gamification pattern to appeal to their preferences was "rewards". Learners can earn a power-up if they collect the needed objects by answering every question correctly. For this example, the users receive a power-up if they free the bird from the cage (figure 19). They have to collect all the pieces of the key to do so. With these components, two kinds rewards are added into the lesson. Various small rewards which bring them closer to the main prize. Earning these rewards is designed to provide learners with a sense of achievement, which enhances their motivation.
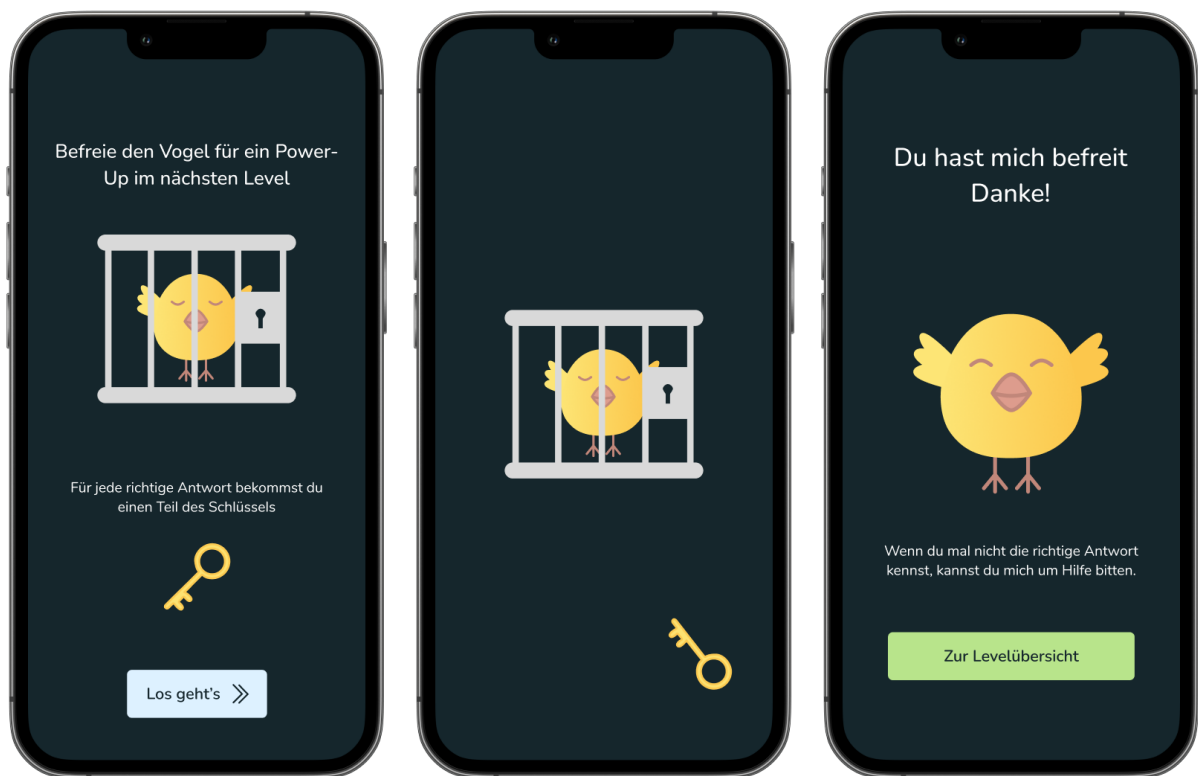
Figure 19 Prototype Achiever - Rewards

After completing the lesson and obtaining all of the pieces, an animation will appear in which the key is used to unlock the cage. Finally, the bird will be free, and in return, the user receives a power-up in the form of a hint for hypothetical future levels.
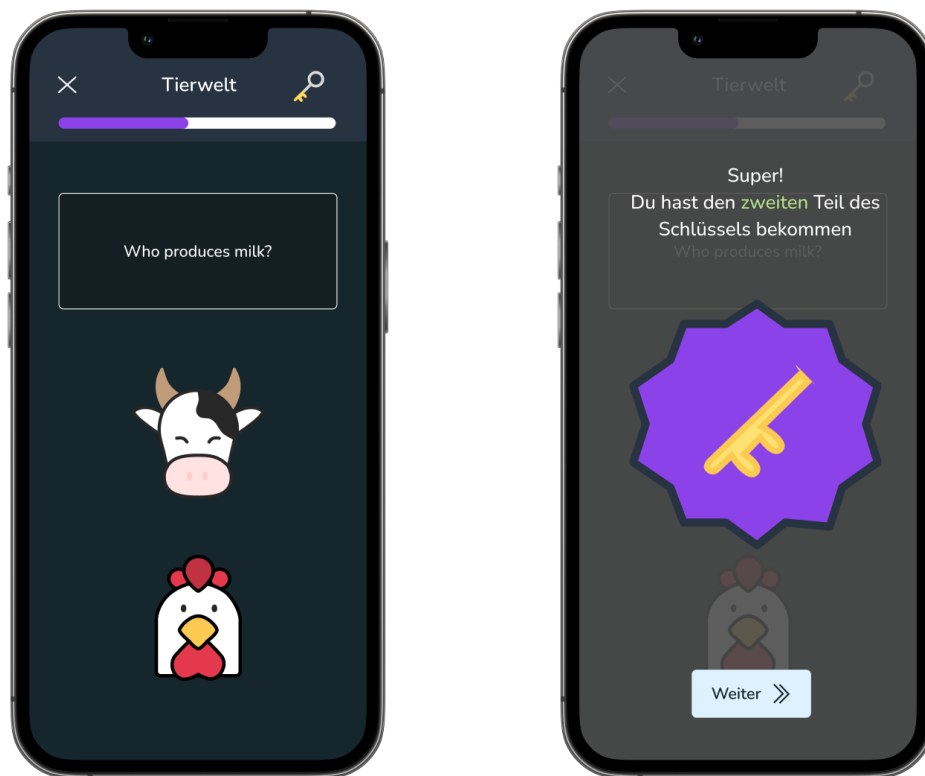
Figure 20 Prototype Achiever - Lesson

The level that has to be completed to earn the rewards consists of three questions. Understanding questions about various topics in a foreign language would be a learning goal for this. In this case, the theme was animals. Learners are given a fact and must determine which of two animals it applies to. (figure 20). To make it more engaging, the answers are presented in form of illustrations. If the users correctly answer a question, an overlay will appear informing them, that they have collected one piece of the key. An illustration shows how much of the key they have already gathered. This can also be verified while working on the questions. An empty key is placed at the top of the screen, which will be filled with each obtained piece. In addition, a progress bar indicates the user's advancement. After accumulating all pieces of the key, it can be used to free the bird, as shown in figure 19.

The game mechanics for this level can be identified as the provided rules of collecting the key in order to receive the reward. The feedback and progression are part of the game dynamics. Lastly, game aesthetics are defined as the user's experience, such as achievement when collecting the reward and being challenged throughout the lesson.

5   Evaluation Strategy

5.1   Outline

Table 2 shows the concept that was developed to evaluate the implementation of Bartle's player types in gamification contexts.

Why am I evaluating?	To determine the influence of gamification on the user. To consider if the Bartle's player types and their preferences can be applied to decide which gamification elements are most efficient for different users.
Which gamification patterns am I exploring?	Journey, Leaderboards, Cooperation and Rewards.
What type of data do I want to collect?	Voice Recording , Interview questions, short UEQ.
What am I evaluating?	Gamification elements in language learning apps in combination with Bartle's player types.
What constraints do I have?	It is very likely that not every Bartle type will be represented in the test group. Furthermore, the Bartle test result does not provide a clear assignment to one player type, but rather a percentage data of how much every player type is represented in the user.

Table 2 Evaluation Strategy

5.2   Usability testing procedure

5.2.1   Bartle test

To determine into which category of the four player types the participants fit in, they must first complete the Bartle Test of Gamer Psychology by Dr Matthew Barr. They have to answer questions about their online playing behavior (Barr, n.d.). For this, the test always provides two options. The user then chooses the one that better represents their playing

style. The final results give a percentage data on how much the user represents each of the player types. The test results can later be used to determine whether their player type has an influence on which elements of gamification they most resonate with.

Since the user test was conducted in German, the German version of the Bartle test was utilized.

5.2.2   Prototype

Within the prototype, the participants have to explore the four different gamification patterns and complete all levels, described in chapter 4 "Prototype". To explain the context, they are given a short introduction with small annotations:

The prototype represents an app that can be used to learn English as a second language. The emphasis is on the gamification elements that are used to support the learning content.

1. Explore the home screen and follow the app's instructions.

2. **Instruction level 2**
   Find the first three words in the word puzzle and use the "Ask a friend for help" function last, to find the translation for "acorn". Once finished, return to the overview and proceed to the next level.

The instruction for level two was added to create a scenario, where the users need to apply the mentioned feature. This was essential for testing the complete experience created for socializers.

5.2.3   Questions

The users are asked two questions before using the prototype. The first question is to establish whether they have prior experience with language learning apps or learning apps in general. The second question helps identify whether their preferable game genre is in correspondence with their Bartle player type.

Questions before the prototype walk-through:

- Did you ever use a language learning app or learning app before?
  If yes what did you like the most about it?

- Favorite game in the last 12 months?

Following their exploration of the prototype, the users are asked two further questions to determine whether they would use the app for learning and if anything was missing. In addition to the interview questions, the users are given the short User Experience Questionnaire for each introduced gamification pattern. This quantitative data can give insight

on which gamification pattern could be most efficient. The added aspect of motivation was not included in the data analysis of the UEQ. It was regarded individually. Questions after the prototype walk-through:

- Would you learn more often with such an app?
  If yes why? If no why?

- Was there something missing? / What function did you not like?

- Short UEQ (table 3) with the added item "demotivating/motivating":

obstructive	o o o o o o o	supportive
complicated	o o o o o o o	easy
inefficient	o o o o o o o	efficient
confusing	o o o o o o o	clear
boring	o o o o o o o	exciting
not interesting	o o o o o o o	interesting
conventional	o o o o o o o	inventive
usual	o o o o o o o	leading edge
demotivating	o o o o o o o	motivating

Table 3 Modified short UEQ (Hinderks et al., n.d.).

6   Evaluation Findings

6.1   Bartle test results

The user testing was conducted with nine participants. Each of them performed the Bartle test at the start of the testing. In table 4 the results of the taken Bartle tests are displayed. Since it does not give a clear assignment to only one player type we can refer to each user by an assigned abbreviation. It ranks the player types according to the outcome of the test and merges their first letters together. For further discussions, we are going to refer to the player type with the most percentage as their primary type and the others as subtypes.

	Achiever	Explorer	Socializer	Killer
Participant A **EASK**	60%	73%	33%	33%
Participant B **SEKA**	7%	67%	80%	47%
Participant C **EASK**	53%	73%	47%	27%
Participant D **ESAK**	47%	73%	60%	20%
Participant E **EASK**	53%	73%	53%	20%
Participant F **EAKS**	53%	60%	33%	53%
Participant G **ESKA**	20%	73%	73%	33%
Participant H **ESAK**	40%	73%	53%	33%
Participant I **SEAK**	47%	73%	80%	0%

Table 4 Bartle test results

6.2 Interview questions

The majority of participants stated that they had prior experience with language learning apps or learning applications in general. Six testers mentioned Duolingo as an app they used for learning a new language. They appreciated the variety of learning methods offered, such as listening exercises, translating vocabulary or fill-in-the-blank texts. One participant found it most appealing that the app allows them to learn with friends and compare their progress. They also recalled how much they enjoyed collecting achievements. Other aspects highlighted were the overview of the learning progress provided by Duolingo, as well as the feedback and inducements to learn on a daily basis. One tester specifically pointed out that they enjoyed the app's gamification features in general.

Three testers said to have used some form of vocabulary or cue card app for language learning. They prefer more autonomy and control over the learning content that is presented to them. One participant had no prior experience with language learning apps but had used the platform "LinkedIn learning", which provides education on a variety of topics. They particularly value the step-by-step learning process and variety of content. Some testers also stated that they did not use the apps for an extended period of time. This was due to the fact that the level progression and degree of difficulty increased too slowly. They quickly lost interest in continuing after that. Another participant noted that the daily reminder to learn made them feel stressed after a while, so they uninstalled the app.

In the second question, the participants were asked about their most recent favorite game. This was done to provide some kind of control comparison if they also prefer to play games that resonate with the player type of the test results. Table 5 gives an overview of all the games that were named by the participants as their favorites. For better references, the genres of the games were added.

Player Type	Favorite Game	Game Genre
EASK	Hollow Knight	metroidvania/jump 'n' run
SEKA	Ready or Not	tactical first-person shooter
EASK	Sudoku, Village Game	logic-based puzzle, strategy game
ESAK	Kingdom Hearts	action role-play
EASK	Age of Empires 2, Settlers 4	real-time strategy game

Player Type	Favorite Game	Game Genre
EAKS	Mario Bros., Just Dance	jump 'n' run, motion-based dance game
ESKA	Strategy Games, Quiz, Activity	strategy, multiplayer/charades
ESAK	Mario Bros., Mario Kart	jump 'n' run, racing game
SEAK	The Sims	life simulation game

Table 5 Favorite games and game genres

After exploring the prototype, a total of eight participants stated that they would use an app with features similar to those found in the prototype. Participant A, who gave the negative response prefers to choose their own learning materials and instead uses vocabulary learning apps. Four testers mentioned they especially liked the option to interact and learn together with a friend. Many users showed interest in the exercises themselves and not only the additional gamification elements that were introduced around them to make it more engaging and fun. Some users remarked that using a variety of methods for each exercise helps them stay engaged in their learning process. They no longer feel like they are learning thanks to the addition of the gamified elements, which make it more enjoyable. Another tester mentioned enjoying the sense of accomplishment that came from freeing the bird from its cage. They also suggested that there was a good balance of integrated gamification so that it wasn't too overwhelming or annoying. One user expressed concern that, despite finding the design appealing and liking the overall discovery of different levels, they would still lose motivation after seeing it a few times. Apart from that, only one other participant mentioned the story and level aspect as a feature they liked.

Many of the tester mentioned missing some kind of level progression or skill status. The majority did not recognize the swiping interaction and thus did not see the overall level path as well as the markers after completing a level. This was most probably a design flaw that could have been avoided by including some kind of indication for the swiping interaction. After learning about the possible interaction, they stated that it would have made the level progression a little more clear and interesting. Other participants expressed a desire for a clearer progression that provides information about the level of difficulty.

6.3 UEQ

The User Experience Questionnaire provides information about the attractiveness, perspicuity, efficiency, dependability, stimulation and novelty of the tested prototype (Hinderks et al., n.d.). The testers were required to complete a questionnaire for each of the four presented gamification patterns in order to establish which of them was the most favored.

6.3.1 Explorer - Journey

Figure 21 provides an average value display for each of the components from the UEQ. The blue bars at the top represent pragmatic qualities, while the yellow bars represent hedonic qualities. The order is in accordance with the UEQ displayed in table 3 of chapter 5.2.3 excluding the item "demotivating/motivating". The items that were regarded as most positive with a mean value of 2.2 are item 2 "complicated/easy" and item 3 "inefficient/efficient", which are both pragmatic qualities. The items of hedonic qualities have an overall lower mean value with the lowest being 1.0 for item 8 "usual/leading edge". Nevertheless each item did get a positive mean value.

Figure 21 Mean Value per Item - UEQ for Journey
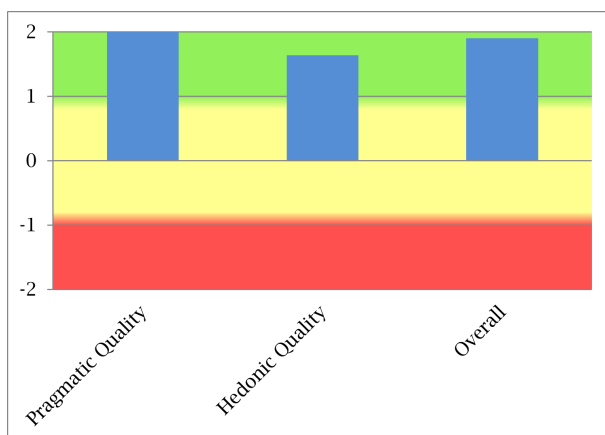
Figure 22 Mean Value overall - UEQ for Journey

Figure 22 gives an overall mean value with all the items combined as well as for pragmatic and hedonic qualities respectively. Values between -0.8 and 0.8 reflect a neutral evaluation. Everything less than -0.8 is considered a negative evaluation and everything greater than 0.8 would be a positive evaluation. This range is also represented by the colors in figure 22. Green is positive, yellow neutral and red negative. The estimated mean for the pragmatic qualities is 2.167, while it is a bit lower for the hedonic qualities with 1.639. Both of the values are still regarded as a positive evaluation since they are over 0.8. The overall mean value amounts to 1.903.

Table 6 can be used for a more in-depth individual analysis of each player type. It displays the mean value of each quality as well as an overall value for each participant. All of the mean values in the column "overall" are in the range of a positive evaluation. There are two mean values with the highest possible amount of 3.00 for pragmatic and hedonic qualities each.

Player Type	Pragmatic Quality	Hedonic Quality	Overall
EASK	2.00	2.50	2.25
SEKA	1.75	1.00	1.38
EASK	2.00	1.75	1.88
ESAK	1.75	0.75	1.25
EASK	1.75	0.25	1.00
EAKS	3.00	2.50	2.75
ESKA	2.25	3.00	2.63
ESAK	2.25	1.25	1.75
SEAK	2.75	1.75	2.25

Table 6 Scale means per person - Journey

6.3.2   Killer - Leaderboard

The best graded item for the presented highscore list was item 4 "confusing/clear" with a mean value of 2.6 (table 23). The lowest rating was given to item 7 "conventional/inventive". Here, the mean value amounts to -0.3 which falls under the category of neutral evaluation.
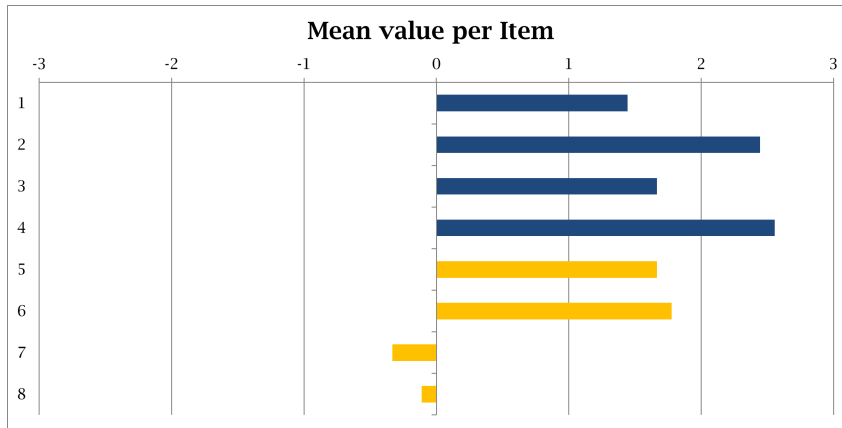
Figure 23 Mean Value per Item - UEQ for Leaderboard

Figure 24 illustrates the overall mean value. The outcome of all the items of hedonic qualities bring forth a value of 0.75, which is considered a neutral evaluation. The pragmatic qualities and the overall results are a positive evaluation with 2.028 and 1.389 respectively.
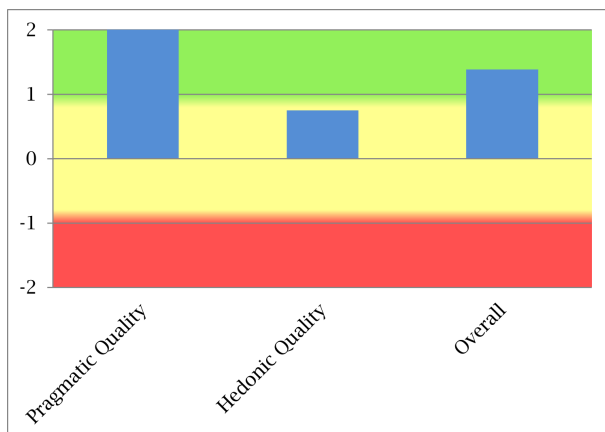
Figure 24 Mean Value overall - UEQ for Leaderboard

Table 7 gives an overview of the mean values of the leaderboard evaluation for each participant. There are three mean values in the column "overall" that are less than 0.8 and therefore fall under the category of a neutral evaluation. Pragmatic qualities are mostly positive, expect for one neutral value. In the hedonic quality column there are three values that point to a neutral evaluation as well as one less than -0.8 which is considered a negative evaluation. For the pragmatic qualities two participants obtained a mean value of 3.00.

Player Type	Pragmatic Quality	Hedonic Quality	Overall
EASK	2.75	2.00	2.38
SEKA	1.75	0.00	0.75
EASK	3.00	1.25	2.13
ESAK	1.25	0.25	0.75
EASK	0.75	1.00	0.88
EAKS	3.00	1.50	2.25
ESKA	2.00	0.50	1.25
ESAK	2.50	1.25	1.88
SEAK	1.50	-1.00	0.25

Table 7 Scale means per person - Leaderboard

6.3.3   Socializer - Cooperation
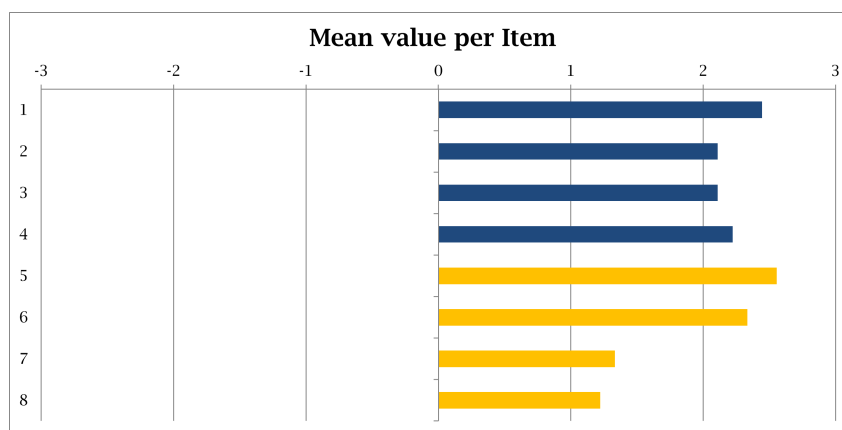
Figure 25 Mean Value per Item - UEQ for Cooperation

The highest rated item for this gamification pattern was item 5 "boring/exciting" of the hedonic qualities with a value of 2.6, seen in table 25. As the lowest, ranks item 8 "usual/leading edge" which is also a hedonic quality. It received a value of 1.2, which remains a high value in the positive evaluation category.
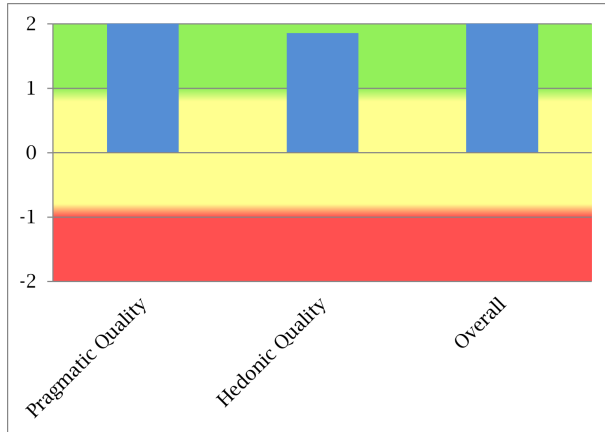
Figure 26 Mean Value overall - UEQ for Cooperation

The overview in figure 26 shows that all mean values range in the green area of a positive evaluation. Pragmatic Qualities achieved a value of 2.222 and hedonic qualities 1.861, which results in an overall mean value of 2.042.

Player Type	Pragmatic Quality	Hedonic Quality	Overall
EASK	2.00	1.50	1.75
SEKA	1.75	2.00	1.88
EASK	2.75	3.00	2.88
ESAK	1.50	1.25	1.38
EASK	2.25	1.25	1.75
EAKS	2.75	2.00	2.38
ESKA	2.50	2.00	2.25
ESAK	1.50	2.00	1.75
SEAK	3.00	1.75	2.38

Table 8 Scale means per person - Cooperation

Table 8 provides an overview of each mean value to give a better comprehension of the individual evaluation. All values obtained can be ranked into a positive evaluation. The highest possible value of 3.00 appears once for pragmatic and hedonic quality each.

6.3.4   Achiever - Rewards

Figure 27 shows the highest mean value of the UEQ for rewards was item 4 "confusing/clear" with a value of 2.4. The lowest value was for a hedonic quality more precisely item 7 "conventional/inventive". With 1.0 the mean value is still a positive evaluation in this case.
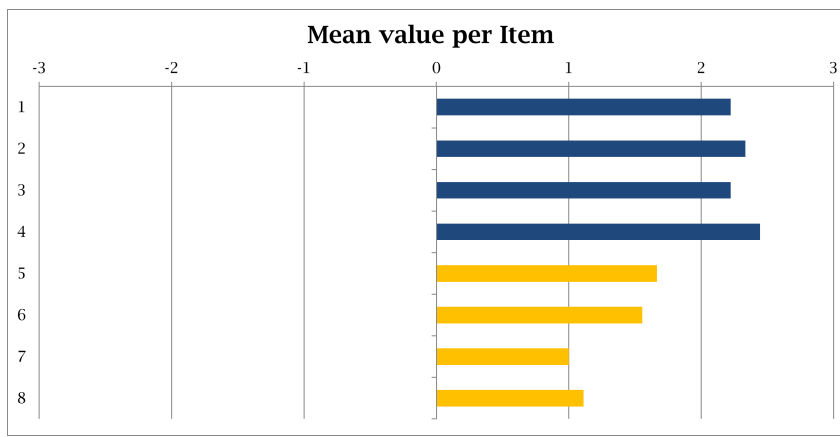
Figure 27 Mean Value per Item - UEQ for Rewards

Figure 27 gives a better illustration of the positive evaluation of each quality. Pragmatic qualities get a total mean value of 2.306 and hedonic qualities are rated with 1.333. The overall value lands at 1.819.
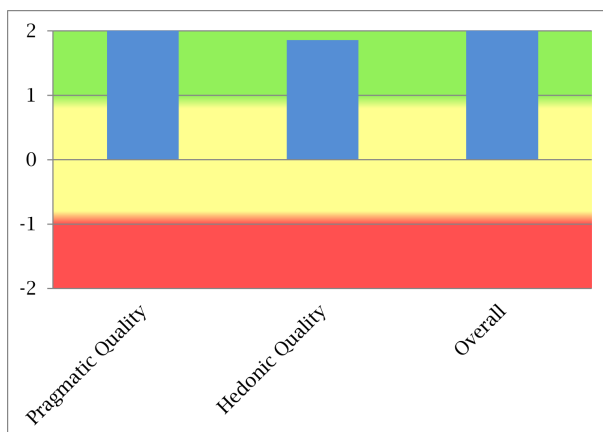
Figure 28 Mean Value overall - UEQ for Rewards

Player Type	Pragmatic Quality	Hedonic Quality	Overall
EASK	2.75	1.50	2.13
SEKA	1.75	0.50	1.13
EASK	1.50	2.50	2.00
ESAK	1.25	1.75	1.50
EASK	2.25	0.00	1.13
EAKS	2.75	2.50	2.63
ESKA	3.00	1.25	2.13
ESAK	3.00	1.50	2.25
SEAK	2.50	0.50	1.50

Table 9 Scale means per person - Rewards

In the table 9 overview, each mean value of the overall results is ranked in a positive evaluation. Nevertheless there are three values of hedonic quality which are considered as neutral evaluation, with the lowest being 0.00. All mean values of pragmatic quality are within the range of a positive evaluation, with two of them being 3.00.

6.4 Motivation

Since the added component of motivation was not included in the assessment of the UEQ, bar charts were created to showcase the rating given by each of the evaluated player types for each tested gamification pattern.
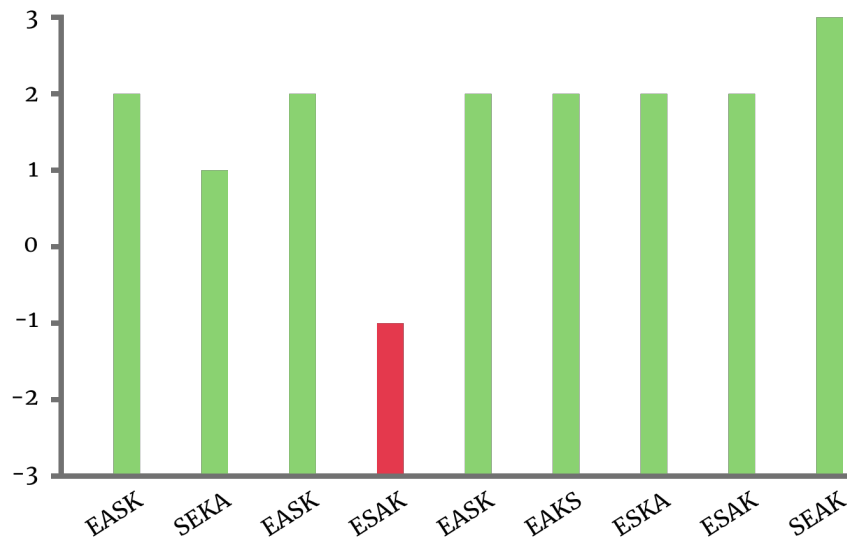
Figure 29 Motivation Results - Journey

Figure 29 depicts the outcomes of the values assigned to the gamification pattern "journey" created for explorer player types. It did get an overall positive perception, with most participants ranking it with a 2. There is one exception, with participant D giving the motivational aspect a value of -1. For this evaluation, the mean value of motivation is 1.7.
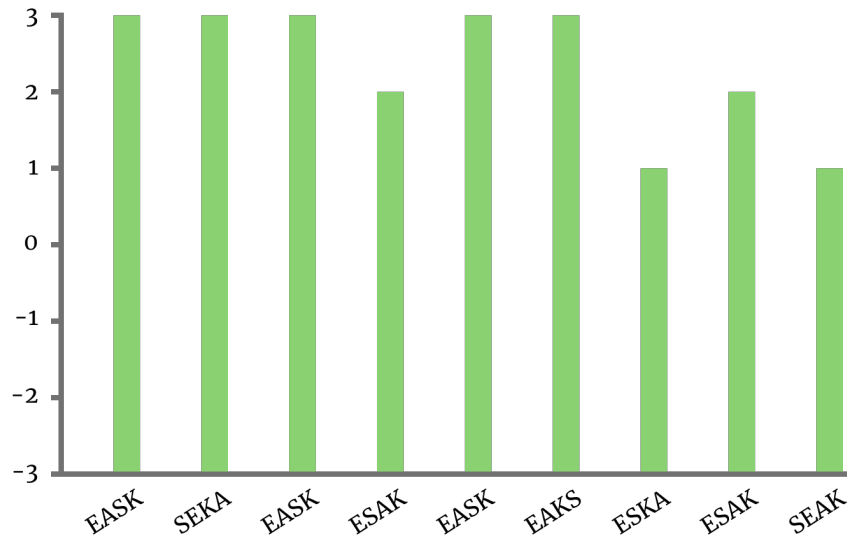
Figure 30 Motivation Results - Leaderboard

The results for the leaderboard are displayed with the bar chart in figure 30. Five participants rated the motivation with the highest possible value. Even the lower amounts are still considered as a positive response. The mean value reaches 2.3.
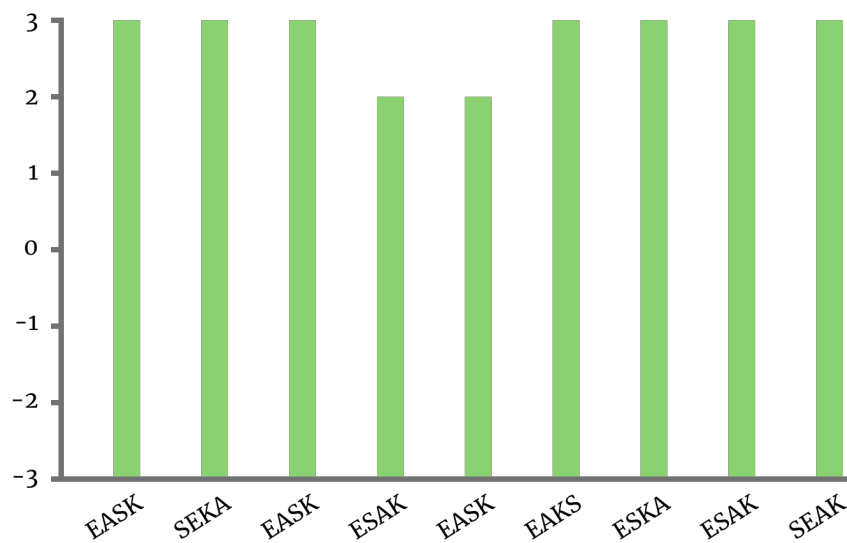
Figure 31 Motivation Results - Cooperation

The diagram in figure 31 gives an overview of the assessment for the gamification pattern cooperation. The evaluation delivers a mean value of 2.8. This high value is formed, because seven participants rated the motivation with an amount of 3 and the two lower values being 2.
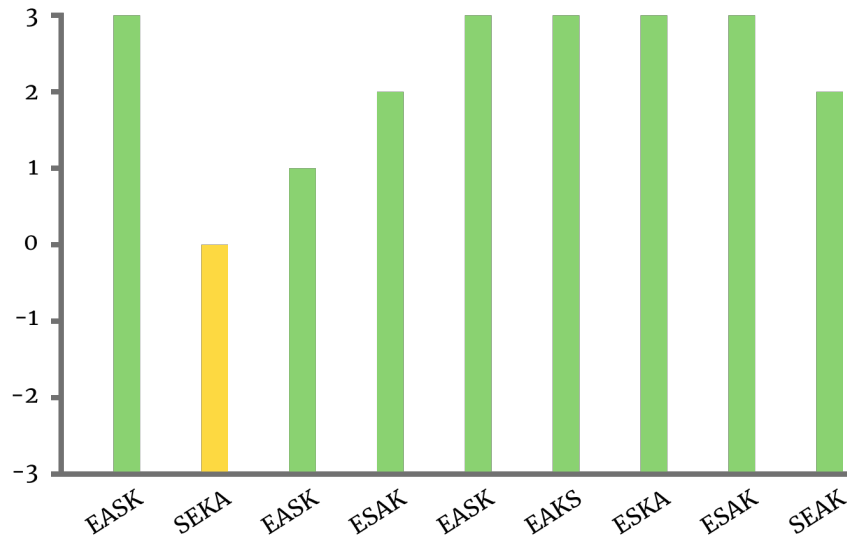
Figure 32 Motivation Results - Rewards

Figure 32 illustrates the results of the motivation for the pattern rewards. In this case, the lowest value given was0, which can be interpreted as neutral. The other assessments are all positive, with five being the highest value of 3. The motivation component for the achiever type has a mean value of 2.2.

6.5   Correlation between player type and UEQ results

The overall mean value of each participant can be used to determine whether the ranking of the gamification patterns and their Bartle player type are in alliance. In table 10 the results of the UEQ's are used to create a new player type according to the user's individual assessment. These new types are compared to the results of the Bartle test. If there is a correlation, they are rated at 1, if not, they receive a value of 0. If the sequence of the types is only partially in agreement, they are marked with 0.5.

Player Type	Player Type UEQ	Correlation
EASK	KEAS	0
SEKA	SEAK	0.5
EASK	SKAE	0
ESAK	ASEK	0.5
EASK	SAEK	0.5
EAKS	EASK	0.5
ESKA	ESAK	0.5
ESAK	AKES	0
SEAK	SEAK	1

Table 10 Correlation of player type and UEQ results

Only one of the nine participants has a perfect match between their player type and their assessment of the gamification patterns. Three of the five users with 50% agreement have the same primary type in the bartle test as after the UEQ evaluation. The mean value of the correlation is 0.39.

7   Evaluation Discussion

Seven out of nine participants have "explorer" as their primary player type, while the other two were primarily "socializers" with "explorer" as their first subtype. Judging from these results, the majority of participants are supposedly most interested in discovering every aspect of the environment and gain as much knowledge as possible. This could also explain why "killer" was the subtype with the lowest overall percentage. Another potential interpretation is that people are hesitant to admit that they enjoy dominating and interfering with other players, while answering the test questions. However, the more apparent explanation is that they are more interested in interacting within the world than with other players.

Looking at the game genres of their favorite games, participants A, F and H named jump 'n' run games and participants C, E and G strategy games. Such games can be appealing to explorers and achievers because they enable them to explore the world and collect items while also advancing and achieving their goals. This is reflected in their subtypes as well, with achiever being the most frequent first subtype for these testers. Participants G and H additionally stated that they also like to play multiplayer games, which could explain their first subtype being socializer. Participant D, who is also an explorer with the first subtype being soicalizer, enjoys playing action role-playing games, which are ideal to explore and also play with others.

Participants B and I, both with primary type socializer named games that could fit the aspects of interacting with others. One game is a tactical shooter that relies on player cooperation. The second may not seem suitable at first because it is mostly played alone, but given that it simulates people's lives and interactions, it may still be considered a game fitting for socializers. These statements confirm that the Bartle test results can indeed reflect the users' preferences in game genres.

In chapter 6.5 table 10 demonstrates that their Bartle type, however, does not necessarily reflect their preferences in gamification elements. Since the mean value of the correlation is closer to 0.5 with 0.39, most users' Bartle type and gamification preferences are more likely to be 50% aligned. Nonetheless, having no correlation still has a higher probability than having 100% correlation. Participants A, C and H have no alignment of their player type and preferences of gamification. Participant A stated that they did not intend to use a learning app like the prototype and preferred to have control over their learning content. The most important factor for them was having an easy-to-use app. It seems they preferred not to have gamification elements in their language learning context at all. This could account for the lack of desire to explore the app or gather rewards, which are typically features this tester would enjoy in a gaming environment.

Participant C transitioned from explorer to socializer, with the exploring aspect now ranking as the last subtype according to the UEQ. They had previously expressed dissat-

isfaction with the slow level progression of the language learning app they used and that they did not feel sufficiently challenged. Based on that, they most likely prefer a quick and efficient type of learning application and have no desire to explore levels, at least not in a learning context. After using the prototype it was also clear that the gamification pattern journey was not engaging enough for them and that they were missing a certain level of difficulty. They named the opportunity to learn and communicate with friends as their favorite feature.

Participant H who also did not have an alignment with their Bartle type, switched from explorer to achiever. Prior to using the prototype, they mentioned that they enjoyed tracking their progress in the language learning apps they already used. They also said to have a preference for all kinds of gamification in learning contexts. Following the prototype walkthrough, they expressed a desire for a more detailed level overview as well as some sort of progression display. Their favorite gamification element was earning a reward after rescuing the bird.

Despite the fact that the majority of the testers were explorers as primary player type, there were few responses on the elements for discovering all levels and progressing in the overall storyline. Only two of them still had explorer as primary type after the UEQ evaluation. It might be that the aspects that make them like exploring games and game worlds do not translate well into a learning context. Perhaps there was too little for them to discover, to be considered intriguing. As both primary socializers maintained their primary type following the evaluation, it appears that the example for social aspects and interaction translates better into the learning context than the exploring aspect.

When taking a look at the individual items of all four conducted UEQs (figure 21 - 27), it is clear that in total the pragmatic qualities were rated higher than the hedonic qualities. The evaluation results for the gamification patterns cooperation and journey are quite similar and overall positive. For rewards and especially leaderboards, on the other hand, the hedonic qualities have much lower values. This could be explained by the fact that the these qualities focus on the originality of a product. Leaderboards and rewards are commonly used in many other applications or games, so the testers encountered nothing new or exciting.

In the overall ranking of the UEQ, "cooperation" received the most positive feedback. The list below organizes all of the gamification patterns based on the results of the overall mean values, presented in figures 22, 24, 26 and 28.

1. Socializer - Cooperation (2,042)

2. Explorer - Journey (1,903)

3. Achiever - Rewards (1,819)

4. Killer - Leaderboards (1,389)

According to the research of this study, gamification is intended to influence the learners' engagement and motivation. Looking specifically at the evaluation results for the motivational aspect displayed in figures 29 to 32, the ranking would be as follows.

1. Socializer - Cooperation (2,8)

2. Killer - Leaderboards (2,3)

3. Achiever - Rewards (2,2)

4. Explorer - Journey (1,7)

The first conclusion we can derive from these results is that the gamification pattern cooperation is received as the most efficient, appealing and motivating to the average participant. Even though the overall ueq result of the gamification pattern journey only ranks second, it still acquired a high mean value. Given that the majority of participants are explorers, the value aligns with their preferences. Surprisingly, "journey" did not perform well when asked about its impact on their motivation. This could mean, even if a user enjoys the gamification's pragmatic and hedonic qualities, it may not be enough to keep them motivated. Another explanation for the low ranking of the motivation component could be that because of the flaw in the design, most participants did not get what they expected. They wanted a clear progression and display of level completion. Without swiping through the screen, they also missed out on an overview of the path and a deeper dive into the overall storyline. Apart from this, the general perception of the motivational aspect of each gamification pattern was rather positive.

8   Conclusion

After analyzing the evaluation findings, it is apparent that gamification can indeed increase the motivation of users. The evaluation cannot conclusively confirm the assumption that depending on the user's Bartle type, they are more likely to be motivated by specific gamification components. Since the Bartle test was designed for online gaming contexts, it appears that the difference between game elements in such environments versus in learning applications, may be too great to be applicable for both. It would be appropriate to integrate various gamification elements from different gamification patterns that resonate with each of the four types in order to reach as many users as possible. Because many users enjoyed the various learning approaches, simply incorporating the game elements is not enough to engage the users. They must be coupled with a well-thought-out learning strategy. This also reflects the statement of chapter 2.1.1 which states that gamification elements should always be combined with a goal, rules, feedback and the voluntary participation. Even if a variety of elements are included, they should not distract from the learning content itself.

Regarding the research question "Can Bartle's player types from game design be applied to gamification, particularly within language learning apps?" it can be stated that there is a potential use in gamification as well, but it does not necessarily fit 100% for every Bartle type. It is possible that the different gamification patterns respond, at least in part, to the indented player type, as seen in this evaluation for socializers. Nonetheless, many other factors must be considered in order to achieve a correlation, such as which gamification element is used out of the pattern or if it is similar enough to the elements used in actual games to fulfill the same desires in the player type.

All player types were very similar in this evaluation, with about 80% of the participant being primarily explorers and the rest being primarily socializers. It is hard to predict whether gamification patterns for achievers and killers would increase the motivation and produce the same outcome as they did for socializers, since they were underrepresented in the testing group. For more accurate results it could be helpful to specifically look for users of each player type and conduct tests with various participants in each group.
For future researches it could be interesting to conduct a long term study. After only one exposure to the prototype, it is difficult to say whether or not the gamification components have an effect on the probability that users are motivated enough to continue using the learning apps. It may also be beneficial to introduce two different prototypes, one with and one without gamification elements. This could help distinguish between what is and isn't gamification and and determine whether it aids the user in the learning process or not.

Gamification has great potential in a variety of contexts where people require an improvement of their motivation and engagement. To achieve the optimal usage of gamification, more research should be conducted to find out which gamification elements have the most capability.

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Appendices

A   Prototype

A.1   Explorer - Journey

Interactive Prototype Figma link:

`https://www.figma.com/proto/1BhtCISD9i5nnfZv9rComQ/Bachelorthesis?page`
`-id=156\%3A2&node-id=395\%3A762&viewport=84\%2C-115\%2C0.04&scaling=scale`
`-down&starting-point-node-id=395\%3A762&show-proto-sidebar=1`
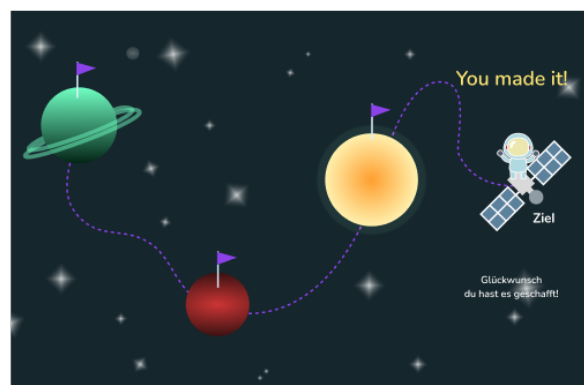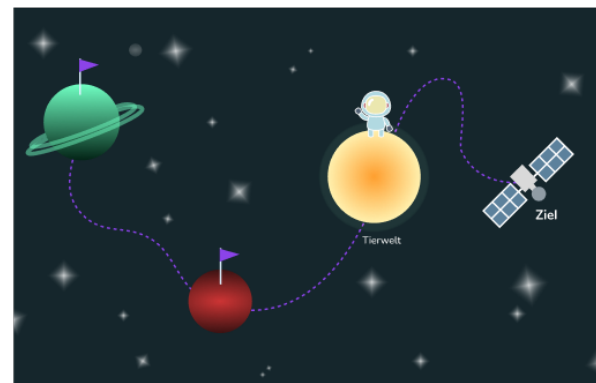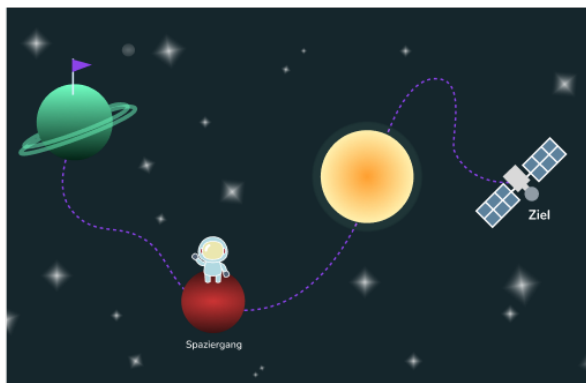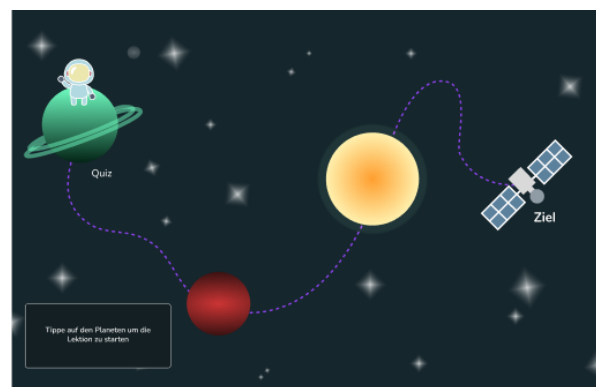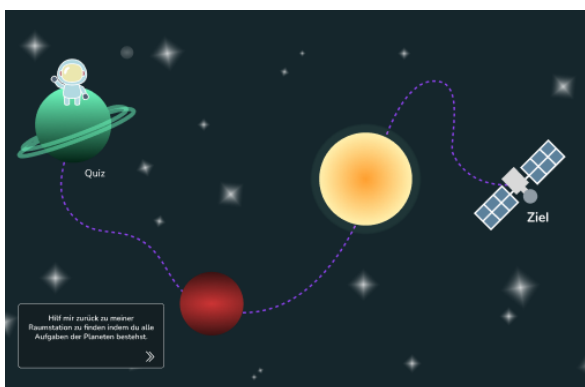
A.2   Killer - Leaderboard
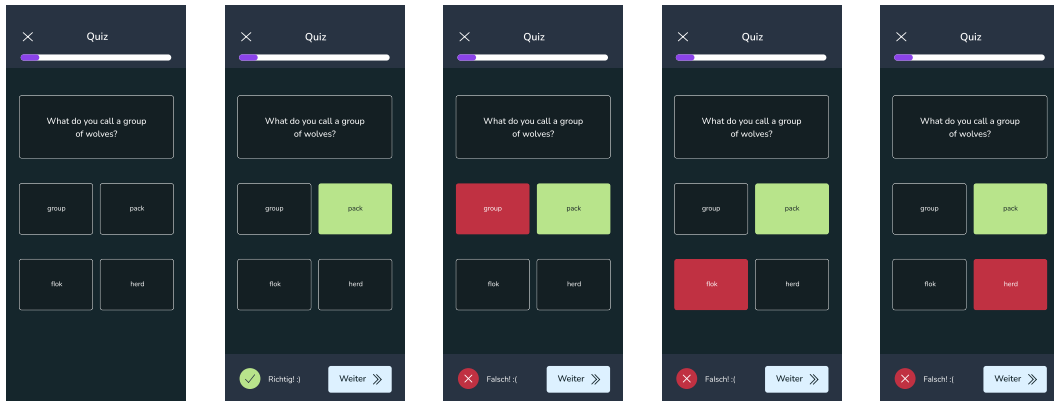
Quiz Question 1
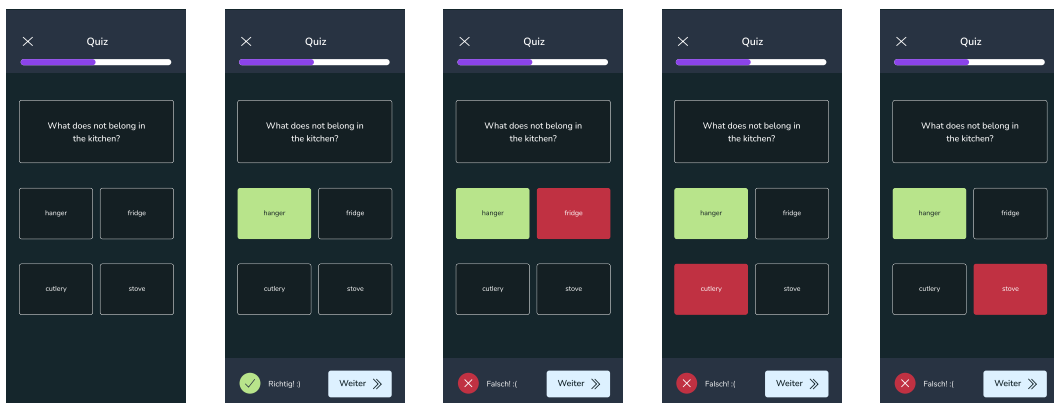
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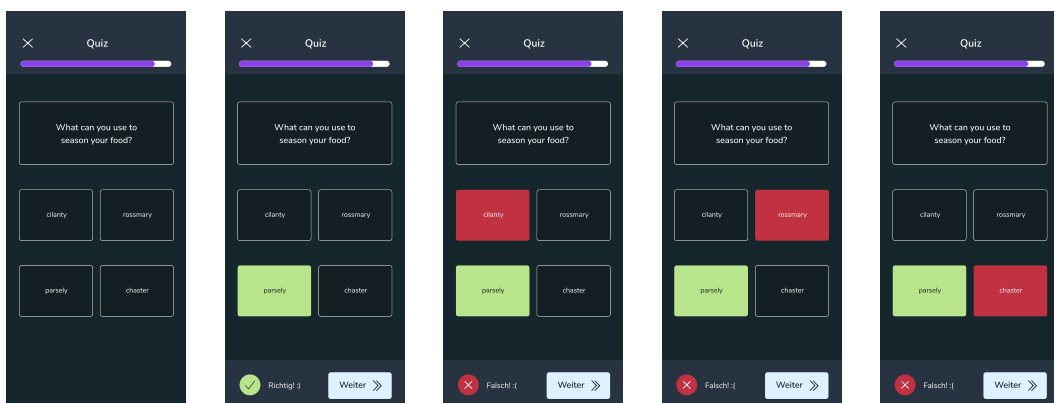
Quiz Question 3
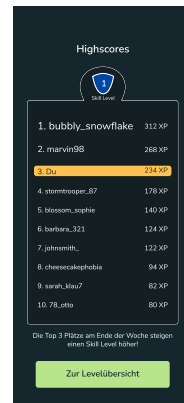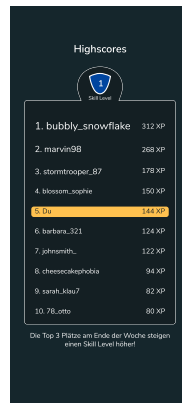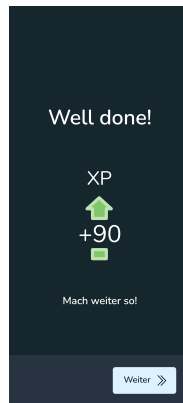
Highscorelist

A.3   Socializer - Cooperation
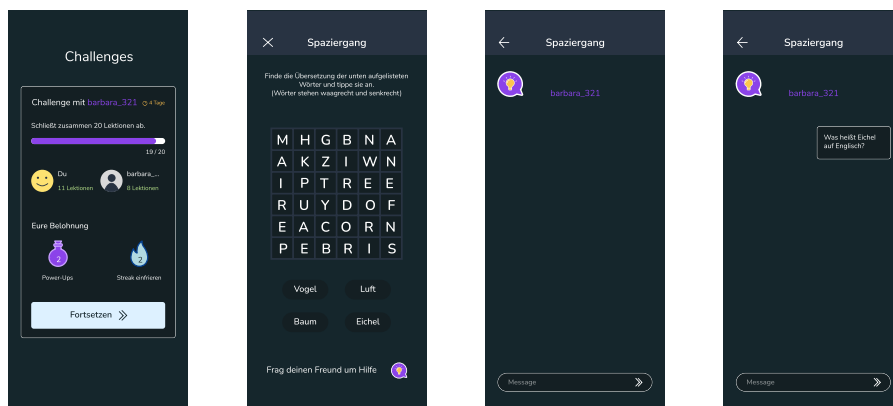
Word Search   Ask friend for help
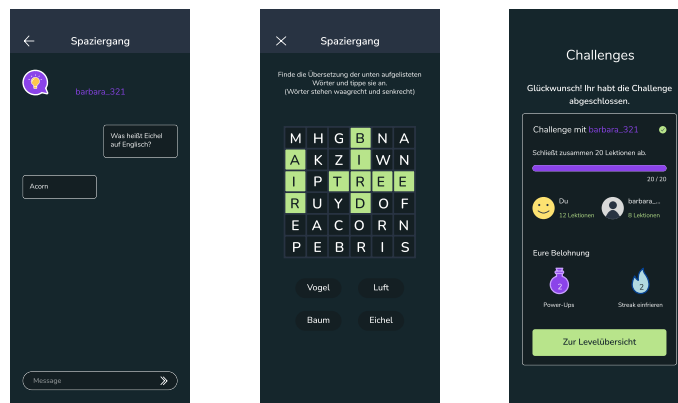
A.4   Achiever - Rewards
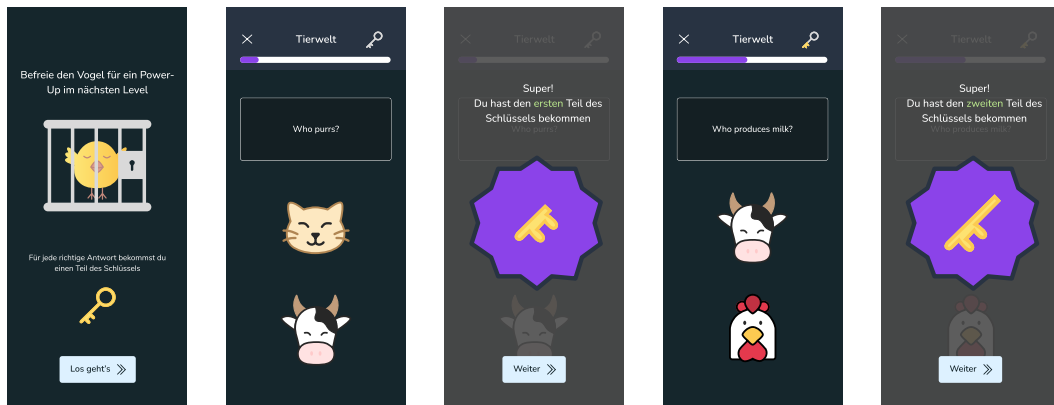
Question 1

Question 2
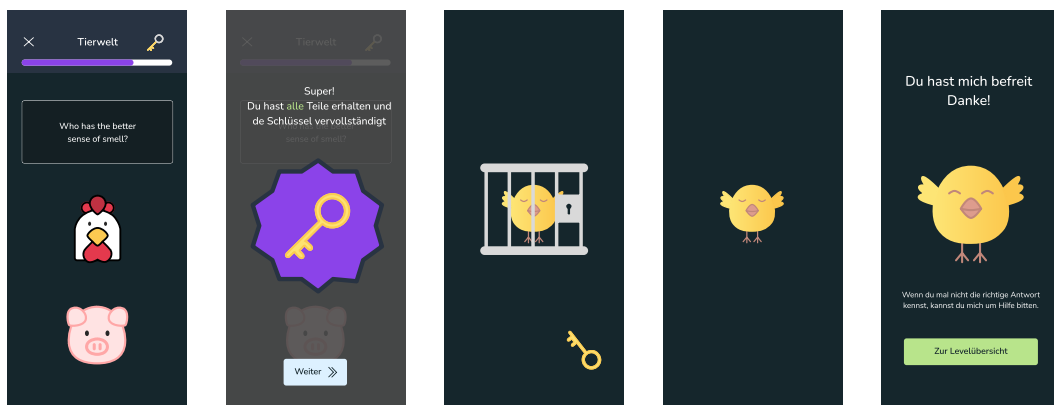
Question 3

Reward

B   User Testing

B.1   Testing plan - Ethical review

Prüfplan

1. **Grundlagen (Stand der Wissenschaft), Zusammenfassende Beschreibung und kurzgefasste Begründung der Studie mit Literaturangabe**
   Die Studie wird im Rahmen meiner Bachelorarbeit zum Thema "Gamification in Sprachlernapps - Analyse des Zusammenhangs zwischen Game Elementen und Bartle Player Type" durchgeführt. Mithilfe des Designtools "Figma" wurde ein Prototyp entwickelt, welcher eine gamifizierte Sprachlernapp darstellt. In dieser Studie werden "Gamification Elemente" mithilfe dieses Prototyps getestet.

2. **Ziele der Studie**
   Das Ziel der Studie ist es herauszufinden, wie sich der Zusammenhang zwischen Gamification und den Bartle Typen gestaltet. Getestet wird am Beispiel von Sprachlernapps.

3. **Studiendauer**

   Ein Benutzertest dauert ca. 30 Minuten. Es werden ca. 10 Benutzer getestet.

4. **Studienpopulation**
   Kriterien für die Studienpopulation sind eine Einwilligungsfähigkeit. Zudem wird vor dem Test mithilfe des Bartle Tests von Dr. Matthew Barr bestimmt, welchem Player Typen sie entsprechen.

5. **Studienablauf und Untersuchungsmethoden (Beispiel bitte anpassen):**
   Der Test findet persönlich statt. Zu Beginn gibt es eine Einleitung, in der den Teilnehmer der Ablauf des Benutzertests kurz erklärt wird. Danach wird der Bartle Test von Dr. Matthew Barr durchgeführt um den Player Typen zu bestimmen und beantworten Fragen zu Vorkenntnissen mit Lernapps. Die Tester werden dazu aufgefordert, mithilfe des zur Verfügung gestellten Smartphones die gegebenen Aufgaben am Prototyp durchzuführen. Im Anschluss beatworten die Teilnehmer einige Fragen und füllen als letztes den short UEQ aus, um einen Zusammenhang zu ihrem Bartle Typen feststellen zu können. Während des Interviews wird eine Audioaufnahme und beim Prototyp durchlauf eine Bildschirmaufnahme gemacht.
   Der Usability Test Leitfaden liegen bei.

6. **Risiken und Nebenwirkungen**

   Es ist mit keinen Risiken und Nebenwirkungen zu rechnen.

7. **Zielkriterien und statistische Auswertung**

   Im Rahmen der wissenschaftlichen Untersuchung werden wir folgende Daten erheben:

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- Vorerfahrung mit Lernapps per Interview
- Eindrücke der Gamification per Interview
- Bildschirm und -Audioaufnahme

Fragen die im Interview gestellt werden:

Vor dem Test:

- https://matthewbarr.co.uk/bartle/de/
- Hast du schon mal Sprachlernapps/Lernapps benutzt?
  Wenn ja was und was hat dir am Besten daran gefallen?
- Lieblingsspiel in den letzten 12 Monaten?

Nach dem Test:

- Würdest du damit öfter lernen?
  Wenn ja warum? Wenn nein warum?
- Was hat dir nicht gefallen/ welche Funktion fehlt dir?

- Short UEQ (modifiziert)

behindernd	O O O O O O O	unterstützend
kompliziert	O O O O O O O	einfach
ineffizient	O O O O O O O	effizient
verwirrend	O O O O O O O	übersichtlich
langweilig	O O O O O O O	spannend
uninteressant	O O O O O O O	interessant
konventionell	O O O O O O O	originell
herkömmlich	O O O O O O O	neuartig
demotivierend	O O O O O O O	motivierend

3

B.2   Form of consent

Information zur Studie und zum Datenschutz

Vielen Dank für ihre Teilnahme an dem Benutzertest für die Bachelorarbeit zum Thema "Gamification in Sprachlernapps - Analyse des Zusammenhangs zwischen Game Elementen und Bartle Player Type"

Während des Benutzertestes werden sie den von mir designten Prototypen testen. Mithilfe des Prototypen soll festgestellt werden, wie sich der Zusammenhang zwischen Gamification und dem Bartle Typen - am Beispiel von Sprachlernapps - gestaltet. Der Test wird insgesamt ca. **30 Minuten** dauern.

Um uns die Arbeit zu erleichtern, werden wir eine Bildschirm- und Audioaufnahme des Interviews machen. Es werden evtl. die Betreuer der Bachelorarbeit und einzelne an der Studie interessierte Wissenschaftler, die Audio- und Screenaufnahme einsehen. Die Aufzeichnung wird nicht veröffentlicht.

Diese Aufnahmen werden 10 Jahre lang in elektronischer Form **verschlüsselt gespeichert** und danach **gelöscht**.

Sie können den Benutzertest jederzeit ohne Angabe von Gründen **unterbrechen** oder **abbrechen**. Sollten Sie den Test abbrechen, können Sie entscheiden, ob die bereits vorliegenden Daten vernichtet werden sollen oder weiterverwendet werden dürfen.

Ihre Einverständniserklärung, wir für die Dauer von 10 Jahren **verschlossen aufbewahren** und danach **vernichten**.

Bitte lesen Sie die folgende Erklärung und unterschreiben Sie darunter. Sollten Sie jetzt oder später noch Fragen haben können Sie sich bei dem Ansprechpartner melden.

Vielen Dank.

Ansprechpartner
Name:
Adresse:

E-Mail:
Telefon:

1

Einwilligungserklärung Usability-Test

Über die Ziele der Studie und meine Aufgaben bei der Untersuchung wurde ich informiert. Ich erkläre meine freiwillige Teilnahme an der Studie und erkläre mich insbesondere mit der Verwendung der im Rahmen der Studie "Gamification in Sprachlernapps - Analyse des Zusammenhangs zwischen Game Elementen und Bartle Player Type" erhobenen Daten in der oben beschriebenen Weise einverstanden.

Alle Fragen zur Studie wurden zu meiner Zufriedenheit beantwortet. Eine Kopie des Informationsblattes habe ich erhalten.

_____	_____	_____
Ort und Datum	Unterschrift	Name des Teilnehmers in Blockschrift

	_____	Alicia Meier
	Unterschrift	Name des verantwortlichen Studenten in Blockschrift

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B.3   Instruction notes - German & English

Der Prototyp stellt eine Sprachlernapp dar mit der man Englisch lernen kann. Es geht um die Gamification Elemente die zur Unterstützung des Lerninhaltes verwendet wird.

1. Schau dich auf dem Startscreen um und folge den Anweisungen der App

2. **Anweisung Level 2**
   Suche die ersten drei Wörter im Buchstabensalat und benutze bitte als letztes die Funktion „Freund um Hilfe bitten" um die Übersetzung für „Eichel" zu finden. Kehre nach Abschluss zur Übersicht zurück und mach mit dem nächsten Level weiter

The prototype represents an app that can be used to learn English as a second language. The focus is on the gamification elements that are used to support the learning content.

1. Explore the home screen and follow the app's instructions.

2. **Instruction level 2**
   Find the first three words in the word puzzle and use the "Ask a friend for help" function last to find the translation for "acorn". Once finished, return to the overview and proceed to the next level.

B.4   Interview

B.4.1   Questions de

Interview

Hast du schon mal Sprachlernapps/Lernapps benutzt?
Wenn ja was und was hat dir am Besten daran gefallen?

Lieblingsspiel in den letzten 12 Monaten?

Würdest du damit öfter lernen wenn ja warum wenn nein warum?

Was hat dir nicht gefallen/ welche Funktion fehlt dir?

B.4.2   Questions en

Interview

Did you ever use a language learning app or learning app before?
If yes what did you like the most about it?

Favorite game in the last 12 months?

Would you learn more often with such an app?
If yes why? If no why?

Was there something missing? / What function did you not like?

B.5   Interview Transcripts

All transcripts were made using the online software `https://transkriptor.com/`
Afterward, they were reviewed and edited.

B.5.1   Participant A

Participant A
Q 3+4

Okay, würdest du damit öfter lernen?
Nein.
Okay.
Warum?
Weil ich lieber selber die Vokabeln die ich lerne mir aussuch, anstatt vorgegeben zu bekommen.
Okay.
Was hat dir jetzt nicht gefallen oder welche Funktion fehlt dir? Abgesehen davon, dass du das lieber selber bestimmen würdest?
Mhm.
Wenn sonst nichts ist.
Sonst war eigentlich nichts.
Ok also einfach nur so selber aussuchen noch.
Ja.

B.5.2   Participant B

Participant B
Q 1+2

Also die erste Frage hast du schon mal eine sprachlern App oder über eine Lern App benutzt?
Ja, aber nicht allzu häufig. Ich hab mal versucht sprachlern App zu benutzen, das hab ich dann so für, 2-3 Wochen durchgezogen, dann hab ich's aufgegeben.
Weißt du noch, was das für eine war?
Ich habe es auf meinem Handy also ich habs noch installiert, ich muss nur noch nachschauen welche das war.
Sie hieß.
Duolingo.
Ah ja.
Kennt man.
Ja, das war die mit den meisten Sprachen.
Lernapps. Wenn man diese Karteikärtchen Apps mit dazu zählt, für die ich auf Prüfungen lerne, dann ja I guess, aber sonst eigentlich nicht.
Weißt du noch, ob dir bei Duolingo irgendwas gut gefallen hat, oder?
Wenn du es jetzt auch nur 2 Wochen benutzt hast, muss ja nicht unbedingt sein aber.
Was ich cool fand sie hatten viele verschiedene Aufgabentypen, um im Prinzip eine Sprache zu lernen. Man konnte irgendwie in einer zuhören, musste es Schreiben in einer Lesen und dann gab es irgendwie Karten, die man irgendwie zugeordneten musste also einfach.
Vielfalt drin zu haben war halt super, super interessant und es nicht so eintönig. Ich glaube, dann hätte ich noch schneller aufgehört.
Dann die nächste Frage was war in den letzten 12 Monaten dein Lieblingsspiel?
Lieblingsspiel?
Äh.
Ganz interessant ich weiß nicht, ob es jetzt mein Lieblingsspiel war. Ein sehr interessantes Spiel ist eins mit dem Namen Ready or not.
Der Grund weswegen es mein Lieblingsspiel ist, ist im Prinzip der Social also der soziale Aspekt davon. Es ist ein Shooter Spiel, der, welches eher auf der ernsteren Seite ist. Das heißt, man muss wirklich kommunizieren, um weiterzukommen. Sonst verliert man sehr schnell.
Diese Kommunikation, die halt nötig ist, fand ich halt sehr ansprechend.
Ok.
Cool, dann gibts kurz Unterbrechung für die Aufnahme.

Q 3+4

Also würdest du mit so einer App öfters lernen und wenn ja warum? Wenn nein warum?.
Ich würd sagen.
Ja.
Ich mein, ich glaube, dass hättest dir ja schon fast denken können. Dieser soziale Aspekt fand ich super cool.
Ok.
Im Prinzip was ich so Lernapps an so sozialen Sachen halt cool finde, ist, dass das für mich super motivierend ist, wenn ich eben weiß, okay, jemand anderes macht das auch, also neben mir können uns gegeneinander helfen usw.
Und ja.
Ja.
Gut, dann hat er irgendwas nicht gefallen oder hat irgendeine Funktion gefehlt.
Ich meine, es gab.
Es gab nach League Liste das fand ich cool.
Irgendwas gefehlt hat?
Muss ich ganz kurz nachdenken.
Wenn dir nichts einfällt.
Ich meine, das hätte man schwer einem einbauen können, aber irgendwie so einen Level vielleicht an dem man sieht.
Okay, ich bin also in dem damit man eben so eine Schwierigkeitskurve hat. Am Anfang kommen leichte Wörter, dann kommen immer schwerere und dann kann man, dass man irgendwie so einen Level, oder
So eine Anzeige hat an der man sieht, wo man gerade steht.
Okay, das ist nen Board der Schwierigkeit 5 oder so oder das Level hat halt Wörter die Level 5.
Oh Gott ist Level hat Wörter drin, die von der Schwierigkeit im Prinzip des Schwierigkeits Level 5 haben.
Okay.
Cool, dann war es das erste Mal zu denen.

B.5.3 Participant C

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Participant C
Q 1+2

Also.

Die erste Frage hast du schon mal eine sprachlern Apps oder Lernapps benutzt? Mein Ja was hat dir da gut gefallen daran.

Ja, ich hab schon Sprachlernapps benutzt.

Weißt du noch welche das waren?

Ich hab ganz viele versucht, also es waren auf jeden Fall Duolingo hab ich auch versucht gehabt, aber das hat mir nicht so viel gefallen.

Ich weiß nicht, wie die andere war ich glaub irgendwie Mondly oder sowas?

Es haben mir eigentlich alle nicht gefallen, weil ich fand, meistens war es zu einfach beziehungsweise das sind schon Sachen gewesen, die ich schon kannte und es war halt relativ, also zum Beispiel jetzt keine Ahnung Milch und dann war Milk oder sowas fand auch nicht also mir ging es auch manchmal zu langsam, das war einfach ganz viele Animationen und ganz viel hier und da drum, aber es war irgendwie teilweise zu langsam, irgendwie das Level vom Ding war nicht ganz richtig, aber ansonsten fand ich es eigentlich ganz nice, aber ja.

Also so die Level Steigerung mäßig so.

Genau es hat mich nicht genug Challenge.

Okay, okay dann die nächste Frage.

Hast du ein Lieblingsspiel das du in den letzten 12 Monaten gespiel hast? Wenn nicht dann einfach dein Lieblingsspiel?

Um ehrlich zu sein, weil ich jetzt gerade nicht immer so viel Zeit hab finde ich immer Sudoku ganz toll.

Cool.

Aber ansonsten ich hab auch noch vor kurzem was gespielt gehabt ich muss kurz überlegen. Das war so ein Village Spiel, wo ich mir Sachen aufbauen musste. Also Ressourcen sammeln und dann eben alles so auf Level aufsteigen und dann halt eben mehr Bewohner bekommen und dann können ich halt mehr Sachen aufbauen, also ein bisschen in die Richtung.

Ja.

Ja, das fand ich ganz witzig.

Okay.

Cool dann machen wir mal hier.

Q 3+4

Also würdest du mit so einer App öfters lernen?
Ja, wenn ja also ich finde das Konzept eigentlich ganz nice, das ist ganz unterschiedlich mit den Bildern und mit dem Text fand ich eigentlich ganz cool und auch, dass man mit jemandem kommuniziert konnte, also besonders jetzt weil ich jetzt eine Freundin habe, die auch koreanisch lernt, dann fände ich es eigentlich ganz nice auch so den Fortschritt miteinander zu teilen.
Beziehungsweise halt dann, wenn ich halt eine Frage hab, dann direkt fragen zu können.
Aber ja genau, ich bräuchte halt wahrscheinlich noch schwieriger, aber es ist ja dann für den Test gerade einfacher, aber so würde ich machen.
Okay.
Hat dir irgendwas nicht gefallen oder fehlt dir irgendwas an einer Funktion?
An einer Funktion jetzt nicht.
Ich wüsste jetzt nur nicht also vielleicht ist es jetzt gerade nur nicht beim Ding dabei gewesen, aber was für ein Level das war oder beziehungsweise ob ich jetzt irgendwie Intermediate bin oder ob es jetzt also wie weit ich jetzt in Englisch bin.
So ein Schwierigkeitlevel
Ich war jetzt mit dem Level zwar fertig, aber war das jetzt viel einfache oder nicht? Genau in die Richtung
Ja.
Okay also die. Wie nennt man denn das Schwierigkeitsstufe oder so oder ja?
Das ist ja meist so, dass man am einfach irgendwie entscheidet.
Unbekannt.
Ja.
Okay, cool, dann Dankeschön, dann beenden wir die Aufnahme jetzt wieder.

B.5.4   Participant D

Participant D
Q 1+2

Gut also die erste Frage ist mal hast du schon mal ne Sprachlern- oder generell eine Lern App benutzt?
Ja, ich habe schon mal auf dem Handy für eine kurze Zeit Duolingo ausprobiert gehabt.
Weißt du noch was hat dir da irgendwas ganz gut gefallen, oder?
Ich mochte schon also ich fand die Abwechslung ganz gut, wie die Dinge da.
Versucht wurden also.
Unterschiedliche Arten.
Es war halt diese Abwechslung von setzt da mal das Wort ein, dass du denkst das richtig ist oder Versuch mal diesen Satz zu übersetzen, oder schreibt man dieses Wort so am Ende oder so, weil ich hab versucht Italienisch zu lernen, das ist beispielsweise so, dass viele Wörter eben männlich oder weiblich sind. Das du dann eben entscheiden musst, wie da der Buchstabe am Ende dann ist, fand ich eigentlich ganz gut.
Dann noch dein Lieblingsspiel, dass du in den letzten 12 Monaten gespielt hast?
Wenn dir das nicht einfällt dann einfach dein Lieblingsspiel generell?
Wenn du überhaupt eins hast.
ich würde sagen mein Lieblingsspiel generell ist Kingdom Hearts.
Okay, cool dann machen wir hier kurz Pause.

Q 3+4

Die erste Frage ist würdest du öfter mit so einer App lernen?
Also mit so einer App?
Ja also, wenn ich die Motivation selber dafür habe also ich würde meinen die App ist gut, ich mag die Abwechslung, das ist nicht einfach nur eine Art von Übung ist. Dass jetzt auch mal ein Kreuzworträtsel dazwischen kam oder eben, dass man Freunde mal helfen kann, äh um Hilfe bitten kann. Finde ich ist schon gut, interessant, macht Spaß.
Ok.
Die letzte Frage hat dir irgendwas nicht gefallen oder fehlt dir irgendeine Funktion?
So spontan fällt mir da jetzt nichts ein, ich wüsste nicht was ne App wirklich brauchen könnte, um besser zu sein.
Okay.

B.5.5   Participant E

Participant E
Q 1+2

Die erste Frage wäre dann mal hast du schon mal Sprachlernapps oder generell Lernapps benutzt?
Duolingo.
So lustig das haben die meisten gesagt
Hat dir da irgendwas besonders gut gefallen, oder also erinnerst du dich noch?
Ja, also eigentlich dass man sich so mit Freunden irgendwie messen kann also wenn du dich da verknüpfst, dass du da quasi in direkter Konkurrenz oder vergleichen dich kannst und so Missionen zusammen machen kannst.
Und die Achievements sind auch ganz gut.
Okay, sehr gut.
Dann die zweite Frage hast du gerade in den letzten 12 Monaten ein Lieblingsspiel? Wenn jetzt nichts aktuell ist, dann kannst du einfach wenn du generell ein Lieblingsspiel hast kannst du das auch sagen.
Jetzt nichts aktuelles, das wechselt eigentlich dauernd.
Was weiß ich.
In letzter Zeit hauptsächlich so alte Sachen, also entweder Age of Empires 2.
Oder Siedler 4.
Mit den gruseligen Männchen da.
Ja, oder 4 hast du gesagt?
Genau.
Okay.
Sehr cool, dann machen wir hier Pause, dann geht's.

Q 3+4

Würdest du mit so einer App öfters lernen?

Mhm.

Ja also so vom Prinzip her gerne.

Gibt es da noch eine Begründung, oder irgendwas was dir besonder gefällt?

Das Prinzip, würde mir gut gefallen, ich hab im Prinzip ja schon quasi eine App, deswegen würde ich jetzt nicht per se eine machen, aber wenn ich quasi auf der Suche wäre oder so fände ich das an sich schon cool, weil du da relativ viel

Also dieser spielerische Aspekt gefällt mir toll, dass du sehr viel verschiedene Versionen oder verschiedene Arten hast, wie du mit den mit den Wörtern umgehst.

Ja okay, ich muss mich nicht zwangsweise auf einen Punkt festlegen, also ich kann jetzt auch was Negatives sagen, oder?

Ja, kannst du auch, das kommt jetzt hier sogar was hat dir nicht gefallen oder welche Funktion fehlt dir?

Hier also das mit den mit den Freunden direkt irgendwie in direkten Kontakt

Warte, warte, mach mal nach oben.

Okay.

Hatte ich jetzt auch noch nie gesehen, also das man so direkt interagiert das ist eine interessante Mechanik auf jeden fall.

Ja.

Okay.

Jetzt der Umfang von den Lektionen das ist wahrscheinlich alles nur weil das jetzt hier.

Ja, genau.

Ja, Ne, dann lassen wir das weg.

Okay.

Gut.

Also was mir gefehlt hat, war so bisschen die.

Also der Anspruch.

So dass man nicht nur so einzelne Wörter, Sätze oder sowas und versucht die Wörter die man hat zu integrieren in die Sätze.

Ich weiß nicht, wie das gedacht war. Ob man die Wörter schon kennt? Ansonsten hätte ich mir gewünscht, dass man vielleicht irgendwie vorher die lernt genau irgendwie herangeführt wurde oder so.

Nicht irgendwie reingeschmissen wird und gefragt wird, wie das Wort so und so auf Englisch.

Genau das man das so gestaffelt quasi irgendwie so beigebracht bekommt.

Dann wär halt irgendwie so Kanäle, auf denen also, das es nicht nur visuell ist, sondern auch irgendwas zum hören oder sowas.

Mhm.

Und ich weiß nicht, wie sehr es auch durch deine limitiert war, also das man so selber was eintippen, oder sowas

Ja das ging da leider nicht.

Ja, Na gut.

Ich glaub so, soweit.

Cool.

B.5.6   Participant F

Participant F
Q 1+2

Okay also die erste Frage hast du schon mal mit einer Sprachlernapp gelernt oder mit irgendeiner anderen Lernapp?
Ja, ich hatte mal Duolingo installiert, der Klassiker.
Die meisten haben gesagt Duolingo.
Ich glaub, das war nur Duolingo und wir haben mal selber so ne Sprachlernapp gemacht so eine Vokabelapp.
Habe ich dann auch obviously installiert.
Weißt du noch, ob dir bei Duolingo irgendwas besonders gut gefallen hast?
Ich fand es einfach, das ist schon länger her. Ich fand es gut, dass ich das halt so jeden Tag machen musste, dass es mich dran erinnert hat, aber irgendwann hats mich gestresst, deswegen habe ich es deinstalliert.
Mehr weiß ich glaub ich gar nicht.
Cool, dann hast du ein Lieblingsspiel, was du in den letzten 12 Monaten gespielt hast oder generell irgendein Lieblingsspiel? Also ein Game.
Ich glaube, das ist voll random aber oder halt ich mag gerne Wii Spiele ja, ich hab Mario Bros mir gekauft.
Geil, ich liebe auch Wii Spiele.
Und Just Dance mag ich auch.
Okay, cool dann machen wir hier kurz Pause.

Q 3+4

Also würdest du mit so einer App öfters lernen wollen?
Ja, ich finde es immer gut, Gamification in Apps zu benutzen, wenn es um Wissen geht, weil ich bin sehr so kompetitiv und ich will halt immer gewinnen und sowas wenn es so eine Story glaube ich auch hat mit Level aufstieg, dann würde ich die App noch öfters benutzen denk ich.
Dann hat dir irgendwas nicht gefallen oder hat dir was gefehlt?
Ne, ich fand es, ich fand es richtig einfach zu verstehen, um was es hier geht und dass ich halt diese Level mache und währenddessen lerne also das Konzept war sehr verständlich.
Okay.

B.5.7   Participant G

Participant G
Q 1+2

Also die erste Frage hast du schon mal Sprachlernapps oder generell Lernapps benutzt? Wenn ja, weißt du noch, was das war?
Also Sprachlernapps jetzt spezifisch glaube ich nicht. Aber Lernapps sowie LinkedIn Learning zum Beispiel.
Also das war eigentlich ganz cool, weil dort halt du eben so Videos hast und dann halt eben Schritt für Schritt halt so eine Einführung bekommst also gerade zum Beispiel wo ich jetzt mal auch in Adobe Illustrator mich einarbeiten musste, da hab ich auch dann zum Beispiel so Tutorials angeschaut, wo man halt auch so einen ersten Einblick bekommt wie das ganze System oder Tool halt funktioniert das es dann eigentlich ganz cool, aber jetzt zum Sprachlernapps tatsächlich noch nicht ne.
Also ich hab tatsächlich eine App ja, aber das ist eher so so ein Word so wie heißt das so ein Dictionary?
Ah ja zum Wörter nachschlagen?
Genau ja, ja, aber das ist an sich ja keine Sprachlernapp.
Ok und besonders gut gefallen hat dir halt einfach, dass man so Schritt für Schritt durchgeht?
Ja genau, und dass es auch eigentlich gut aufgeteilt ist und auch tatsächlich was ich an bei LinkedIn Learning ganz gut finde ist, dass es halt sehr viel an Auswahl gibt also da kann man halt auch dann gucken wenns jetzt wie gesagt mit Adobe was wäre oder so Illustrator, dass es dann halt auch ganz verschiedene Auswahlmöglichkeiten oder Themen ja.
Okay, hast du ein Lieblingsspiel? Also, das muss jetzt nicht, wenn du jetzt keins hättest, oder generell was magst du? Einer zum Beispiel hat vorhin Sudoku gesagt auch. Also so eine App oder irgendwas wo du ein Spiel was du schon mal gespielt hast, was dir gut gefallen hat.
Ja muss es auf dem Handy sein, oder?
Ne das kann alles sein.
Ist es egal? Ok. Weil wie gesagt so Gaming im Gaming Bereich bin ich eigentlich jetzt hier nicht, also auch tatsächlich auch am Handy gar nicht oder jetzt am Computer aber keine Ahnung. Wir haben jetzt mit der WG halt viel gespielt was heißt viel gepielt, wir haben halt mal so Spieleabend gemacht und da gibt es auch so also eher ein bisschen strategische Spiele. Fand ich auch ganz cool oder halt ebenso wie das Activity oder sowas ist dann auch eigentlich ganz witzig also halt sowas, was man vielleicht auch zusammen spielt genau.
Und da gab es auch das war tatsächlich vor Weihnachten noch da.
Das war ein Spiel von Google, ich weiß nicht mehr, wie das genau hieß kann ich aber auch gleich nachher noch mal googeln wie das genau heißt, dass man halt eben mit dem Handy halt kooperiert, also das es halt, das ist auch so ein Art Quiz und das aber immer aktuell das Quiz. Also kann man jetzt irgendwie sagen zum Beispiel nenne mir ein aktuelles Lied von zum Beispiel Peter Fox oder so und dann muss man das Halt so beschreiben und also es ist halt immer angepasst dadurch, dass es halt, dass man mit dem Handy arbeitet, also von Google oder mit dem Google Assistenten ist es halt immer aktuell das Quiz, das halt dann echt cool also man kann es quasi immer spielen und die Fragen erneuern sich halt immer.
Ok cool, dann Pause.

Q 3+4

Okay also die erste Frage mal würdest du mit so einer App öfters lernen?

Also ich glaube, dass ich am also das am Anfang die Motivation auch hoch ist und weil das auch echt ansprechend ist vom Design und das ist man halt auch verschiedenen Leveln, also so von Level zu Level hoch kommt sozusagen.

Ich glaube das aber dann tatsächlich irgendwann dann auch die Motivation nicht mehr da ist, auch wenn es vielleicht,

Wenn man dann mal ne Weile gemacht hat.

Genau, wenn man das eine Weile gemacht hat, aber ja, aber sonst eigentlich würde ich auf jeden Fall damit am Anfang schon auch öfters lernen aber ich wie gesagt, ich denke also so von meiner persönlichen Erfahrung kann ich mir dann auch vorstellen, dass ich dann halt, irgendwann halt auch aufhöre

Sowas reicht dann nicht aus zum Motivieren?

Ja genau.

Irgendwann ist genug.

Hättest du noch, also hat dir irgendwas nicht gefallen oder irgendwas gefehlt? Fällt dir irgendwas ein, aber weil du jetzt eh noch keine Lernapps benutzen hast.

Also meinst du jetzt vielleicht auch so vom User Flow oder?

Ja, also alles was dir einfällt.

Also zum Beispiel das war ein bisschen verwirrend, wo du also, wo ich die Barbara war das glaube ich um Hilfte gefragt hab was halt die Eichel auf Englisch heißt und dann dachte ich halt eben, dass man dann unten rechts auf den auf den Pfeil klicken muss, anstatt wieder oben links zurück geht.

Ah okay.

Also weißt du was ich mein?

Weil du ja dann halt gesagt hast jetzt musst du oben links dann wieder zurück und ich dachte halt eben also ich hätte, glaube ich so aus, also wie heißt es so halt einfach direkt drauf oben rechts.

Aber sonst war es auch echt cool, also voll ansprechend, auf jeden Fall vom Design her und hat mir auch gut gefallen, aber jetzt so von der Funktion her, was mir jetzt vielleicht fehlen würde kenne ich mich halt jetzt auch noch nicht so aus mit Sprachlernapps deswegen ja vielleicht auch Sachen vielleicht Funktion ja, ich weiß nicht ob du das anbietes oder halt ob das drin ist I don't know.

Wenn man halt zum Beispiel dann noch eine Übersicht hat von den ganzen gelernten Vokabeln, die man dann nochmal anschauen kann sozusagen oder halt, wenn man halt was falsch hat, was man falsch gemacht hat, dass es dann nochmal kommt.

Also ich meine?

Ja so Wiederholung quasi?

Wiederholung genau ja.

Und dass man vielleicht am Ende noch so einen Test hat oder so.

Ja

So als Abfrage Dings.

Wie ein Abschlusstest. Oder wie nennt man das so Wissensstandstest.

Genau Wissensstandstest.

Mhm.

Okay, dann kommt jetzt noch.

B.5.8   Participant H

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Participant H
Q 1+2

Okay, also hast du schon mal eine Sprachlernapp oder generell eine Lern App benutzt?
 Ja Sprachlernapps.
was hast du da, weißt du noch was das war?
Ja Duolingo und Babble.
Weißt du noch, ob du da irgendwas hattest was dir besonders gut gefallen hat bei der App?
Oder was dir beim Lernen geholfen hat?
Also Babble fand ich auf jeden Fall ein bisschen besser.
Ich weiß aber gar nicht mehr genau, wie das aufgebaut war.
Aber auf jeden Fall war da auch bei Duolingo fand ich auf jeden Fall gut, dass man halt so
Levels hat und quasi immer so ein Fortschritt gesehen hat und dann noch immer aufsteigen
konnte und so ja und dann noch so Feedback bekommen hat, okay, das ist gut, schlecht und
du hast jetzt ein Streak und so gamification Elemente fand ich eigentlich auch ganz nice.
Also wir haben gerade ja schon gesprochen spielen, tust du nicht so aber trotzdem falls du
irgendein Spiel gerne magst was wäre das dann?
Mario Bros.
Okay.
Und Mario Kart auch.
Okay, dann machen wir kruz Pause.

Q 3+4

Also würdest du mit so einer App wie gerade würdest du damit öfters lernen?
Ja.
Warum?
Weil also ich fand es satisfying, wenn man dann immer sowas bekommen hat, dann wird man immer belohnt und am Ende stand dann noch so you made it und man hat dann so kleinen Erfolgserlebnisse und das pusht dann, dass man es macht und ich fand es auch süß mit diesem Küken, dass man es so rettet und so und das was mich nämlich bei Duolingo manchmal stört, da kommt immer so ewig viel Text, den du dann hundert mal weiter klicken musst und so und dann hat man gar keine Lust sich das noch durchzulesen. Und hier war das so, das war spielerisch man hatte die Elemente, aber das war auch nicht zu viel, das war so ja cool, ich rette jetzt das Küken, aber das war nicht so, dass es nervt, weil das Küken erstmal 3 Seiten sagt.
Okay.
Und dann hat dir irgendwas nicht gefallen oder ist irgendwas aufgefallen was dir fehlen würde?
Ich weiß nicht was genau ist denn mit der App gedacht? Also das ist jetzt eher so eine Vokabel Lernapp eher, oder auch so eine richtige Sprachlernapp?
Ja, also eigentlich soll es schon Sprachlernapp sein, wo du dann halt Englisch lernst oder nochmal dein Englisch überprüft wie du gut du Englisch kannst.
Weil da finde ich auch immer gut, wenn dann noch irgendwie so eine Audiovisuelle Komponente dabei ist, entweder sprechen oder hören, weil das ja auch immer wichtig ist bei Sprachen.
Ja, ansonsten hat mir was gefehlt?
Ah doch vielleicht so eine klarere Level Übersicht. Also ich hatte jetzt irgendwie gesehen okay, ich hatte diese drei Dinger und dann you made it, aber vielleicht so Menü, wo man sieht okay, das gibts alles, du bist jetzt auf dem Level und in dem Level kannst du das und das erreichen und so eine Anzeige vielleicht auch oder irgendeine Art von Fortschritt wo man sieht okay, was hat man schon erreicht, was kann man noch erreichen, wo ist man? Das finde ich noch cool.
Hab ganz kurz. Ich weiß nicht, ob das schon was helfen würde, aber man hat in der Level oder in diesem Weltraum Dings also du konntest auch so hin und her gehen.
Ah okay.
Und wenn du ein Level gemacht hast dann war da so eine Flagge an dem Planet, den du schon gedingst hast.
Ah okay, ja, das ist cool, das ist cool, das ist mir jetzt nicht genau aufgefallen, weil ich eben nicht so rumprobiert hab, aber ja also, das würde auf jeden fall schon was helfen.
Okay, gut dann.

B.5.9   Participant I

Participant I
Q 1+2

Also die erste Frage ist hast du schon mal eine Sprachlernapp oder eine Lern App benutzt?
Ich muss gerade mal überlegen, ob ich das mal schon mal benutzt hab, ich hab, als ich mal diese Sprachreise gemacht hab, hab ich halt von EF die hatten noch so ne App dazu, die hatte ich dann kurzzeitig für die 3 Wochen.
Oder kennst du so Duolingo oder so was hast du das schonmal gemacht?
Ich weiß, dass es das gibt.
Aber hast du noch nicht benutzt.
Ich habs nie benutzt außer einmal kurz die 5 Sekunden als du es mir mal gezeigt hast.
Okay, dann schreib ich mal die EF App.
Und sonst keine Art von Lern Content App oder?
Ah warte mal jetzt fällt mir noch was ein. Doch diese wie heißt denn die hab ich in der Abi Zeit hab ich die mal benutzt.
Moment. Die hab ich bestimmt sogar noch irgendwie.
Quizlette oder ist es das?
Quizlette?
Moment.
Aber das ist jetzt keine Sprachlernapp, das ist halt so eine Lern App.
Ja.
Genau das ist es.
Und das sind dann so Quiz Fragen oder?
Quizlette heißt es also da kann man so selber Sachen erstellen also Vokabel Karten oder andere Sachen, die man halt lernen will und dann kann man das auch mit anderen Teilen und das hatten wir im Abi Jahrgang und haben dann auch untereinander diese Ordner irgendwie ausgetauscht und es dann gelernt?
Okay.
Achso dann weißt du noch, hat dir da irgendwas besonders gut gefallen an den Apps, die du da hattest mit zum Lernen?
Ich fands halt praktisch, dass man es immer von überall aus machen konnte. Ich hab das dann oft auch in der S Bahn gemacht auf dem weg in die Schule. Und das also, es eben auch ohne WLAN oder Internetzugang funktioniert hat.
Okay.
Ja, und es war halt ziemlich einfach zu verstehen.
Okay.
Gut.
Sehr cool, dann die zweite Frage hast du ein Lieblingsspiel, was du in den letzten 12 Monaten gespielt hast, wenn nicht, dann generell einfach so dein Lieblingsspiel?
Also, kann eine App sein, kann den Computerspiel sein.
Da ich ja eigentlich fast nichts spiel. Ne, ich muss echt überlegen, ich glaub tatsächlich das letzte was ich jemals gespielt habe ist tatsächlich Sims.
Okay, ich schreib mal Sims auf. Das haben wir früher immer viel gespielt.
Okay, dann mach ich jetzt kurz die Aufnahme.

Q 3+4

Würdest du öfters mit so einer App lernen?
Ja, würde ich schon.
Und Warum?
Eigentlich genau aus den Gründen, die ich vorher gesagt hab ich finds super praktisch, wenn man das halt unterwegs auch machen kann und auf dem Handy ist schon entspannter und einfacher, als wenn ich jetzt zum Beispiel meinen Laptop auspacken würde.
Das kann man einfach so zwischendurch mal machen. Und es ist halt easy zu verstehen muss mich irgendwie kompliziert verschiedene Programme oder so benutzen.
Ja.
Und wie findest du das, dass du so ein
Und genau das macht halt irgendwie noch so ein Spaß Effekt.
Okay ja.
Also ich habe jetzt nicht unbedingt das Gefühl, als würde ich jetzt total konzentriert am Schreibtisch lernen.
Mhm, okay.
Dann die nächste Frage ist noch, ob dir irgendwas nicht gefallen hat oder ob dir irgendwas einfällt, dass dir irgendwas gefehlt hat? Eine Funktion oder irgendwas?
Nee, eigentlich nicht also das einzige ich meine, das ist ja jetzt logisch, weil das ist ja nur so ein Beispiel ist, dass man das halt noch dann mit mehreren Levels und so macht. Das ist ja offensichtlich.
Und wahrscheinlich auch so den Schwierigkeitsgrad dann so steigend oder so.
Genau, ja.
Okay, cool, dann war es das erste Mal für die Fragen.

B.6   UEQ

B.6.1   Original short UEQ in English & German

Items of the short version of the User Experience Questionnaire (UEQ)

This document lists the items and their order for all the available languages of the UEQ.

English version

obstructive	o o o o o o o	supportive
complicated	o o o o o o o	easy
inefficient	o o o o o o o	efficient
confusing	o o o o o o o	clear
boring	o o o o o o o	exciting
not interesting	o o o o o o o	interesting
conventional	o o o o o o o	inventive
usual	o o o o o o o	leading edge

German version

behindernd	o o o o o o o	unterstützend
kompliziert	o o o o o o o	einfach
ineffizient	o o o o o o o	effizient
verwirrend	o o o o o o o	übersichtlich
langweilig	o o o o o o o	spannend
uninteressant	o o o o o o o	interessant
konventionell	o o o o o o o	originell
herkömmlich	o o o o o o o	neuartig

B.6.2   UEQ - User Tests
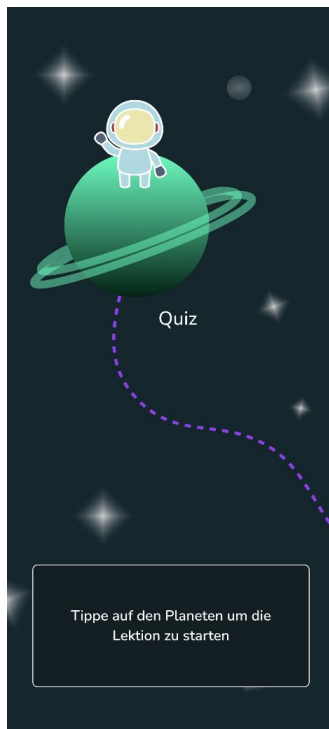
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Journey

behindernd	O O O O O O O	unterstützend
kompliziert	O O O O O O O	einfach
ineffizient	O O O O O O O	effizient
verwirrend	O O O O O O O	übersichtlich
langweilig	O O O O O O O	spannend
uninteressant	O O O O O O O	interessant
konventionell	O O O O O O O	originell
herkömmlich	O O O O O O O	neuartig
demotivierend	O O O O O O O	motivierend

Leaderboard

behindernd	O O O O O O O	unterstützend
kompliziert	O O O O O O O	einfach
ineffizient	O O O O O O O	effizient
verwirrend	O O O O O O O	übersichtlich
langweilig	O O O O O O O	spannend
uninteressant	O O O O O O O	interessant
konventionell	O O O O O O O	originell
herkömmlich	O O O O O O O	neuartig
demotivierend	O O O O O O O	motivierend

Challenge mit Freunden

behindernd	O O O O O O O	unterstützend
kompliziert	O O O O O O O	einfach
ineffizient	O O O O O O O	effizient
verwirrend	O O O O O O O	übersichtlich
langweilig	O O O O O O O	spannend
uninteressant	O O O O O O O	interessant
konventionell	O O O O O O O	originell
herkömmlich	O O O O O O O	neuartig
demotivierend	O O O O O O O	motivierend

Rewards

behindernd	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	unterstützend
kompliziert	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	einfach
ineffizient	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	effizient
verwirrend	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	übersichtlich
langweilig	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	spannend
uninteressant	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	interessant
konventionell	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	originell
herkömmlich	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	neuartig
demotivierend	⭘ ⭘ ⭘ ⭘ ⭘ ⭘ ⭘	motivierend

C   Results - UEQ

You can find the complete Excel files of the evaluation in the attributed digital content in the folder "Excel Sheets".

C.1   Results for Explorer - Journey

Transformed Data

Here you can find the transformed values per item and the scale values per participant. The +3 represent the most positive and the -3 the most negative value.

Items							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	3	2	2	3	3	2	2
2	2	2	1	2	2	0	0
2	1	3	2	2	2	1	2
2	2	1	2	0	1	2	0
2	1	2	2	0	0	1	0
3	3	3	3	2	3	3	2
2	3	2	2	3	3	3	3
2	2	2	3	2	2	1	0
3	3	3	2	3	3	1	0

Item	Mean	Variance	Std. Dev.	No.	Negative	Positive	Scale	
1	↑ 2,1	0,4	0,6	9	obstructive	supportive	Pragmatic Quality	
2	↑ 2,2	0,7	0,8	9	complicated	easy	Pragmatic Quality	
3	↑ 2,2	0,4	0,7	9	inefficient	efficient	Pragmatic Quality	
4	↑ 2,1	0,4	0,6	9	confusing	clear	Pragmatic Quality	
5	↑ 1,9	1,4	1,2	9	boring	exciting	Hedonic Quality	
6	↑ 2,1	1,1	1,1	9	not interesting	interesting	Hedonic Quality	
7	↑ 1,6	1,0	1,0	9	conventional	inventive	Hedonic Quality	
8	↑ 1,0	1,5	1,2	9	usual	leading edge	Hedonic Quality	

C.2   Results for Killer - Leaderboard

Transformed Data

Here you can find the transformed values per item and the scale values per participant. The +3 represent the most positive and the -3 the most negative value.

Items							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
3	3	2	3	3	3	1	1
2	1	2	1	1	2	-2	-1
3	3	3	3	2	3	0	0
0	2	1	2	1	1	-1	0
0	1	0	2	2	2	0	0
3	3	3	3	2	2	1	1
0	3	2	3	1	1	0	0
2	3	2	3	2	1	1	1
0	3	0	3	1	1	-3	-3

Item	Mean	Variance	Std. Dev.	No.	Negative	Positive	Scale	
1	⬆ 1,4	2,0	1,4	9	obstructive	supportive	Pragmatic Quality	
2	⬆ 2,4	0,8	0,9	9	complicated	easy	Pragmatic Quality	
3	⬆ 1,7	1,3	1,1	9	inefficient	efficient	Pragmatic Quality	
4	⬆ 2,6	0,5	0,7	9	confusing	clear	Pragmatic Quality	
5	⬆ 1,7	0,5	0,7	9	boring	exciting	Hedonic Quality	
6	⬆ 1,8	0,7	0,8	9	not interesting	interesting	Hedonic Quality	
7	➡ -0,3	2,0	1,4	9	conventional	inventive	Hedonic Quality	
8	➡ -0,1	1,6	1,3	9	usual	leading edge	Hedonic Quality	

C.3   Results for Socializer - Cooperation

Transformed Data

Here you can find the transformed values per item and the scale values per participant. The +3 represent the most positive and the -3 the most negative value.

Items							
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	3	1	3	2	2	1	1
3	1	2	1	3	3	1	1
3	3	3	2	3	3	3	3
2	1	1	2	2	1	1	1
2	2	2	3	3	2	0	0
3	3	2	3	3	3	1	1
3	2	3	2	2	2	2	2
2	1	2	1	2	2	2	2
3	3	3	3	3	3	1	0

Item	Mean	Variance	Std. Dev.	No.	Negative	Positive	Scale	
1	⬆ 2,4	0,5	0,7	9	obstructive	supportive	Pragmatic Quality	
2	⬆ 2,1	0,9	0,9	9	complicated	easy	Pragmatic Quality	
3	⬆ 2,1	0,6	0,8	9	inefficient	efficient	Pragmatic Quality	
4	⬆ 2,2	0,7	0,8	9	confusing	clear	Pragmatic Quality	
5	⬆ 2,6	0,3	0,5	9	boring	exciting	Hedonic Quality	
6	⬆ 2,3	0,5	0,7	9	not interesting	interesting	Hedonic Quality	
7	⬆ 1,3	0,8	0,9	9	conventional	inventive	Hedonic Quality	
8	⬆ 1,2	0,9	1,0	9	usual	leading edge	Hedonic Quality	

C.4 Results for Achiever - Reward

Transformed Data

Here you can find the transformed values per item and the scale values per participant. The +3 represent the most positive and the -3 the most negative value.

			Items				
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
3	3	2	3	2	2	1	1
1	2	2	2	1	1	0	0
2	1	2	1	2	2	3	3
0	1	2	2	2	1	2	2
2	2	3	2	0	0	0	0
3	3	2	3	3	3	2	2
3	3	3	3	2	2	0	1
3	3	3	3	2	2	1	1
3	3	1	3	1	1	0	0

Item	Mean	Variance	Std. Dev.	No.	Negative	Positive	Scale	
1	↑ 2,2	1,2	1,1	9	obstructive	supportive	Pragmatic Quality	
2	↑ 2,3	0,8	0,9	9	complicated	easy	Pragmatic Quality	
3	↑ 2,2	0,4	0,7	9	inefficient	efficient	Pragmatic Quality	
4	↑ 2,4	0,5	0,7	9	confusing	clear	Pragmatic Quality	
5	↑ 1,7	0,8	0,9	9	boring	exciting	Hedonic Quality	
6	↑ 1,6	0,8	0,9	9	not interesting	interesting	Hedonic Quality	
7	↑ 1,0	1,3	1,1	9	conventional	inventive	Hedonic Quality	
8	↑ 1,1	1,1	1,1	9	usual	leading edge	Hedonic Quality	

D   Results - Motivation

	Journey	Leaderboard	Cooperation	Reward
Participant A	2	3	3	3
Participant B	1	3	3	0
Participant C	2	3	3	1
Participant D	-1	2	2	2
Participant E	2	3	2	3
Participant F	2	3	3	3
Participant G	2	1	3	3
Participant H	2	2	3	3
Participant I	3	1	3	6