Gamification Report

Introduction
Gamification by definition is the application of typical elements of game playing (e.g. the inclusion of a scoring and ranking system, earning achievements and the visualization of progress) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service. In this report we are going to explore different gamification techniques and their degree of effectiveness and outline how Tend could benefit from utilising them.

Social Interaction
A key driving factor that plays a part in several games, applications, and reward systems is implementing a way for its users to interact with each other. This gamification technique can be used in a variety of ways to encourage its users to keep coming back to the application, some of which have been elaborated below.

The first way that this gamification technique motivates its users to devote their time to an application is by adding a sense of competition to the application. The users of said application would be incentivised in such a way that they would want to get better and better at the application and simultaneously compete against their online friends.

Although there is the competitive aspect of social interaction, this gamification technique can also have a positive impact on the user's fulfillment within said application by being part of a community. Knowing that the user can come back to the application and be able to interact with their peers online and spend time to play games, educate themselves, or just connect with each other, is another huge driving factor mentioned in the octalysis framework, that falls under the social interaction technique.

During a study published in August 2014, a group of learners and their performances were analyzed after being asked to complete a set of tasks by themselves and with a group of their peers. The study found that, although the users abused some of the social interaction tools they were provided with by talking to each other about topics unrelated to the tasks at hand, this concept of "social e-learning" contributed towards motivating them to complete the tasks in the long term. The participants were then asked to complete a questionnaire on how they felt completing tasks with social interaction, and the results suggested that the participants were "intrinsically motivated".

Visualizations of Progress
Another gamification technique which has been seen to be quite effective is having the progress of any given user visualized in one way or another. The physical representation of progression aims to instil a sense of achievement within the user

while they explore and master certain aspects of the application. The inclusion of this technique motives people to improve their status within the application in order to show their 'growth' in the visual sense. Additionally, the constant reminder of how far the user has come encourages them to push forward and utilise the application more.

An example of this technique is the 'Forest app' which is designed to help you stay focused on a certain task. Whenever the user wants to stay focused, they open the app and plant a virtual tree. If they leave the application open the tree will grow. As they use the application more, they can start to grow their own forest and 'Visualise' their progress over the course of using the app. Users have expressed how having the visual stimulation has given them the 'extra incentive' to stay productive.

The fitness realm is another area that uses gamification to its advantage. A lot of people have trouble with abiding to a fitness regime so through gamification many applications make it easier for people to maintain consistency and stay motivated with keeping fit. An example of this is the 'Zombies, Run!' application which uses the GPS function on the user's device and puts them in an apocalyptic scenario where they must run away from zombies. The app keeps increasing workout speed and intensity over the course of its use so that the user has to undergo more vigorous exercise routines to avoid getting caught.

Additionally, as the user runs they collect supplies which they can then use to build their own town on their phone. The more you run the more supplies you collect and so the better your town becomes. Again, this is the idea whereby visualising one's progress drives them to make more. Integrating this system creates competition between friends and different users which fuels their motivation to keep running and build better towns than each other. The approach of turning fitness into a game appeals to most traditional gamers and furthermore people become excited to work out as they have different objectives to complete rather than their traditional fitness routine.

Scoring and Ranking System
One of the most popular gamification techniques that is in use in millions of applications and games across several different platforms involves the implementation of a scoring and ranking system. Essentially, the user is provided with some means of collecting experience in the app through being scored on some activity within said app. The experience they earn generally correlates with how much effort they put into their performance and how well they do.

With a scoring system in place within an application, users are more likely to try again and again with something until they feel like they have achieved a high score. Implementing a scoring system with rankings allows for users to compete to be better at a given activity. The aspect of competitiveness is used in many games

currently released and is the major driving factor that causes users to keep coming back to the application.

According to numerous studies done, both in person and online, competition is one of, if not the biggest component that triggers its users to advance and improve their performance. Some users are even willing to go above and beyond, spending thousands out of their own pocket to reach the top of the leader-boards and brag about it to their online friends.

The Subway Rewards app is a textbook example of an app that utilizes the scoring gamification technique and tempts its users to purchase food from their stores more often by rewarding them with points displayed on the user's account. These points can be used in exchange for free food that the user can claim (i.e. sandwiches, cookies, and drinks). To further incentivise use of their app, Subway Rewards have a feature where the user is able to claim double the points that they'd usually get during an exclusive period of time e.g. the month of December leading up to the new year.

Another good example of this gamification technique used within a game is Rocket League, where players are set against each other and play a game of car football. As a result of the games they play, they earn a set amount of experience which is based on how well they performed within the game and how many points they earned as a result of their performance. Depending on the total number of points the player has in a certain mode, they have a set rank associated with their profile, which users become addicted to bettering.

The scoring and ranking technique, used in conjunction with social interaction, provides a means for users of the application to compete with each other and keeps users coming back to the application.

Achievements
Achievements or milestones can provide a set of goals for users to attain while using the app. They usually don't have any real impact on the main functionality of the app, but are used to act as a form of encouragement for a user to use the app regularly. Each achievement has a set goal such as "Use the app 7 days in a row" which once the user completes displays an award or badge on the user's profile. Achievements provide a more clear indicator for the progress of a user as they may be more motivated when their goals are clearly listed for them.

Apps such as Duolingo or Khan Academy utilise achievements alongside their courses, where in Khan Academy a badge is awarded to a user once they complete a course, which they can then display to other users. This provides a sense of accomplishment and satisfaction to the user, which would incentivise them to continue to take more courses. The achievements give users a clear indication of how to progress and improve in their courses, and also act as a visualization of the

different milestones that they have achieved. Khan Academy also has achievements which encourages users to explore different features of their site, intuitively teaching users how to use all the features that the site offers.

Another example of achievements would be the Chess.com app, where using each section of the app has achievements related to it, encouraging exploration of the app. Achievements are also awarded when a certain opening is played or a skill rating is reached, further providing incentive for users to keep learning chess with the app. This combination of achievements help guide the user on the best way to fully utilise the app and improve in chess.

Some apps allow users to display the achievements that they have unlocked to other users of the app, which can be a driving force as they might compare their achievement progress with other users. Seeing other people unlocking achievements might make those goals seem more attainable, which would motivate people to continue making progress. Some users would also see achievements as a form of competition, which would drive them to unlocking more achievements, further incentivising use of the app.

Why is gamification so effective?
The act of scoring points, getting achievements or visualizing one's progress feels good and is exactly the reason why creating a gamified experience is so effective. The idea of being rewarded or ranked makes the user feel that there is value in carrying out a given activity. The introduction of competition or challenge through gamification grows the user's motivation to continually ameliorate themselves in order to become the best. Moreover, gamification has the ability to make mundane tasks into captivating, gratifying activities which makes the user feel like they're more 'playing' than 'working', which inevitably seduces them into the given activity more.

What could Tend learn from these?

Meditation and mindfulness is a skill which should be practiced regularly to be as effective as possible. However, many people lose interest in meditation after trying it for a while, and eventually stop meditating. Gamification techniques can be implemented into the Tend-VR app to help provide motivation for users, as this would encourage users to continue to use it regularly and continue practicing meditation.

Gamification techniques such as achievements and other visualisation of progress would be suitable for users to keep track of their progress, allowing users to see their improvements and growth over time. Tend could have achievements for stats like total time meditated, exploration of the app's features, trying different meditation environments etc., encouraging users to use different features of the app and meditating regularly.

Scores and rankings, in conjunction with social interaction can introduce a strong competitive aspect to the app, which can act as a driving force for some users to keep using the app. Tend could implement scores for things such as meditation streaks. However, for a mindfulness app like Tend-VR, a competitive environment may be undesirable as it can cause some stress for some users in maintaining a certain score. Scores and rankings may not be a suitable technique for Tend in this sense. However, a less competitive form of social interaction such as viewing another user's achievements may be beneficial, as viewing other users' achievements can motivate people to keep meditating, without creating an overwhelmingly competitive environment.

Links:
Achievements:
https://www.researchgate.net/publication/311960305_Understanding_the_Role_of_Achievements_in_Game-Based_Learning
https://www.psychologyofgames.com/2016/07/why-do-achievements-trophies-and-badges-work/

Social Interaction:
https://onlinelibrary.wiley.com/doi/full/10.1002/cae.22186
https://www.researchgate.net/publication/265383581_Contextual_Gamification_of_Social_Interaction_-_Towards_Increasing_Motivation_in_Social_E-Learning

Scores and Rankings:
https://medium.com/@sacrfox/pay-to-win-the-history-of-microtransactions-in-video-games-48ca64425704

Octalysis Framework:
https://en.wikipedia.org/wiki/Octalysis

Education:
https://www.education.gov.au/national-stem-education-resources-toolkit/gamification

Army:
https://gamificationdoesitwork.wordpress.com/2017/04/19/americas-army/

Side Effects of gamification:
https://www.sciencedirect.com/science/article/pii/S074756321630855X

Visualization:
https://www.forestapp.cc/
https://caliberstrong.com/blog/can-gamification-help-you-get-fit/
https://zombiesrungame.com/

https://www.fitday.com/fitness-articles/fitness/5-ways-to-gamify-your-exercise-routine.html