Engagement Score Framework

Summary

Engagement scores measure the participant engagement with the platform and has a direct correlation with platform acceptability and subsequent interaction with the platform. The engagement score is calculated by measuring behaviours users exhibit on the platform through their relationship with self, others and the content. As e-learning expands there are questions on user engagement and why some users stop their online learning after their initial experience[1]

A Previous study[2] has defined user engagement as a quality of user experience characterized by attributes of challenge, positive affect, endurability, aesthetic and sensory appeal, attention, feedback, variety/novelty, interactivity, and perceived user control. It consists four stages of user engagement process which are point of engagement, period of engagement, dis-engagement and re-engagement (Fig.1)

Figure 1

Engagement scores measure the participant engagement on a platform. The engagement score is a measure of how well the users are connected to a particular platform. Each user has a unique score based on their engagement with the platform. Engagement score has a direct correlation with platform acceptability, learning trajectory and user satisfaction. When a person learns using an online system that is new to them, there are several factors that are important to ensure user acceptability of the platform. Any good e-learning platform needs to not only provide an interactive, easy to use and effective

[1] J. Song, Q. Han, C. Pei, J. Xu, and Z. Du, "The design of an online self-study mode based on the analysis of adult Engagements' psychological characteristics," 2010

[2] B. H. L. O. Brien and E. G. Toms, "What is User Engagement? A Conceptual Framework for Defining User Engagement with Technology 1," vol. 59, pp. 938–955, 2008.

environment that facilitates the user to be on the platform for a significant amount of time. Many countries around the world are now increasingly looking towards lifelong e-learning as a way to upskill, in the United Kingdom and the European Union, there has been a focus towards upskilling and lifelong learning using e-learning[3] .

Introduction

The Engagement score is one of many scoring systems on the iGoT platform (Competency Score, Engagement Score, Impact Score, Trust Score and Organisational Score) and attempts to capture a user's engagement with the platform and the subsequent (if any) learning. According to the FRAC document, Engagements accrue an engagement score (LS) while interacting with the platform. This score reflects the engagement of the users on the platform. Engagement scores help track the effectiveness of interaction between the users and the content that is provided on the platform by using a combination of usage indicators and assessments at the end of the Competency Building Products (CBPs).

The iGoT platform intends to host millions of users who will exhibit certain behaviours through their activities on the platform. Engagements on the platform can be classified into three categories (beginner, intermediate, and advanced level) based on their engagement scores. At the beginning of a user's journey, they are classified as beginners, and they can move to an intermediate or advanced level based on their scoring on the platform. The activities that the users exhibit on the platform in the form of emits is captured by the system in a way which can be measured and incentivised for all users, which in turn will drive user engagement and subsequent learning.

Engagement Score will help to understand, predict and boost engagement within users (Fig. 1). The score will be based on an algorithm that considers high engagement behaviour (open, click, course completion etc) and low engagement behaviour (boredom, the goal not achieved, drop-out rate etc.). The higher the score, the more engaged a user is on the iGoT platform. A high score indicates/ predicts a strong likelihood of the user engaging with the platform in the future as well (Fig. 2)

[3] G. Attwell, "Supporting Personal Learning in the Workplace," 2011.

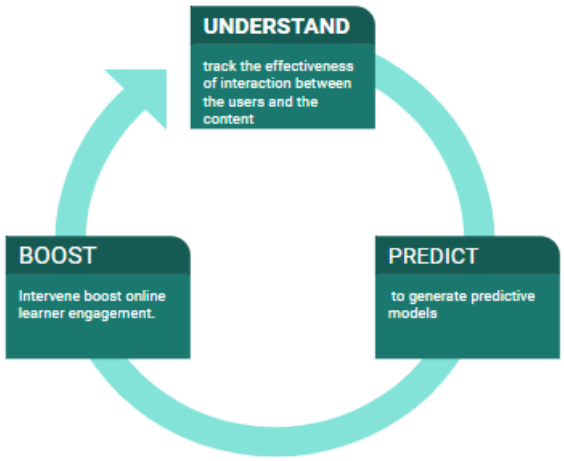

Figure 2

Problem Statement

Without the formal structure of traditional classroom-based methodology, virtual learning platforms (VLP) lack a natural social component of the human learning experience. Currently, there is no mechanism on the platform to capture user engagement and subsequent learning.

Engagement Scoring: Intended Outcomes

There are four intended outcomes of the engagement scoring exercise. All data collected will be anonymised. Only an individual user can see their performance and data on their personal login. *Any data shared with external CBPs and for dashboards will be anonymous in nature.*

1. **User engagement:** Getting users to interact on the platform thus motivating the user and incentivizing beginner level users to increase their confidence on the platform
2. **Guiding CBP Providers:** Content-specific engagement indicators and anonymous data will help CBP providers to enhance their offerings and design better courses. Predictive models help to plan and invest in the right resources for creating quality contents.
3. **Platform Enhancement on a real-time basis:** Engagement score will empower the iGOT2.0 platform with insights to act in the form of nudges during critical moments using data, intelligence, and automation derived from engagement scoring.
4. **Comparison:** Inter and Intra Engagement performance comparison of departments, ministries that leads to healthy competition between departments or ministries

Methodology

When users engage with a virtual learning platform, they exhibit certain behaviours on the platform. These behaviours can be categorised under three broader relationships:

- Relationship with self
- Relationship with others
- Relationship with content

Our approach towards engagement scores is through a four-step process, which includes a compilation of the following (a detailed description of all the approaches is provided in the appendices in Section 2):

- A list of behaviours through our research that users exhibit on a learning platform **(Appendix A)**
- A list of selective behaviours that incentivise user engagement **(Appendix B)**
- A list of indicators that measure behaviour **(Refer to the Excel Sheet Tab 1)**
- Weightage that is given to behaviours/indicators to arrive at the final Engagement score **(Refer to the Excel Sheet)**

Figure 3 shows a relationship between the three classifications and the behaviours related to the three relationships. A more detailed description is available in **Appendix A**

Note: The indicators are not exclusive to a particular behaviour. The engagement score has multiple indicators that feature more than once across different behaviours. An additional sheet in the excel sheet shows the weightage of a particular indicator.

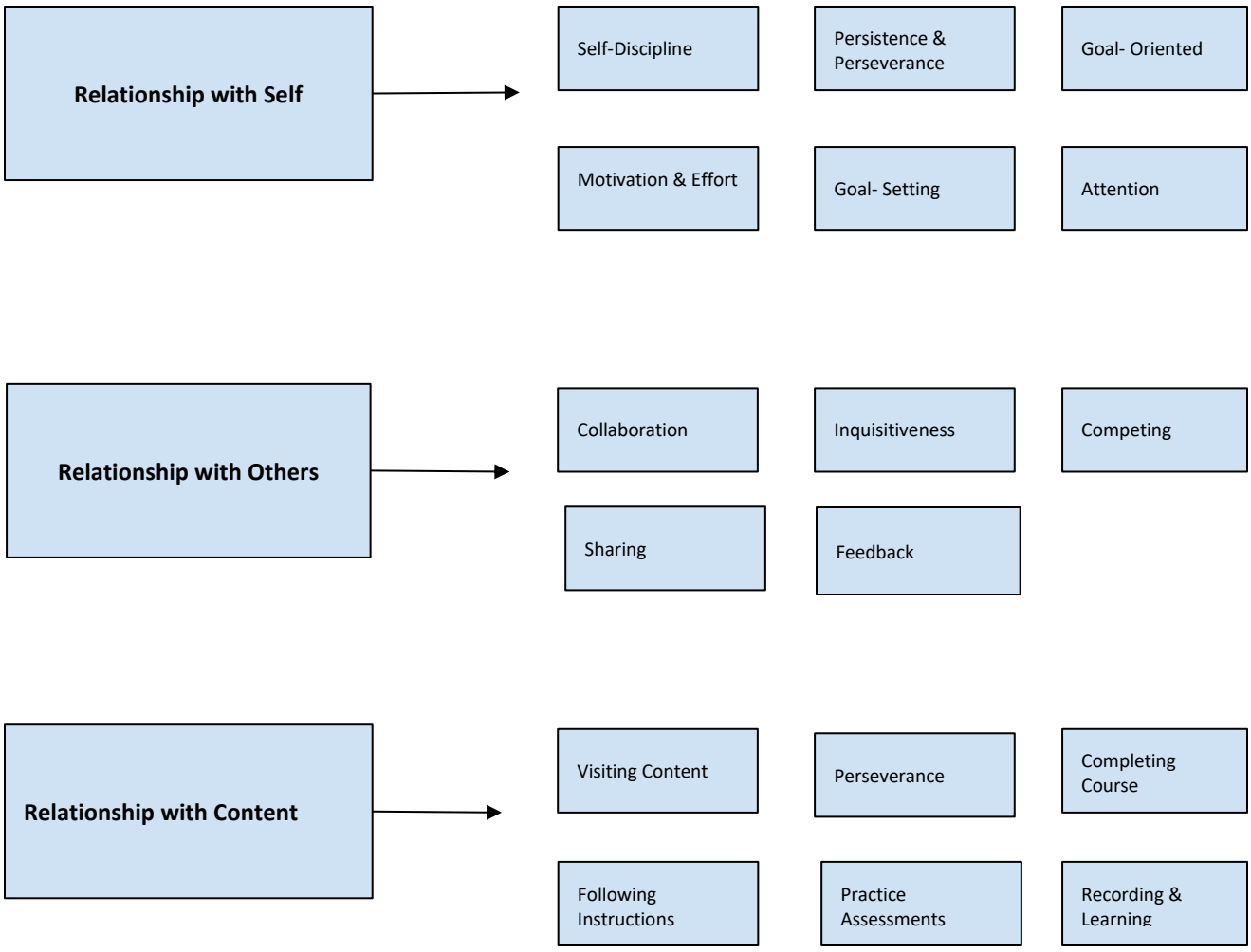

Figure 3

Calculation of Weightages

For the final step in the process, the weights are determined by the prioritisation. In this approach, behaviours are weighted based on certain principles of prioritisation and the weightages are predetermined. The four principles of prioritisation along with the logic behind scoring is presented below:

- **Effort:** Not all activities on the platform require a similar effort. Hence the weightage assigned to some activities may be higher than weightage assigned to another activity. E.g. Under the behaviour bracket of self-discipline, activities such as page views are given a lower score than the activity of skill progression

- **Skill:** A specific skill required to perform a specific activity on the platform. E.g. completing a course requires a higher skill set than viewing a video or reading description on the platform.

- **Time Duration:** The amount of time required to do a particular activity. Activities that require more time are scored higher than activities that require less time. E.g. Completing a module requires more time than page scrolls or liking the content.

- **Competency Building:** Activities which *directly* impact competency building are given a higher score than activities just *enable* competency building. E.g. Successfully completing CBP assessments and receiving certification directly corresponds to competency building and hence will be given a higher weightage than either shortlisting the course or viewing the course.

In order to arrive at the framework, the following steps were undertaken. Check the excel sheet for a detailed explanation

- **Step 1:** An exhaustive list of behaviours that users exhibit on to a learning platform are categorised under three major buckets (relationship to self, relationship to others, relationship to content)
- **Step 2:** Certain activities or indicators that users exhibit on to a platform are clubbed together under behaviours stated in Step 1
- **Step 3:** The next step is assigning weightages to the behaviours derived in Step 1. While the weightages have been assigned by the authors of the paper, the weightage calculation is an iterative process and can be changed as and when the platform goes live
- **Step 4:** Based on the four principles of prioritisation, each activity or indicator is also given a weightage and a range of scores between 1-5. Throughout the framework, a user at a beginner level is given a higher score compared to an intermediate or advanced user so that the user's activity captured on the platform is incentivised and thus improving their interaction with the platform.
- **Step 5:** The next step is the trigger period i.e. The number of times the user engaged with each event over a period of time. This trigger has a two-pronged use. Firstly, it helps categorize users as beginners, intermediate or advanced. Secondly, the trigger also changes the categorization over a period of time (e.g. an advanced user who has not engaged with the platform over a long period of time can see a drop in his category to an intermediate and subsequently a beginner user. In this framework, it has been classified as 7 days/ 30 days and 60 days. This has been detailed under the rating scale tab of the attached excel sheet.

APPENDICES

Appendix A:

The first appendix consists of behaviours that users exhibit on a learning platform. These behaviours can be both positive and negative. The negative behaviours are in *italics.*

This conceptual framework is driven by our research by an IEEE- led study on **'A systematic review of how theories explain learning behaviour in school contexts'.** Based on a framework mentioned in that study, we classified user behaviours into the three aforementioned buckets.

Relationship with Self	Relationship with Others	Relationship with content
Self-discipline	Collaboration	Anticipates and predicts
Persistence	Communication	Engagement
Perseverance	Discussion/ Forums groups	Learning
Goal-oriented	Expresses opinion	Exploring content/resources
Attention	Asks inquisitive questions	Application to real-world scenarios
Effort	Competition	Suggests or initiates feedback
Inquisitive	Suggesting/ Recommending	Makes mistakes, reflects and rectifies
Self-awareness	Sharing content/ goals/ feedback/ knowledge	Practice Questions/ assessments
Self-reflection (Start with the 'why')	Group Work/ Participation	Responsiveness
Motivation	Maps/ follows another user journey	Differentiating
Planning	Assigning Goals for others	Organising Content
Engagement	Constructive Criticism	Following Instructions
Managing	Empathy	Recording for reference
Self-regard/Self-esteem	Reacts and refers to comments of other Engagements	Observing
Responsible	*Aggressive/ Passive*	Consumption/ Completion

Strategizing	Feedback	Repeat
Ambitious		*Skimming/ cursory glance at pages*
Inattention/ Lack of Focus		*Disaffection/ Critique*
Complacency		*Superficial attention*
Boredom		

	Final Shortlisted Behaviours
	Behaviours Rejected

Appendix B

For the second part, we looked at behaviours that are most likely to incentivise user engagement derived from the previous table (Desirable User Behaviours).

Relationship with Self	**Relationship with Others**	**Relationship with content**
Self-discipline: The ability to control and motivate oneself on the platform and stay on track to pursue goals	**Discussion:** The process of exchanging ideas, notes and inputs by way of a chat or through the comment section to reach a decision	**Visiting Content**: User visiting or hovering over the content. This activity might be of interest to the user or not
Persistence and Perseverance: Persistence is the single-mindedness and dedication to reach goals. Perseverance is the continuation of commitment through action in spite of the lack of success.	**Collaboration**: The process of working together and collaborating with peers/ seniors or subordinates for assignments or on forums	**Repeat**: The user repeatedly consumes a course or module. This might be due to their interest or if the content needs to be consumed again.
Goal-Oriented: The behaviour of a user who is concerned with or focused on achieving a particular goal	**Sharing**: The process of wish-listing and subsequent sharing of knowledge, feedback and advice with peers on the network	**Completing Course**: User completing the course/ content as defined in their own learning goals or defined by the supervisor
Motivation: The process of stimulating oneself to actions to accomplish the goals and the drive required for it	**Competing:** Encouraging user engagement and learning by developing a sense of competition by badges,	**Following instructions**: While consuming the course the instructions are read and followed as requested

	certifications or awards.	
Goal setting: Goal setting involves the development of an action plan designed to motivate and guide a person or a subordinate toward a goal.		**Recording**: User making notes or highlighting specific sections for future use or reference purposes.
Attention: The ability to focus selectively on the task at hand and sustaining that focus by concentration		**Practice quiz/questions**: A user attempting a medium of testing during the course or taking part in assessments at the course level
Effort: Striving and exerting towards a particular goal		**Learning:** The process of acquiring, new understanding, knowledge, behaviours, skills, values, attitudes, and preferences as a result of engagement with the content
		Exploring: User exploring courses as per their learning journey or by exploring courses which are of interest to them on the platform