TCU Computer Science

Instructional Equity Observing Tool Glossary

Version <1.0>

Revision History

Date	Version	Description	Author
Date: <10/20/2022>	<1.0>	<Created initial document and Glossary Entries>	<Micah, Yilika, Sam, Rory>

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Glossary

1. Introduction

*[The introduction of the **Glossary** provides an overview of the entire document. Present any information the reader might need to understand the document in this section. This document is used to define terminology specific to the problem domain, explaining terms that may be unfamiliar to the reader of the use-case descriptions or other project documents. Often, this document can be used as an informal data dictionary, capturing data definitions so that use-case descriptions and other project documents can focus on what the system must do with the information. This document should be saved in a file called Glossary.]*

1.1. Purpose

*[Specify the purpose of this **Glossary**.]*

The purpose of this Glossary is to define possibly unfamiliar terminology specific to the Instructional Equity Observing Tool.

1.2. Scope

*[A brief description of the scope of this **Glossary**; what Project(s) it is associated with and anything else that is affected or influenced by this document.]*

This Glossary is associated with the Instructional Equity Observing Tool. The terms in this document will be used in the Use Case document and the Vision/Scope documents.

1.3. References

*[This subsection provides a complete list of all documents referenced elsewhere in the **Glossary**. Identify each document by title, report number (if applicable), date, and publishing organization. Specify the sources from which the references can be obtained. This information may be provided by reference to an appendix or to another document.]*

R1*:* *Instructional Equity and Access in a Pandemic*. (n.d.). From https://nsba.org/ASBJ/2021/April/instructional-equity-access-pandemic

R2:   https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/

R3:   https://www.ibm.com/cloud/learn/natural-language-processing

1.4. Overview

*[This subsection describes what the rest of the **Glossary** contains and explains how the document is organized.]*

The rest of the Glossary contains definitions of possibly unfamiliar and important terms/ideas. The definitions are organized as headings of subsections e.g. 3.1, 3.2, etc. Furthermore, there could be groupings of words with further notation e.g. 3.1.1, 3.1.2, etc.

2. Definitions

2.1.<Instructional Equity>

Every student learns the lesson every day and can demonstrate evidence of their learning – it's not enough that every student has access to the lesson (Instructional Equity and Access in a Pandemic, n.d.).

2.2.<Assembly AI>

A third-party AI model that specializes in audio transcription and speaker diarization. The IEOT accesses Assembly AI via an API request and utilizes the model to transcribe audio files.

2.3.<Brain.js>

A third-party AI model library which specializes in NLP. The IEOT accesses Assembly AI via an API request and utilizes the model to categorize different teacher questions into the Bloom's Taxonomy.

2.4.<Application Programming Interface (API)>

A shared syntax for different programs or computer systems to communicate with each other. The IEOT communicates with third-party models and services utilizing APIs.

2.5.<Analysis Visualization>

The results of the API call to the speaker diarization model is formatted in the form of graphs, charts, and plots on the front end. This visualization consists of content regarding teacher question timestamps, and Bloom's taxonomy markers.

2.6.<Natural Language Processing (NLP)>

Combines computational linguistics—rule-based modeling of human language—with statistical, machine learning, and deep learning models. Together, these technologies enable computers to process human language in the form of text or voice data and to 'understand' its full meaning, complete with the speaker or writer's intent and sentiment.

2.7.<Teacher Question Timestamps>

In the analysis visualization, times in the video are marked on a plot regarding when it is detected that a teacher speaker has asked a question where a student answer is expected.

2.8.<Speaker Differentiation>

Detection of different, distinct speakers in an audio file.

2.9.<Speaker Diarization>

Speaker diarization is a task to label audio or video recordings with classes that correspond to speaker identity, or in short, a task to identify "who spoke when".

2.10.<Analysis>

Analysis within the Instructional Equity tool consists of sending a video file to a pre-trained speaker diatarization and transcription model via api requests, and then visualizing the api results

through the view of the Bloom's Taxonomy categories.

2.11.<Bloom's Taxonomy>

A hierarchical ordering of cognitive skills that can help teachers teach and students learn.

2.11.1.<(Bloom's) Create>

Produce new or original work (cft.vanderbilt.edu).

2.11.2.<(Bloom's) Evaluate>

Justify a stand or decision (cft.vanderbilt.edu).

2.11.3.<(Bloom's) Analyze>

Draw connections among ideas (cft.vanderbilt.edu).

2.11.4.<(Bloom's) Apply>

Use information in new situations (cft.vanderbilt.edu).

2.11.5.<(Bloom's) Understanding>

Explain ideas or concepts (cft.vanderbilt.edu).

2.11.6.<(Bloom's) Remember>

Recall facts and basic concepts (cft.vanderbilt.edu).

3.   UML Stereotypes

[This section contains or references specifications of Unified Modeling Language (UML) stereotypes and their semantic implications—a textual description of the meaning and significance of the stereotype and any limitations on its use—for stereotypes already known or discovered to be important for the system being modeled. The use of these stereotypes may be simply recommended or perhaps even made mandatory; for example, when their use is required by an imposed standard or when it is felt that their use makes models significantly easier to understand. This section may be empty if no additional stereotypes, other than those predefined by the UML and the Rational Unified Process, are considered necessary.]

(No additional stereotypes used within this projects UML diagrams)