Welcome to the Teachers College Learning Analytics Capstone Conference!

The Learning Analytics program prepares graduate students to make data-driven decisions about education using quantitative methods drawn from computer science, statistics, and cognitive science. We study the "big data" generated by online and digital learning environments and develop new insights that benefit students, teachers, and administrators. Our students learn analyses methods through coding, statistical model building, and visualization as well as relevant policy, legal, and ethical issues involved in conducting analysis on education data. The purpose of this virtual conference is to showcase projects, internships, and research studies students in the Learning Analytics Program have accomplished.

We hope that everyone enjoys our virtual gathering at Gather.Town!

Conference at-a-Glance

Date and Time: August 9, 2022, 10:00 am – 12:00 pm, ET

Location: https://gather.town/app/XDXmq8oNulYfqsXV/TC%20LA%20Capstone

10:00 am – 10:10 am	Welcome Session
10:10 am – 10:55 am	Poster Session 1
10:55 am – 11:00 am	Transition and Break
11:00 am – 11:45 am	Poster Session 2
11:45 am – 12:00 am	Closing Session

Poster Presentation Guidelines and Tips

Each poster is assigned the number of the station (i.e., the number before your capstone title listed below) to display their printed poster. Poster presenters for session 1 will stand by their posters first, and the rest of the conference attendees will be the audience. Presenters for session 2 will present after a short break.

A poster presentation is less structured than a regular “behind-the-podium presentation” but a great opportunity for you to network, brainstorm, and get inspired. Presenters are expected to explain their posters and interact with the audience actively. Ensure that you can tell your story through the figures on your poster in 5 - 10 minutes at a comfortable pace. You could also anticipate some questions that your audience may ask you and be prepared to answer those questions. Best poster presenters are those who are able to engage their audience by having a clear presentation and a genuine conversation. Ask if your audience has any questions. Answer their questions to the best of your ability, and don’t be afraid to admit if you don’t know the answer. If you don’t see others waiting for your poster, take the opportunity to network with your

current audience or other poster presenters around you. Ask them about themselves and what they're working on. This is also a great time to ask for feedback on your work.

Gather.Town

Gather.Town is an RPG-style web-conferencing software. Unlike zoom, Gather.Town hosts a seeing the virtual "room" for us, and with the ability to move around and interact with other participants based on your locations in the room, just like real life. You will be able to edit your character and go through a brief tutorial before entering the conference room. So, please log in a little bit earlier if you have never used Gather.Town before.

Poster Session 1

1. Eduscape Learning Analytics Project

Jingfei Chen, Mark Mahasandana, Ruoqi Wang, Siyu Lin, Wendy Weng, Yunwei Zhang, Zhen Yan

Abstract: Eduscape Learning Analytics Team is formed of seven TC graduate students who are working at Eduscape, an Education Technology company, as interns for eight weeks. During the internship period, interns learned the goals and business of Eduscape through the company's introduction and interviews with current employees. Based on the understanding of the company, interns brought up novel ideas that could help Eduscape accomplish its goals and develop its online learning website. Each intern focused on different components and will present the projects that they proposed. In the presentation, interns will elaborate on their thoughts and how they would fulfill the goals. Most proposed projects will not be finished by the end of the internship. The projects will be delivered to employees after the program.

2. Construction of Learning Dashboard

Mark Wang

Abstract: Learning Dashboard is a visualization that shows personal information which can be used to enhance learning. A good Learning Dashboard not only reflects whether the data is meaningful but also the information from the learning dashboard provides insight into decision making. This capstone project aims to analyze and explore the rationale of learning dashboard designation. The learning dashboard from Eduscape is the main object to analyze; the current features and functions of the learning dashboard were analyzed and highlighted. A general outline/framework for learning dashboard designation was built based on the literature reviews about learning dashboard evaluation. Then, a revision plan was given by re-analyzing the learning dashboard based on the built framework/outline. Moreover, the potential cooperation between learning dashboard reflection and EDM methods was suggested to optimize the data analytical information reflection and enhance learners' learning environment.

3. How analytics integrates into the field of Learning and education

Yunwei Zhang

Abstract: For my capstone project, I would like to discuss the use of Learning Analytics through companies in real life and talk about how Learning Analytics is helping us during the process of the Eduscape internship. In the presentation, I will be comparing quantitative methods to the traditional methods of measuring a student's performance and how the new quantitative methods make an impact to the field of education. In addition to this, I will be also picturing a future waiting for educators to explore with Analytical methods as I think the use of these are still in the testing condition now.

4. Topic Analysis on Course Description at Eduscape

Sivakon (Mark) Mahasandana

The proposed research project is about Topic Analysis focusing on current existing course descriptions on an online learning platform, “My Eduscape”, which has been developed by Eduscape. The purpose of MyEduscape is to provide personalized professional development, learning curriculums, and instructional designs to enhance learners’ pedagogical practices. In 2022, the company is launching more than 50 courses within 20 different pathways. By expanding the growth of platform in every dimension, it is crucial for the company to re-look at contents and contexts of existing courses to compare as well as to contrast with future courses. This is to prevent overlapping and duplicating courses within pathways.

5. Lisichen study abroad expansion

Xinlei Hong

Abstract: The project is about helping lisichen study abroad consulting service expand in China. Currently, a total of 39 cities have subsidiaries. The goal for the company is to set up a total of 60 cities by the end of next year. Also, thousands of students go to the UK every year and only hundreds of students go to programs in the US. The company also wants to explore more possibilities for the US market.

6. An Approach to Find the Balance between Budget and Accuracy

Huancheng Xu

Abstract: As a data analyst we need to improve the accuracy of our analysis as much as possible, so we need more comprehensive data. But this can also increase our costs. And not all companies have the enough budget to get comprehensive data to make accurate predictions. But we want to analyze more accurate data at a limited cost. Then at the same cost, we need to find a value to get a more accurate forecast. I read in a paper about an algorithm that can help us find the most appropriate value to make more accurate predictions. According to the paper we found that this value does exist, but we need further analysis to determine if this algorithm is also applicable to educational data. If it works, we need to analyze different education datasets to get an optimal d for a given budget.

7. New York University School of Professional Studies Learning Analytics Project

Simon Chen

Abstract: Redesigning the students learning environment based on multiple dimensions. The current platform implemented in NYU is brightspace which could provide certain insights into student achievement, but we need to use the data it collects to integrate with learning theories to enhance the overall learning experiences. By analyzing the LMS (Learning Management System) usage data, and similarities between courses and instructors, we are aiming to connect them to give students more alternative choices to select helpful courses. There are many dimensions and factors to consider when building a holistic learning environment, we broke them down into specific goals (research questions) and carried out solutions.

Poster Session 2

8. Motivation for Impression Management

Chendanni Liu

Abstract: People would rather be perceived in an image that they have set. In a way, this helps them to maintain a particular reputation. Impression management depends on the interaction between different employees. When the COVID-19 pandemic commenced, it may be impossible for them to interact with others or show their work and prove their value in their organization. This affects their level of motivation since it is much more complicated to manage their impression. In this paper we conducted a qualitative research through interviewing a software engineer from a global tech company and collecting visual and verbal data to conclude whether covid-19 has increased their motivation to manage their impression or not.

9. Literature Review on success factors affecting professional certification exams

Yiran Wang

Abstract: Professional certifications can be found in a host of industries such as accounting, finance, project management, agile scrum, governance risk and compliance, information technology service management, supply chain management, and quality, etc. Thus, the literature review focus on the potential factors that could affect test takers performance and actions the relevant parties could take to help improve the exam performance. The literature review is based on 10 articles related to research on professional certifications after 2012. The researchers used different approaches including both experimental and non-experimental methods, such as survey research, quantitative systematic review, meta-analysis, partial least squares modeling techniques, logistic regression model, and control group experiment. The covered professional fields include finance, health, accounting, and human resources. Results cannot be generalized across a specific population of certification exams. To improve external validity, researchers

should empirically test theoretical models using a more representative sample of certification exams or on a specific certification exam. The institutions providing the professional certification exams should also conduct research learning about factors that improve test performance in the specific areas as well as how the certification exams helped in the test takers' future career. Longitudinal look at test takers as they enter the workforce to illuminate the link between thriving and resilience in the workforce.

10. Public Schools Contributes more on Educational Equality rather than Private Schools

Xiaoyue Zhu

Abstract: Since ancient time, upper class monopoly educational resources and the educational inequality exists for the long time. Each countries are trying to improve promote educational equality, so as to promote social equality and find talented people from non-privileged family as candidates of governors.

11. Fitting and prediction of the probability of Chinese high school students being admitted to the university

Sicheng Xu, Yangzhi Xu

Abstract: The National College Entrance Examination in China is an selective examination for high school graduates or their equivalent. Universities choose admission based on their scores, so the scores of National College Entrance Examination are very important for Chinese high school students, which makes the prediction of final admission based on their usual scores interesting and necessary. The objective of this report is to analyze which factors are more important to the receptance rate using the test scores of senior three students in a High school in China. At the same time, other test scores are used to predict whether students can be admitted, so as to evaluate the effect of the fitted model.

12. MNIST Classification with Deep-Learning Algorithms

Karl Shen

Abstract: Machines are more intelligent today as developers trying to give them ability to learn techniques to perform repetitive tasks and missions for human. Deep learning algorithms are designed based on our brain mechanism by setting the neurons that can automatically trigger and execute tasks that learned. In this project, I will be using the XgBoost and Deep-learning algorithms on MNIST data to classify handwritten digits and evaluate each performance based on the prediction accuracy and runtimes. The algorithm that provided the most accurate prediction can be further developed to an application that automated recognition from students handwritings to save teachers time and energy.

13. Natural Language Processing: Language Model for Networked Knowledge Activity

Yutong Shen

Abstract: In this project, I examined the discourse happening on Twitter and tried to understand it through natural language processing techniques. The dataset consists of 1782 tweets collected from the 2018 Online Learning Consortium Conference with the official hashtag #OLCAccelerate. I used Topic Modeling techniques first to analyze emerging topics and explore the affective states behind the messages. Then, I built Multinomial Naïve Bayes, Support Vector Machine, and Neural Network models to predict replies and classify tweet activities based on the original tweet retrieved in the text format. I tried to balance the dataset for both Multinomial Naïve Bayes and SVM by adjusting the weights, which increased accuracy for both models. Additionally, I conducted Social Network Analysis to analyze the reply relationships and detected the communities among 236 Twitter users. After removing the small communities in pairs and triplets, I visualized the network with 9 major communities in the remaining 140 Twitter users.

14. Perceived Control and Failure Perception: A Preliminary Analysis

Kan Yamane

Abstract: The relationship between perceived control and the likelihood of labeling a given experience as a failure was investigated. A literature review of studies on perceived control and failure is presented. Interview data on 97 students discussing their episodes of struggle within math and science classes were analyzed. A Pearson's Chi-Square test was conducted to check the correlational relationship between students' perceived control and the labeling of the episode as a failure. A statistically significant relationship between the two variables were found for both math and science datasets. The study ends by introducing the following hypothesis that can be drawn from the current study: "Those who feel perceived control within a given episode of struggle are relatively more likely to label the experience as a 'failure' relative to those who feel a lack of perceived control." The relation between this hypothesis and prior literature is discussed.