



CULTIVATING CREATIVE AND ENTREPRENEURIAL MINDSET IN DIGITAL TALENT: AN EVALUATION OF T-SCHOOL'S HUMAN-CENTRIC PROGRAM

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1. Introduction

In general, education systems in Asia focus on traditional methods for the accumulation of knowledge and the ways students manage and use that knowledge. For example, Korea, China, Japan, and India all have college entrance exams (Race to a Cure Authors, 2022). Compared to the American SAT (Scholastic Aptitude Test), these college entrance exams are more impactful on student's college applications and require more preparation time. Many Korean and Chinese students spend the last year of high school studying purely for the college entrance exam which will decide if they can get in certain colleges (Zhang, 2022).

The public education system in Taiwan has historically revolved around tests and exams (M.-T. Huang, 2023). Only since 2016 has Taiwan begun to reform this system. However, it has been a slow process (Tiliakou, 2018). Students had to compete to secure spots in prestigious high schools, aiming to get a good GSAT score for an entry into reputable colleges (College Entrance Exam Center, 2019). While focusing on exams can help further high achievers, it does not make colleges accessible to students who are struggling academically. The desire to attain high scores and get into prestigious schools allows students to acquire test taking and memorization skills, neglecting collaboration, communication, or creativity skills. These neglected skills are beneficial both in school and in the workforce.

A notable attempt to diverge from the traditional higher educational model is the establishment of the T-School (Talent School) by the School of Liberal Arts and Social Science at Soochow University in the fall of 2023. To lay groundwork in the current digital technology age, T-School students partake in creating podcasts, AI-generated works of art, and presentations. However, the emphasis is not on the technology itself but on actively cultivating the students' talents that support an innovative mindset. Students collaborate with others of different majors, work with a team tutor, and win prizes.

The sponsors for the IQP (Interactive Qualifying Project) include the Dean of the School of Liberal Arts and Social Sciences at Soochow University Dr. Chienkuo Mi and Sociology Professor Dr. Yucheng Liu. Dr. Mi along with Prof. Liu Weigong first came up with the T-School program concept around two years ago. Dr. Mi visited WPI (Worcester Polytechnic Institute) in 2023 and gave a talk on "Forgetting". This visit is one of the reasons he reached out to the WPI IQP program.

This proposal lays out the project team's process to identify recommendations for improving the T-School program. Through the following objectives:

Objective 1: Comprehend the T-School curriculum, student's past work.

Objective 2: Investigate the performance of cultivating creativity, digital skills, knowledge acquisition, as well as assess the quality of new content delivery.

Objective 3: Uncover the mutually beneficial relationship between STEM and Humanities, and its application in T-School.

Throughout the program, the project team will have the opportunity to observe different parts of T-School. Collaborating with T-School cohort at Soochow University, the team intends to conduct document analysis, surveys, interviews, and field observations to obtain both students' and instructor's perspectives and assess the current success of the program, its mission fulfillment, and student satisfaction.

The IQP aims to provide answers to the following research questions:

- I. How are similar programs to T-School performing in terms of student satisfaction and skills learned?
- II. How effective is T-School program in fulfilling its objectives?

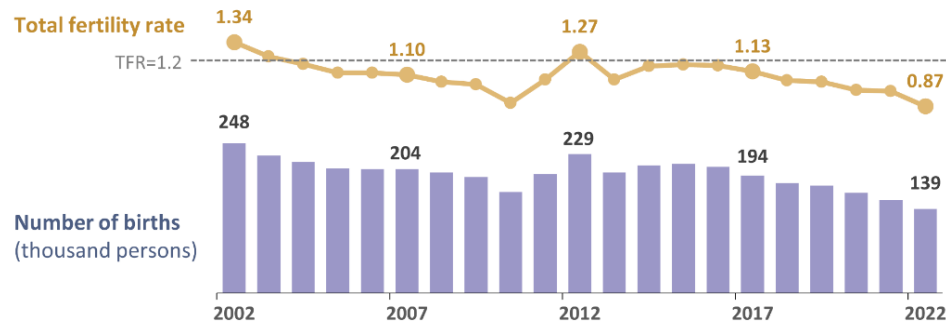
2. Literature Review

The first section in this chapter provides an overview of Taiwanese education system, the Taiwanese youth employment, and the struggles of private universities in Taiwan. The next section explains experiential learning, its impacts on cognitive development and creative minds, and touches on digital skills. Section 2.3 talks about T-School and its impact on humanities education, and similar programs launched in United States. Finally, the chapter covers course evaluation, program design, and syllabus creation.

2.1. Taiwanese Education System

Taiwan's education system is facing competition and enrollment issues for the future. Figure 1 illustrates a decreasing trend from 2002 to 2022 for Taiwan's birth rate from 1.34 to 0.87 per thousand persons (National Development Council, 2023). New births are no longer replacing the workforce resulting in an ageing population.

Figure 1: Graph of number of births in Taiwan and total fertility rate (National Development Council, 2023)



This brings new challenges to Taiwanese schools that heavily rely on the youth population. In 2022, only nine institutions of higher education in Taiwan registered 100% enrollment and some fell below 60% enrollment rate (T. Huang, 2022). In 2023, the Ministry of Education's annual report of student enrollment predictions stated an expected 1.9% decrease annually for first year college students for the next 16 years (Ministry of Education, 2023). As seen with the enrollment rate and annual report, Taiwanese universities are struggling to attract enough students. The issue worsened during the COVID-19 pandemic when People's Republic of China's Ministry of Education announced the suspension of programs sending mainland Chinese students to study in Taiwan (Xiaoyi & Huang, 2021). In 2021, Soochow University reduced the university's annual financial revenue by NT\$40 million (\$1.4 million USD) because of the lack of mainland Chinese students. At the same time several mainland universities chose to accept more Taiwanese applications than previous years causing even more competition. In addition, Taiwan's university panorama has experienced significant growth from 1994 to 2016, with a 21.54% increase in number of universities (Hu, 2018). This increase was due to significant cultural pressure on receiving an education. Nonetheless, the aging population and low birth rate are influencing the market dynamics. Universities are

likely to struggle to enroll satisfactory student populations in the future without making adaptations.

Taiwan's education system has historically been exam focused resulting in student's facing tremendous stress. The Child Welfare League Foundation demonstrated that Taiwan's current public education system contributes to stress among students. In a survey, they found the ratio of junior high school students contemplating suicide or self-harm due to school-related stress and pressure has risen from 21 percent in 2017 to 28 percent in 2023 (M.-T. Huang, 2023). Overworked students experience burnout or engage in unhealthy coping mechanisms which negatively affects both students and teachers. Lin Chung-hsi, a professor at National Yunlin University of Science and Technology claims that this is "because all our exams require standard answers" (M.-T. Huang, 2023). He believes the design of education should aim toward uplifting students to master life while furthering the abilities they need to manage risks which endanger survival. Despite undergoing this intense education system, students aren't guaranteed great employment.

2.1.1. Taiwan's youth employment

As a result of an increase of available education, Taiwan's work force has higher qualifications than jobs require. Critics of Taiwan's education system link the increased educated population to a trend of workers getting under paid for their qualifications. In 1995-1996, 39.44% of the population ages 18-22 had a form of higher education. That increased to 85.31% in 2007-2008. Due to the large number of people with a higher education, the number of workers in Taiwan's labor force with a higher education has risen from 11.83% to 35.85% in 2000 to 2009. Despite this increase, Taiwan's economic growth rate has decreased to less than 4% and unemployment has risen to over 4%. This can contribute to both an overqualification and skill mismatch where students' skills do not align with the job they get and resulting in them getting paid less than they should (Chuang & Liang, 2022) . Despite the education mismatch, Taiwan's government has invested in youth employment programs to support students looking for a job. Among their investments, they list strategies schools can implement to improve students' opportunity for employment. These strategies encourage universities to update courses to match workplace needs, provide counseling for students looking for jobs, and conduct check ins with students post-graduation (Executive Yuan, 2011).

2.1.2. Private University Struggles

Comparing Private and Public universities in Taiwan, public universities have an advantage with typically more programs offered and being funded by the government leading to cheaper tuitions (Shih, 2012). In addition, approximately two thirds of all the universities in Taiwan are private with increased competition among private schools. As a result, public universities are more prestigious than private universities and tend to be students' top pick.

To combat the disadvantage private universities are facing, Taiwan's government has arranged subsidies to private universities and offers scholarships to high performing students

to help with the higher cost. Private universities receive grants based on the quality of their education quality. Evaluators assess private universities on the university's learning, teaching, administrative, environment and research quality.

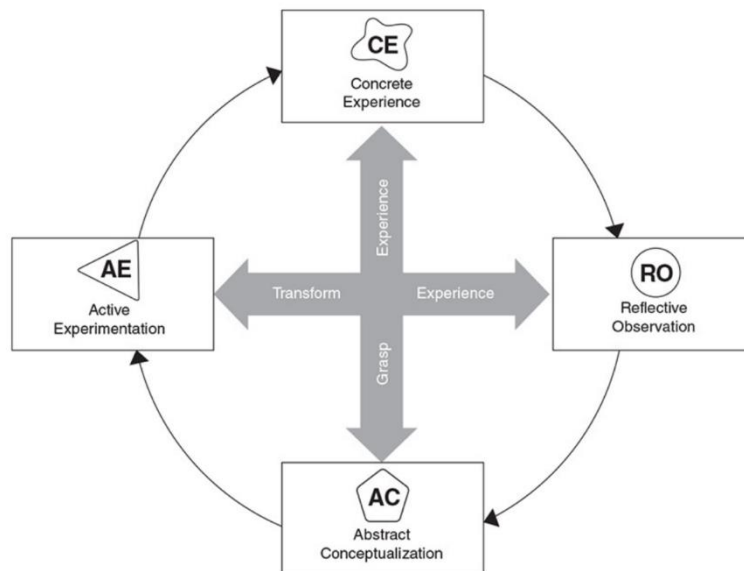
2.2. Experiential Learning

John Dewey proposed that although not all experiences are equally educative, “all genuine education comes about through experience” (Morris, 2020).

Experiential learning is an active learning process where students gain knowledge through “hands-on” task-oriented learning processes and reflection (BU Center of Teaching & Learning, 2024; Morris, 2020). Experiential learning breaks away from traditional learning methods such as passive listening and memorization. Instead, it actively encourages students to engage in research, integrate theory, apply their knowledge and skills to real-world solutions for everyday problems (Ernawati et al., 2020; Structural Learning, 2023). Such interactive method can counteract the “creeping passivity” prevailing in newer generation (Cutler, 2007; Donovan & Hood, 2021).

Kolb has been the most influential scholar, due to his chart (see Figure 2) that explains experiential learning (Donovan & Hood, 2021). Kolb emphasizes that knowledge is “created through the transformation of experience” (Kolb, 1984). Kolb's (1984) cycle of experiential learning, an iterative process of learning, forms a four-stage cycle, Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). This learning model illustrates two interconnected modes of grasping experience: CE and AC, and two interconnected modes of transforming experience: RO and AE.

Figure 2: Kolb's Cycle of Experiential Learning. (Kolb, 1984)

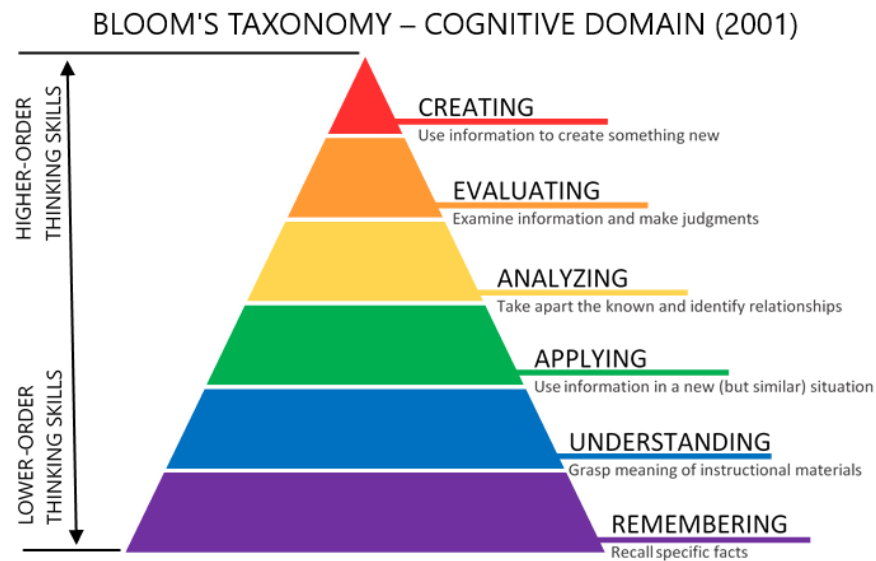


2.2.1. Impacts of Experiential Learning on Cognitive Development

Kolb explained that “workshops on experiential learning and learning styles can help students to develop meta-cognitive learning skills” (Kolb, 1984). Since experiential learning enhances engagement of both the left and right side of the brain, it serves as a catalyst for cognitive development by actively engaging students in the learning process (Miriam, 2021; Structural Learning, 2023).

Kampala International University conducted an experiment on 51 students to understand the effects of different teaching and learning styles in developing learners' cognitive abilities (Ssemugenyi, 2023). The researchers divided the group of 51 students into experimental and control groups using random scorecards. Researchers evaluated the cognitive performance of these students over a 15-week period, comparing lower learning attributes, such as remembering and understanding information, and higher-order learning attributes, like evaluating and creating new knowledge (visually explained in Figure 3). Initially, there was a slight difference in the mean scores of the two groups on the lower-order learning parameters at the pre-test, but this difference was not statistically significant. However, at the immediate post-test, the mean scores on the three higher-order learning parameters showed a significant statistical difference in favor of the control group. However, after a couple of weeks, the results revealed to be in favor of the experiential group. The reduction in weekly learning hours from three to two for the experimental group resulted in a significant improvement in their cognitive development on the three higher-order learning attributes at the delayed post-test. In contrast, the control group's improvement was only marginal. This study suggested that experiential learning can enhance the cognitive abilities in learners.

Figure 3: Bloom's Original Taxonomy of Educational Objectives (University of Florida, n.d.)



2.2.2. Experiential Learning Cultivates Creative Minds

International Baccalaureate Middle Years program, a program used around the world, defined, “Creativity is the process of generating novel ideas and considering existing ideas from new perspectives. Creativity includes the ability to recognize the value of ideas when developing innovative responses to problems; it may be evident in process as well as outcomes, products, or solutions” (Patston et al., 2021). In 2014, Australian Curriculum published a report stating, “Creativity involves students learning to generate and apply new ideas in specific contexts, seeing existing situations in a new way, identifying alternative explanations, and seeing or making new links that generate a positive outcome.” In this paper, the team defines the term creativity as “students generating novel ideas from new perspectives.”

Experts recognize creativity as one of the essential skills for success for the fourth industrial revolution, a digital revolution that began in the mid-20th century, marked by the fusion of technologies, blurring the boundaries between the physical, digital, and biological realms. (Gray, 2016; Rahimi & Shute, 2021; Schwab, 2016). The first industrial revolution used water and steam power to mechanize production; the second used electric power to create mass production; the third revolution used electronics and information technology to automate production. Furthermore, due to the increase in popularity of AI, many jobs are disappearing except for jobs that need human creativity, a skill that AI cannot replace yet (Belsky, 2020). Despite the increasing demand for creativity, the education system of Taiwan is struggling to nurture creative minds, highlighting the necessity of introducing a new method of learning (Ernawati et al., 2020). Problem-Based Learning (PBL) is a form of experiential learning which can also help build creative minds.

Researchers conducted an experiment on students of Darul Imarah 1 Public High School to measure the impact of Experiential Learning on student's creativity. Through random sampling, researchers selected both the control and the experimental class from grade twelve (Ernawati et al., 2020). They assessed student creativity using the Torrance Test of Creative Thinking (TTCT) for three aspects of creativity (elaboration, originality, and fluency). The results revealed significant differences in creativity between the experimental and control classes, with the experimental class outperforming the control class in all three aspects of creativity. These findings offer empirical evidence supporting the effectiveness of active learning approaches such as experiential learning to enhance student's creativity. This fact further emphasizes the importance of T-School, an interactive learning model to foster student creativity.

2.2.3. Digital Skills

Digital skills refer to one's ability to utilize technology to benefit themselves and others in an increasingly digital future (International Telecommunication Union, 2018). Articles about teaching during COVID-19 have featured the term digital skills, as teachers had to adapt to online classes. In a study trying to define the relation between 21st century skills and digital skills, the researchers found several articles focusing on teaching and learning practices with the intent to further students' competency in 21st century skills. In the study, they determined 21st century skills encompassed digital skills as well as other terms (van Laar et al., 2017). This paper uses the term digital skills to represent the basic technology skills beneficial to liberal arts majors in the workforce and everyday life.

2.3. T-School, Humanities & Similar programs

This section talks about the T-School program launched in Soochow University in 2023, its mission, curriculum, and expected skills learned and their usefulness. T-School provides useful skills to humanities majors. T-School is the under the School of Liberal Arts and Social Sciences meaning their audience is primarily humanities majors. Humanities education teaches students a range of soft skills such as: writing, research, critical thinking, flexibility, and communication (Sotelo, 2022). However, it is important to bridge these skills and utilize them into creative and entrepreneurial outputs.

The section then covers programs like T-School found in the United States. Some of the programs that the team researched was Massachusetts Institute of Technology (MIT) Sandbox, Boston College, University of Georgia Mary Frances Early College of Education (MFECOE), and the University of Massachusetts (UMass) Boston.

2.3.1. T-School

T-School has concluded its first semester out of two with approximately 30 to 32 students. Originally there were 42-43 enrolled. This indicates a 75% retention rate because 10 to 12 students have dropped out of the program. It is open to all Soochow University (SCU) students and has a lighter workload than a typical full-time course. At the end of the program, the institution awards students a certificate instead of traditional grades, alleviating academic

stress. The curriculum mandates the students take courses such as “Introduction to Cultural and Creative Industries in Humanities and Digital Studies,” “Expression Skills Training Course – Stage Communication Night,” and “Proposal Competition.” The Stage night entails four lectures and one presentation. There are two awards given at each Stage session one popularity award (6,000 TWD) and one Judges’ award (6,500 TWD). There are four Judges who are professors. Some of their criteria for awarding points are based on how the students organized their talk, their clarity, and body language. In the “Proposal Competition,” students participate in a group practical course where they are divided into groups and meet with their team tutor to finalize a project in accordance with the semester’s theme. At the end of the academic year, students will have an exhibition outside of the school.

In addition to the courses introduced above, students must take workshop elective courses by the end of the program, one of them is an AI Art Creation class and the other is a Podcast Creative Writing course. The program allows students the option to either take both in one semester or split them up across the two semesters. This facilitates flexibility in the students’ schedule.

Some of the projects that T-School students work on include creating a podcast and an AI-generated work of art (Soochow University, 2023b). Experts in their respective fields run these workshops. Every semester the program holds four Stage nights two weeks apart from each other. For the spring semester the dates are March 20th, April 10th, April 24th, and May 8th. The Stage nights are where each student showcases their project to their peers. These nights help students develop their public speaking and presentation skills, boosting their confidence. The program encourages students to collaborate with other students of different majors expanding their scope, as teams complete most of the projects, with few additional individual workshops.

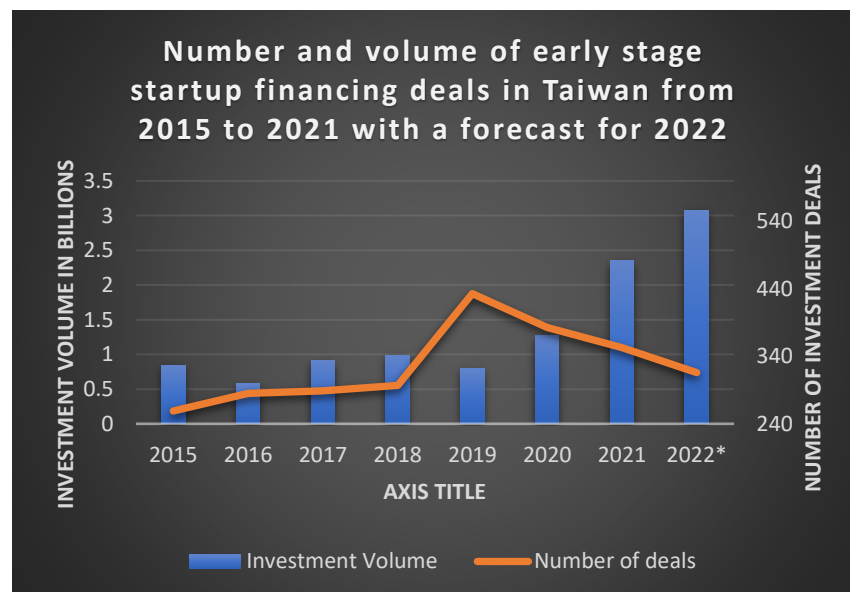
2.3.2. Humanities Education in Comparison with T-School

University can sometimes be a student’s first experience with technology classes, which can be intimidating due to the subject unfamiliarity. T-School strives to get students over any fear of technology one might have and teach them valuable digital skills, all within a non-graded program. Digital Humanities utilize these skills. They have been incorporating tools such as applications to help with digital communications, data storage, and advanced visualization (Carter, 2013). By the T-School providing interaction with AI tools and podcast materials, students will gain modern day technology skills that they can apply once they graduate. As mentioned earlier, with AI eliminating some jobs, the AI field is expanding its reach. Over the past few years, researchers analyzed scholarly publication data from *The Lens* database. They found AI-related publishing in the arts and humanities has increased by 1.4 times and social sciences by 1.3 times (Hajkovicz et al., 2023). In addition, AI publications have increased in health sciences, life sciences, and physical sciences. As Taiwan’s education system revolves heavily around standardized tests, some students do not get the opportunity to give presentations with fellow students. Therefore, T-School's implementations of podcasts and TED talks will help attendees gain communication skills.

By T-School providing opportunities for collaboration, attendees will gain presentational and communication skills. T-School focuses on teamwork as well, an aspect humanity majors do not experience much. For example, English, Philosophy, and History majors oftentimes analyze works and draft papers rather than gain hands on experience with activities through teamwork. T-School hopes to give these students the chance to work with others outside of their majors, providing them with experience useful in the real world. In industry, it regularly happens that graduates of different majors collaborate. Overall, the Stages, podcast creation, AI art creation will enhance the creativity skills of humanity majors.

All the afore mentioned skills contribute to fostering an entrepreneurial mindset which seems to be one of T-School's learning outcomes. Innovative technology skills, presentational skills, communication skills, and creativity skills provide a person with the ability to create new ideas and collaborate with others. In a study from 2021 applying the six steps in a pedagogic model of entrepreneurial learning, the researchers found knowledge about entrepreneurship encourages a positive association with entrepreneurship, the creation of wealth through creative actions, and individual success (Rustiana et al., 2022). In Taiwan, 8.4% of the population is involved in startups. The government plans to cultivate a supportive startup environment (C. Textor, 2022). As seen in Figure 4, the amount of investment has been on the rise since 2019 indicating Taiwan's support. This information will prove useful to students as Taiwan's startup business seems to be on the rise.

Figure 4: Number and volume of early-stage startup financing deals in Taiwan from 2015 to 2021 with a forecast for 2022. (C. Textor, 2022)



The extent to which students retain their learning from T-School is unknown as it has been less than a year since the program started. One difficulty the program will likely encounter involves assessing its own effectiveness, a task that the project team's research aims to address.

2.3.3. Programs Similar to T-School in United States and Their Impact

There are similar programs found in the United States that share the same vision of T-School of cultivating student’s creativity and entrepreneurial skills. Table 1 contains the four programs found in the United States, their features and compares that to T-School to Soochow University (SCU). The column headers are Soochow University (SCU), Boston College (BC), Massachusetts Institute of Technology (MIT), University of Massachusetts (UMass) Boston, and University of Georgia Mary Frances Early College of Education (MFECOE) in that order. These programs provide mentorship to the students with hands-on learning and workshops.

Table 1: Comparison of Soochow University’s T-School to other college programs

| ASPECTS \ PROGRAMS | SCU | BC | MIT | UMASS BOSTON | MFECOE |
|---------------------|-----|----|-----|--------------|--------|
| certificates | X | X | | X | X |
| offered online | | X | | X | X |
| offered in-person | X | | X | X | |
| focus on creativity | X | X | X | X | X |
| elective options | X | | | X | |
| entrepreneurship | X | X | X | | |

2.3.4. Colleges in the United States

This section goes in depth into the details of those four colleges and their attributes, which can aid the researchers in offering more comprehensive recommendations.

Massachusetts Institute of Technology (MIT) Sandbox

MIT Sandbox is also known as the Sandbox Innovation Fund program. The vision of Sandbox is to help students to develop the knowledge, skills, and attitudes to be successful innovators and entrepreneurs (Massachusetts Institute of Technology (MIT), 2024). Multiple teams spend 12-18 months in the Sandbox, evolving into viable startups by utilizing the guidance from the mentors, insights from startup-experts, and receiving up to \$25K in non-dilutive, cumulative funding. Although witnessing a successful launch of startup is gratifying, the primary mission of the MIT Sandbox is to provide each student with insights into entrepreneurship and leadership, which they can apply throughout their professional journeys.

Gabrielle Finear ‘21, co-founder of Boon, a mobile app which connects refugees through their smartphones to digital work opportunities, stated “I found my major to be incredibly theoretical. Although my coursework provided me with an excellent educational foundation,

I didn't want to graduate without ever having built anything" (*Experiential Learning through Entrepreneurship*, 2021). Through MIT Sandbox, Boon was able to receive funding. This example of experiential learning and the mission of MIT Sandbox resonates with the approach and mission of T-School.

Boston College, MFECOE, University of Massachusetts (UMass) Boston

Boston College, University of Georgia Mary Frances Early College of Education (MFECOE), and the University of Massachusetts (UMass) Boston all have programs teaching creative thinking whereby all participating students receive a certificate (Boston College, 2024; UMass Boston, 2024; University of Georgia, 2024). UMass Boston requires students to take a critical thinking and creative thinking course taught both online and on campus. This alternate approach is interesting because those course topics are topics T-School implicitly teaches. MFECOE's program emphasizes bringing departments and disciplines together, which aligns with T-School's ambition of bringing technology and social science together. Since all three colleges offer online programs, they do not match up with that aspect of T-School. UMass Boston incorporates choosing electives as well. Their students can choose three electives from 22 possible options. Boston College's program consists of two parts, six and nine hours long respectively. The intended audience of these courses are college undergraduates and graduates who majored in the humanities.

2.4. Program Design

This section provides an overview of good practices in course design and syllabus writing, which are relevant as they will guide the assessment protocol, we discuss in the methodology chapter.

2.4.1. Course Design for Active Learning

This section lists key takeaways from an article in which the author reflects on learning-centered lessons they wish they experienced 30 years ago. The team plans to use some of these insights for T-School evaluation. Many professors, being experts in their respective fields, unintentionally design courses which try to cover more material than reasonable. Instead, they should invest time and effort in devising engaging teaching strategies and varied assessment methods to effectively deliver some of the material to students for optimal learning. If a course is supposed to be an effective experience centered around learning, all objectives, activities, and assessments should align and support this common goal. To support this, the article recommends stating the educational objectives using action verbs and writing them out as full sentences before developing the rest of the course. Learning effectiveness correlates closely with both student engagement in class and their approach to completing homework assignments. In all cases, preferring active and experiential learning is much better than passive class participation (Whetten, 2021). Contrary to various undergraduate beliefs, the author finds that students learn more from courses with many structured quizzes and assignments (Light, 2001, p. 8). Compared to courses with loose requirements, a well-designed course will offer many opportunities to give students much needed feedback, usually through assignments.

2.4.2. Formulating Effective Teaching and Assessment Objectives

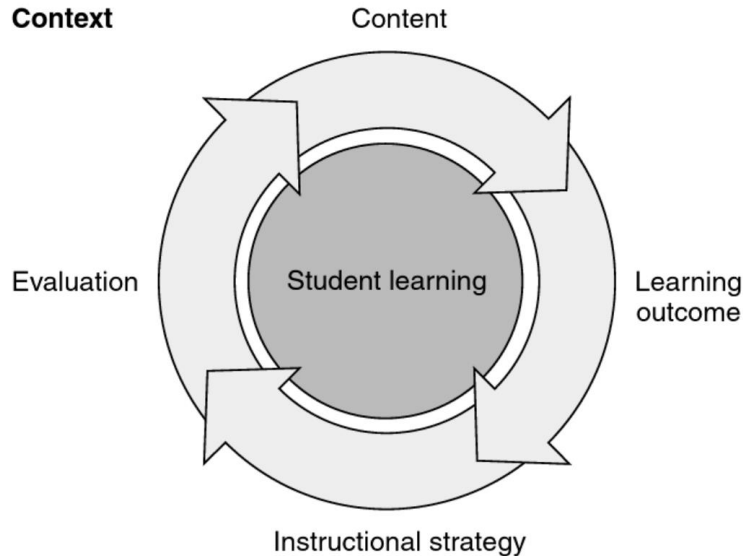
Continuing reiterating takeaways from the article previously mentioned, upon entering a new course, the first thing a student typically does is read the grading rubric. The instructor can leverage this fact. If the grading rubric¹ aligns with other elements contributing towards the same goal, assessing students' performance should fortify the educational objectives of the course. Likewise, individual quizzes and exams should not focus on number grades only (even though they are necessary for assessment) but rather on whether students will remember and use the material once the course is over. By pivoting away from the traditional strategy of grading, instructors open a sea of possibilities. For example, to promote repetition and active learning the instructor may encourage students to write an exam correction, take quizzes in groups, or, where applicable, have peer comments on student projects as a substitute for a graded assignment. These approaches do not, however, eliminate the standard written graded examination procedures. With that in mind, the article notes three recommendations: breaking down an assignment using a grading/assessment rubric, combining multiple choice and scenarios to test high-order thinking skills (see Figure 6), and providing student-tailored feedback on the assignment (Whetten, 2021). For the assignments themselves, tens of different types exist with some focusing on testing memorized knowledge and others critical thinking about the subject (McGill, 2014, pp. 23–39). Early and prompt feedback is highly valuable as it reassures students that their perceptions are aligned with the instructor's direction and enables them to incorporate any constructive feedback provided. Quick feedback turnaround times are also beneficial for the instructor, as they can address common issues directly in the classroom.

Figure 5 the process of developing a course should be iterative. In addition, course creators should promote friendly chats with fellow scholars at any part of the design as they often unveil a new perspective (Saroyan & Amundsen, 2004, p. 33-113). The first step should be laying out a concept map. This action forces the instructor to determine the subject breadth and depth of material covered in the course while simultaneously organizing key connections between individual topics. Second, identifying educational goals should clarify instructor expectations, outcome priority, and hourly allowance and, later, convey these expectations to the students. The third step revolves around learning strategies that strive for active participation and voluntary engagement. This is when the instructor formulates individual and group activities, in-class and take-home assignments, and their teaching approach while keeping aligned with the previous work. The team believes in the importance to highlight that this may be the most challenging aspect for certain instructors because they tend to find it difficult to think beyond the traditional frontal lecture approach, and many professors receive scant training for their pedagogical role. Finally, the overall most challenging part, student grading and assessment. The instructor should keep the course coherent, keeping in mind the

¹ T-School does not have grades. However, Judges pick the best performance at the Stages that receives a prize according to their internal scoring rubric.

alignment of all parts and creating exams that cover the practiced topics. The examination should examine the educational goals and nothing more (Saroyan & Amundsen, 2004).

Figure 5: Concept map of course design and teaching process. (Saroyan & Amundsen, 2004)



For either of the four steps described above, instructors can refer to Bloom's Taxonomy (see Figure 3), a visual map of student learning objectives and a useful reference for structuring course objectives from the bottom up. The taxonomy visualizes how one must first introduce material before understanding it, apply it before breaking it down and questioning, evaluating before students can formulate new ideas. A rigorously designed course will have incorporated all six steps of the Bloom's taxonomy pyramid and address each with a mixture of experiential individual and group student tasks. Teaching a course where every student directs all their energy into learning remains an elusive idea; nonetheless, instructors can strive to cultivate a culture of active engagement among the majority.

2.5. Syllabus Creations

A course syllabus is an essential part of higher academia and serves as the initial encounter that students have with their course (Gin et al., 2021). All course elements, including lectures, homework, reading, and exams, contribute towards one common goal – fulfilling course objectives. Students often forget the goals if they cover too much material, or if the goals have too broad of a range. The instructor should present grading and the educational goals up front to the students in the syllabus. Done cleverly, students can clearly understand and easily connect course assignments and assessments to the educational goals. The syllabus should include a timeline of the course, how instructor determines fair grades, directions to additional support, rules and requirements students must follow, and all assignments and deadlines. This syllabus then serves a dual organizational role for the instructor and the students (University of Illinois, n.d.).

2.6. Course Evaluation

Course evaluation, also known as students' evaluation of teaching (SET), is a widely used assessment instrument in higher education, that aims to guarantee and improve instructional quality (Wolbring, 2012). A typical course evaluation focuses mostly on faculty instructional performance using prepared class material. Only peripherally does it evaluate the quality of the course itself. Additionally, just like all surveys SET is inherently biased (Medina et al., 2019) and experts argue students are not qualified to objectively assess courses or that an action of personal revenge may take place (Wachtel, 1998). The team aims to gather feedback from both students and professors regarding T-School to mitigate potential biases.

2.6.1. Six Standards of Scholarly Teaching

In the 1990s, higher education scholarship did not have a clear definition of itself and therefore no standards to uphold. Practices among professors set local norms. As a result, colleagues often criticized faculty that exercised a non-standard approach. Just before the new millennium, a book aptly titled *Scholarship Assessed: Evaluation of the Professoriate* (Charles E. Glassick, Mary Taylor Huber, and Gene I. Maeroff, 1997) set out to address this issue and formulated six standards of scholarly teaching. The authors formulated six standards as six bullet points containing questions designed to lead the scholar towards excellence. The standards are as follows:

- I. *Clear Goals*, which describe whether the scholar formulates the objectives clearly and is knowledgeable about current questions in the field.
- II. *Adequate Preparation*, which asks if the scholar understands the field well and possesses the correct skills and resources for the class.
- III. *Appropriate Methods*, which pose questions about effective methods choices to achieve the goals and their adaptation to current conditions.
- IV. *Significant Results*, which talk about not only achieving the goals, but also contributing to the field and providing further areas of exploration.
- V. *Effective Presentations*, which lead to questions on clear work presentation and intended audience effective communication.
- VI. *Reflective Critique*, which steers inquiry into self-work evaluation employing supporting evidence along with continual work quality improvement.

These standards do not specify course evaluation questions. They offer a starting guide for assessment in appropriate areas and guidance to types of questions a teacher should be asking to formulate an effective evaluation of their own scholarship. Boyer breaks scholarship itself down into four types: discovery (research), integration (disciplinary context), application, and teaching (Boyer, 1990). This project aims to consider primarily the teaching type of scholarship and use these standards as guides to analyze gathered data about T-School's performance.

2.6.2. Faculty Evaluation – Consensus in Literature

The team will conduct surveys to help evaluate T-School's performance. A 2019 journal article, *A Review of Strategies for Designing, Administering, and Using Student Ratings of Instruction*, effectively combines the strategies used in over 900 other English articles on course evaluation. The data revealed some varied challenges surrounding course evaluations. The article identifies and provides specific recommendations for addressing each challenge. Reiterating the article for the reader: SET mostly evaluates faculty performance. Nevertheless, the literature agrees upon some overall course evaluation survey design parameters which the team summarizes in the following two paragraphs.

Student course evaluation surveys should contain between 15 to 30 clearly stated questions from the students' perspectives. Students should do the course evaluation electronically and in-class. This approach allows the instructor to avoid wasting resources with responses collected anonymously; however, instructors should not make it mandatory. The article suggests that instructors use a "reward for completion" approach. For hands-on courses, the article suggests conducting mid-term and final evaluations, with the latter being mandatory for all course types. If possible, include a school-wide or program-wide standardized section in the questions. In addition to leaving room for instructors to include custom questions. Close ended questions should utilize a rating scale of 4 or 5 points, as this seems to work the best, along with an additional not applicable (N/A) option added if too many responses fall into the average case. Include a portion of open-ended questions to encourage students to formulate their experience into faculty feedback (Medina et al., 2019).

After collecting and processing the data, faculty members should reflect on the results and combine them with an effective mentoring program to foster continual improvement. The instructor should use an accountability process to ensure they address the deficiencies. In addition, the institute should encourage the faculty member to inform future students about the current state of feedback implementation (Medina et al., 2019).

This project will incorporate some elements of survey design according to this summary. If any feedback tools do not exist for the T-School, the team will make a recommendation on implementing a feedback survey.

2.6.3. Present Biases

There are many controversies surrounding the SET method of instructional assessment. For example, students may not attend class enough to provide accurate instruction reflection. Depending on the portion of absentees, students' responses may include a "missing data" skew (Wolbring, 2012). Another aspect to consider is the instructor's gender and sex. These aspects also significantly bias the responses and language respondents use for evaluation. Researchers have identified that students are more likely to address women professors as "teacher" while they often refer to men as "professor" (Medina et al., 2019). Universities should reduce bias by increasing in-class awareness and using inclusive language in evaluation surveys. The project team will make best effort to mitigate possible biases before

conducting any survey; however, coming from the casual American background, the team acknowledges inherent cultural researcher bias, and that the Taiwanese instructor-student dynamic is strongly influenced by cultural and language norms. Hence, the team will stress the anonymity of the surveys. Finally, the *leniency hypothesis* suggests that students tend to give more favorable ratings to professors who grade leniently, particularly following an examination. (Wachtel, 1998). The T-School program does not have grades; hence this bias should be minimally present.

3. Methodology

The chapter provides an explanation of the methods the team chose to analyze T-School, specifically document analysis, interviews, surveys, and field observations. The next sections discuss potential obstacles, project deliverables, and ethical concerns.

The goal, objectives, methods, outcomes, and deliverables of this project are visually represented in Figure 6. This project's goal is to identify recommendations for improvements of the T-School program. To achieve this goal the team divides it into three key objectives, and they are as follows:

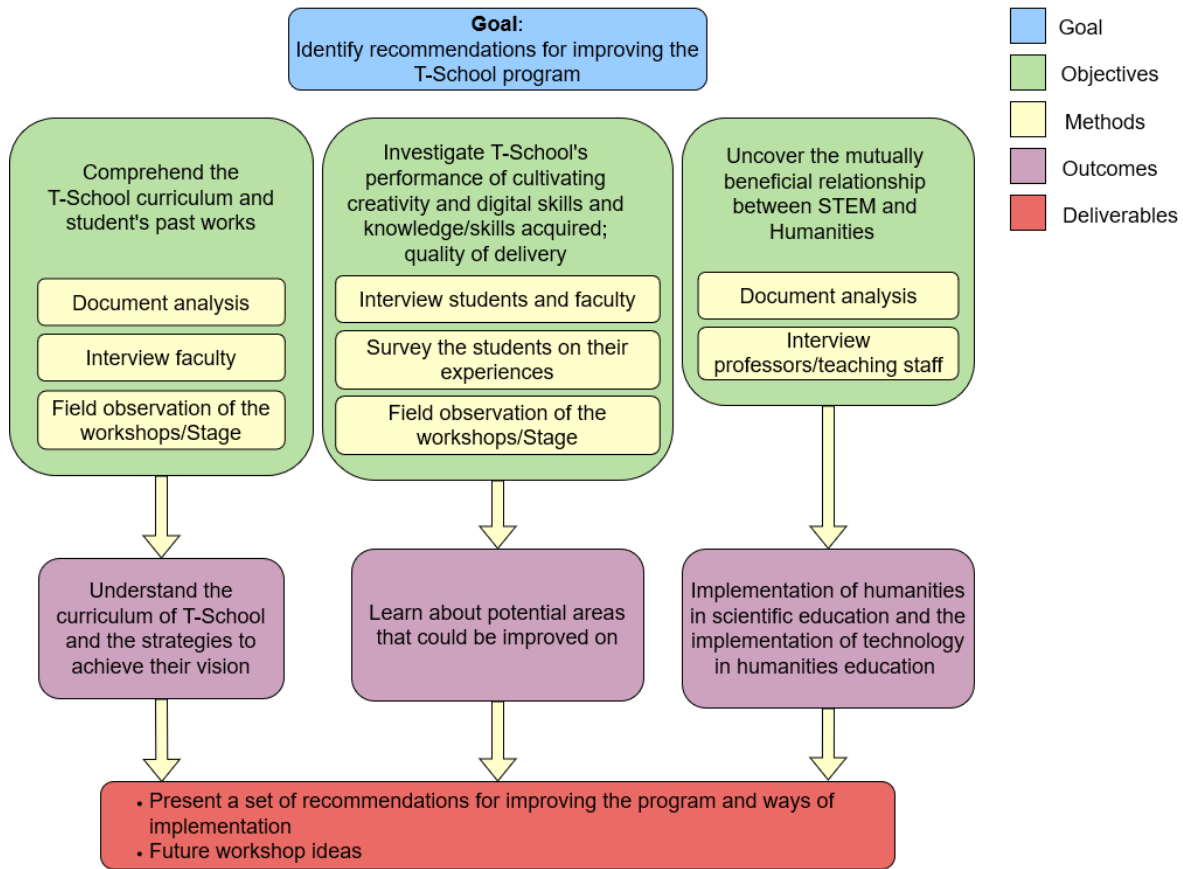
Objective 1: Comprehend the T-School curriculum, student's past work.

Objective 2: Investigate the performance of cultivating creativity, digital skills, knowledge acquisition, as well as assess the quality of new content delivery.

Objective 3: Uncover the mutually beneficial relationship between STEM and Humanities, and its application in T-School.

To accomplish these objectives, the team will apply four methods that Figure 6 links to each objective. The first method, document analysis assists the team with the first and the third objective. The second method involves interviews, where the professors' interviews fulfill all three objectives and the students' interviews satisfy the second objective. The third method, surveys, aids to accomplish the second objective. Lastly, field observation, the last method helps to complete the first and the second objective.

Figure 6: Project Goal, Objectives, Methods, Outcomes, and Deliverables



3.1. Document Analysis

Before directly interacting with the T-School students or attending the Stages, the team plans to read and assess the resources provided by the sponsors to evaluate their consistency and common direction towards the program's educational objectives (McGill, 2014). This step will involve translation of the source materials to English for qualitative and possibly quantitative analysis. One student investigator possesses intermediate Mandarin language skills to facilitate this process. The team will review the curriculum, focusing on recognizing the educational goals of this program, strategies employed to achieve them, and improving alignment of outcomes, student learning outcomes, and activities. If the student researchers disagree, each side will provide arguments until a compromise is reached. Concurrently reviewing the curriculum and syllabus for the T-School (or similar overarching document) should reveal the program structure and detailed organization. Integration of the T-School's learning objectives into the program happens through instruction and various activities. As T-School invites experts to lead workshops and most hands-on activities are not individual, the team will attempt to grasp and assess the flow and sturdiness of the program using the

McGill Curriculum Workshop guidelines, before observing any activities directly as described in sections below. The document analysis method should provide a baseline for future data collection and evaluation.

In addition, our sponsor has given the project team access to previous student works from T-School and the team plans to evaluate their quality with respect to both the synthesized educational goals and current standards appropriate for the work type: podcasts, and student AI-generated art pieces. The team knows T-School instructors assess these works and will attempt to obtain a rubric from the sponsor. This student works assessment process holds great potential for revealing specific patterns that need attention. Identifying any shortcomings, the team will provide specific recommendations directly to the sponsor. If the student investigators happen to encounter new student works of similar nature, comparison on the originality, idea complexity, or any other marginal improvements will be possible.

The team will analyze course-related documents by considering how clearly the instructors state their objectives, and the level of detail for their course structure. Majority of the documents are in Mandarin, and translation to English may result in inaccuracies. To mitigate them, the project team plans to use two translation software and consult with our local “buddy” students, as detailed in Section 3.5 Potential Obstacles, Challenges and Limitations. Additionally, the analysis evaluates the creativity and level of complexity in student’s past works. The student investigators will utilize both their own experience and questions in Appendix A: Evaluation Questions for Course Resources. The team will include anonymized analysis findings in lieu of the original material in the final report.

3.2. Interviews

The second method that the team uses to meet its objectives is through interviews. The team conducts interviews with two groups of people: faculty staff and students. Each interview lasts approximately 60 minutes, with an expected 45 minutes for the actual interview (Gordon, 2003). However, times may vary depending on responses. The interview takes place in person in a mutually agreed upon location by both the interviewer and interviewee. This will allow the interviewer to observe nonverbal behavior such as nodding (Kleinlogel et al., 2023). Interview subjects will receive the interview questions in both languages beforehand to allow for adequate preparation time. The team obtains signed consent form from all participants well as audio recording of the interview with the participants permission. If the interviewee chooses to stay anonymous, the team identifies them under a fake pseudonym to maintain anonymity.

The interview follows a semi-structured format with general open-ended questions to allow the participants to freely provide their views (Beebe, 2014; Creswell & Creswell, 2018). If the interviewee is comfortable with taking the interview in English, then the team conducts it in English; otherwise, the team conducts it in Mandarin. One of the team members takes notes on the participants responses during the interview. After the interview, the team reviews

the audio recording and transcribes the whole interview. The team deletes the voice recording permanently once the team e-submits the IQP report.

3.2.1. Faculty Interviews

The faculty staff consists of the teachers from different departments of the School of Liberal Arts and Social Sciences that lead the lectures and/or workshops. The experts who are brought in to facilitate the AI creation workshop, podcast workshop and the Stage workshops are also from the School of Liberal Arts and Social Sciences. Table 2 consists of potential interviewees along with their name and department/Expertise. The team uses convenience sampling for the professors and obtains the information from the sponsors. Appendix C: Professor Interview contains the interview questions.

To address the first objective of the project, the team interviews the professors and teaching staff. The team asks questions about their opinion on the T-School program and its curriculum. In Appendix C: Professor Interview, questions C.1 to C.7 address this objective. In the same manner, the team will also ask about the performance of T-School. The questions C.8 to C.11 provide data for objective 2. Similarly, question C.12 helps the team to understand the mutual relationship between the humanities and technology.

The set of questions allows the team to collect necessary data to tackle all three objectives. The qualitative response undergoes a coding process to yield sets themes and results. The team will analyze the responses to formulate a set of recommendations to present to the sponsors for review.

Table 2: Professor Interviewee Information

| Name | Department/Expertise |
|--------------------|----------------------------------|
| Professor A | Department of History |
| Professor B | Department of Sociology |
| Professor C | Department of Sociology |
| Professor D | Department of Philosophy |
| Professor E | Department of Chinese Literature |

3.2.2. Student Interviews

Potential student interviewees consist of the individuals who are currently enrolled or have dropped out of the T-School. Table 3 consists of potential interviewees, their major and their status in T-School. The team attempts to balance the sample population to include both males and females. The team plans to use snowball (chain) sampling on the students for the first round of interviews (Gill, 2020). Snowball sampling is a recruitment technique where the participants of the study can recommend potential future participants. This method enables the researchers to ask the students to talk to their friends who have taken the course and see if they are willing to participate in an interview. Appendix D: T-School Students Interview contains the interview questions for the students.

To get furthermore insight into the current performance of T-School, the team will be interviewing the students from T-School. Question D.1 to D.10 are for students currently enrolled in T-School. The set of questions asks about the experience and the outcome of the course. To gain a more comprehensive understanding, the team will also interview the students who dropped out of the programs. Question D.11 and D.12. address the reasons T-School may not have been effective for certain individuals, as well as identifying some areas of improvements. Ultimately, this will uncover the student’s perspective of their anticipated outcomes from this program.

Table 3: Student Interviewee Information

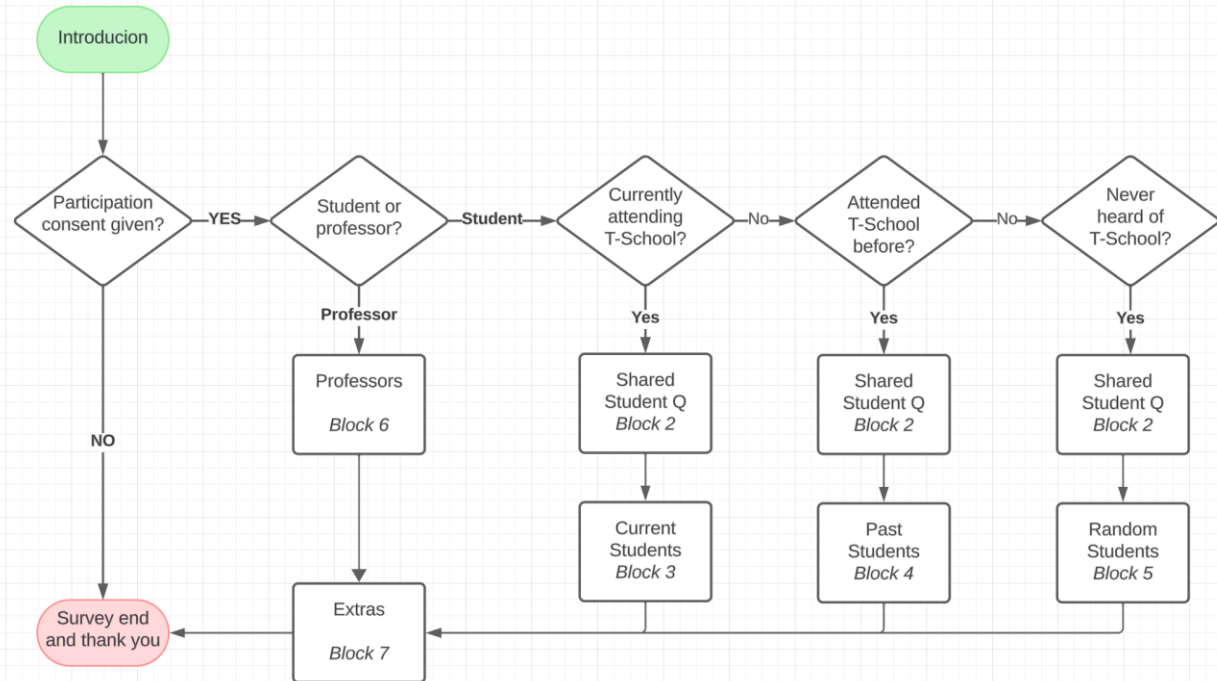
| Potential Interviewee | Major | Status in T-School |
|-----------------------|----------------|--------------------|
| Student A | Philosophy | Not Enrolled |
| Student B | Social Science | Not Enrolled |
| Student C | TBD | Enrolled |
| Student D | TBD | Enrolled |
| Student E | TBD | Enrolled |

3.3. Surveys

The third method the team plans to use is surveys. The team uses the Qualtrics web-based platform to facilitate the interview electronic data collection. Qualtrics platform conveniently offers a language selector, allowing the team to compose the survey in English and offer a translated Mandarin version as well. The participants consist of students attending Soochow University, students taking the T-School program currently or in the past, and professors. To minimize the load on respondents, the team intends to speed up survey completion time by incorporating Likert scales, multiple-choice questions, and keeping open-ended questions short response. An article published in 2017 found the ideal length for a web survey to be 10 minutes (Revilla & Ochoa, 2017). However, their audience was people of ages with an average attention span of 20 minutes. The team expects the survey audience to be young adults with the attention span of around 10 minutes (Philip & Bennett, 2021).

The four different respondent groups can access the conditionally structured survey through the same link. Distinction will take place within the survey itself. Depending on the answers to the “Are you a student or a professor?” question, the survey will direct the respondent to certain sets of questions only (see Figure 7).

Figure 7: Survey Logical Flow



Overall survey flow is as follows: the introduction of the surveys includes a description of why the survey is taking place and a yes/no question asking for respondent’s consent. If the answer is no, the survey skips to the end. Two logical questions follow to determine whether the respondent is a student or a professor, and the type of student (currently enrolled, attended before, not familiar with T-School) where applicable. Based on these two responses, the respondent sees only the corresponding sections (denoted as blocks in Figure 7). *Appendix E: Survey Questions* contains all questions and their organizational section blocks. After reaching the respective block, the respondent starts off the survey with three demographic questions before continuing to evaluation questions. Finally, the respondent arrives at the opportunity to add additional information not addressed in the survey before submitting and receiving the “We thank you for your time spent taking this survey.” message.

3.4. Field Observation

The fourth methodology the team uses is field observations (Genkova, 2020). The team collects data at three Stage events by observing the students and the judges. The dates of the Stages are as follows March 20th, April 10th, and April 24th. The event will start at 18:30 and take place until 20:00. The student participants include individuals currently enrolled in T-School attending the Stages, with the judges being the four instructors responsible for awarding the "Judges' Prizes." The Judges’ rubrics for giving out prizes include the flow of the presentation, eye contact, body language, and the organization of the talk. The observations contribute to answering objective 2 by providing three instances to see the students’ products and improvements after each instance. Two of the three Stage events will be in Mandarin. Therefore, there will be four rubrics for field observations. Before conducting

the field observation, the team obtains written consent by openly announcing the purpose of the study and having students sign their name and check a box to mark their consent as seen in Appendix F: Consent Form for Field Observations. If consent is not given by certain students, no observations will be made of the nonconsenting individuals thus eliminating them from the research. Student's consent will be determined by either a check mark or an 'X' mark next to their name on the consent form. Furthermore, all students are anonymized. After the field observation, the team discusses the observations to confirm no misconceptions took place.

3.4.1. Stage Event Evaluations

The team has a protocol for recording information. As *Research Design Qualitative, Quantitative, and Mixed Methods Approach* states, gathering demographic information, descriptive notes, and reflexive notes is important for field observations (Creswell & Creswell, 2018). The four rubric aspects for field observations are as follows: verbal cues, nonverbal cues, technical aspect, and engagement.

- i. Verbal cues such as tone, confidence, and preparedness.
- ii. Nonverbal cues such as posture, voice, gestures, and position.
- iii. Technical aspect meaning quality of preparation, technical quality, and presentation flow.
- iv. Engagement such as audience interaction, audience participation, number of questions/rhetorical questions, flow.

Additional details are available in Appendix G: Field Observation Metrics.

3.5. Potential Obstacles, Challenges and Limitations

The main concern about the methods is the language barrier. While some students at Soochow University may speak English, the proficiency may not be sufficient to provide accurate data. To compensate for the communication barrier, the team provides all written questions in both English and Mandarin. The project team will use two separate pieces of translation software. Interviewees will receive the interview questions in both languages beforehand to allow for adequate preparation time. Additionally, the team will collaborate with the school to secure a translator or have the assigned "buddy", a local student paired with each IQP team member, verify the Mandarin translation before publishing the survey or conducting an interview.

There is also a concern about a low response rate to the surveys. To encourage students to provide information, the team rewards participation with small incentives such as snacks. For interviews, the team will use a similar approach to lighten the atmosphere.

The remaining concern is the recording details. For interviews the team prefers audio recording. In a case where participant does not consent to audio recording, but still consents to conduct the interview, one team member will manually take interview notes. At the start of every survey there is a consent form. Participants may enter "No, I do not want to participate" for the first question in the survey in Appendix E: Survey Questions, which will

end the survey. The team will not note down the actions of students who chose not to participate in the field observation.

3.6. Ethics

The Wesley Girls High School students will shadow the team to learn about methods of researching. Their experience will be like the team's ID2050 experience taken prior to IQP. Since the high school students are not related to the research the team is conducting on T-school, the team will refrain from interacting with them in an interviewing context.

The team will collect data which revolves around students and professors' experience during the program as well as demographic questions to help with understanding T-school. Surveys first ask for consent from the participants, before continuing. There is a consent form Appendix B: Consent Form for Interviews for participants in the interview. For the Field Observation, the observers state their presence to the class and their purpose for observation. Students have an opportunity to not participate in the research, by not checking the consent box (Appendix F: Consent Form for Field Observations). The team will have easily identifiable tracers for students who do not consent signifying to the team they are not to be observed. While observing the group, the team will not record their specific actions.

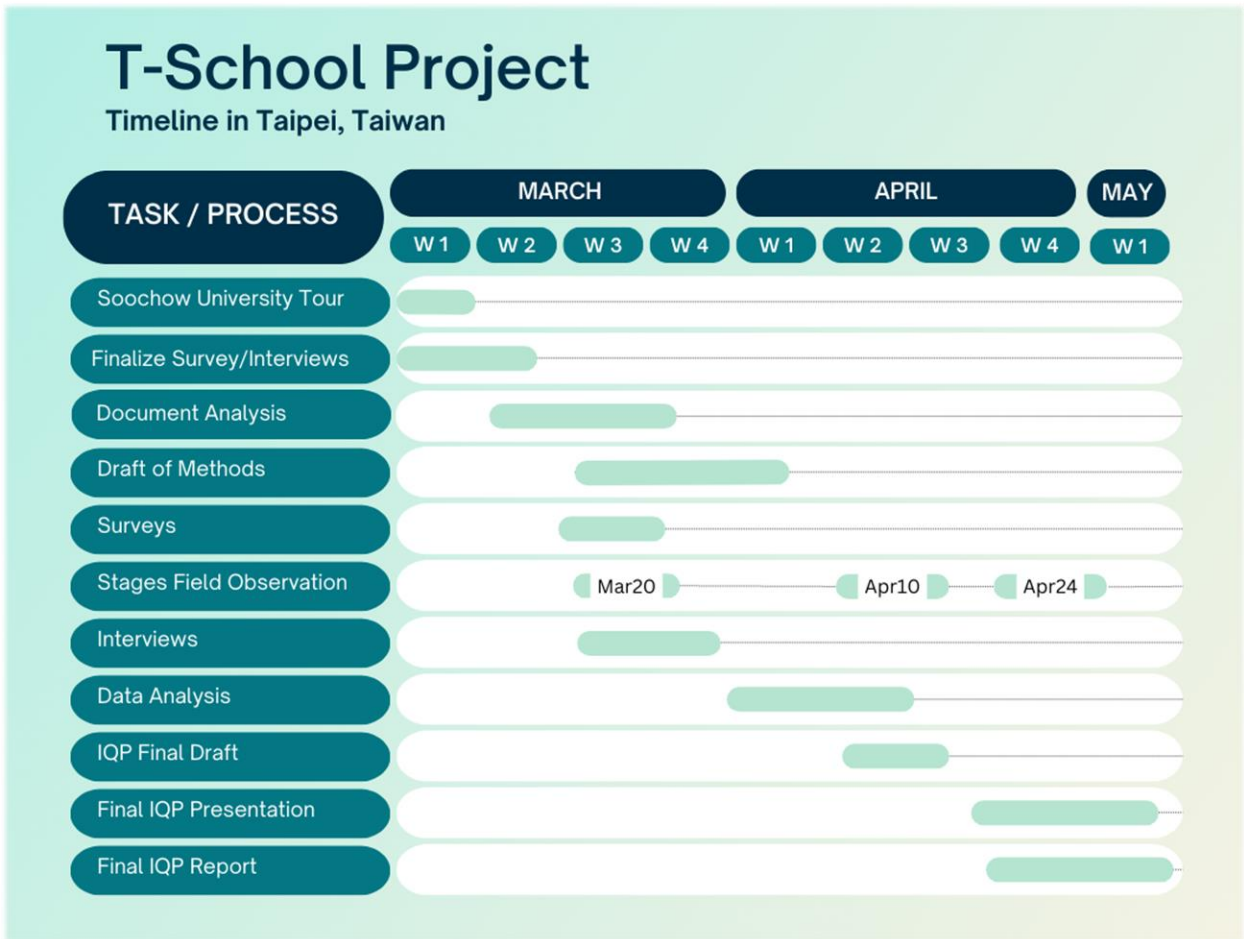
3.7. Project Deliverables

The team plans to create a list of recommendations for enhancing T-School. In line with the sponsor's request, this study puts together an implementation action plan for realizing the recommendations. With the sponsor's permission, the final report will include the two aforementioned documents. Currently, there exist three workshop types in T-School. Our sponsor wants this project to include future workshop concepts. Ideas that are on the table include: film, photography, or music.

3.8. Project Timeline

The preliminary schedule the team will follow during their stay in Taipei, Taiwan is illustrated in Figure 8. The project team lands in Taiwan on March 9th, 2024, and initiates data collection process followed by a data analysis process. The project ends May 2nd, 2024, with a submission of the final proposal and a presentation.

Figure 8: T-School Project Timeline



4. Conclusion

To encapsulate our research, the team studied the Taiwanese education system and their struggles as well as topics pertaining to T-School. Due to the low birth rate and past growth in the number of higher education institutes, universities are facing enrollment issues. Moreover, the education system in Taiwan struggles to cultivate creative and entrepreneurial mindset signifying a change in educational model. This emphasizes the importance of T-School, an interactive learning program to foster student creativity. Experiential learning is an interactive leaning model which fosters creativity and provides valuable skills. The team draws inspiration from similar programs found in the United States. Course design guides function as a secondary evaluation metric, serving as a strong foundation for understanding the ways humanities majors can gain skills from T-School and their relevance in the future. Through a combination of document analysis, surveys, interviews, and field observations, the team aims to gather information to evaluate the T-School program comprehensively. Subsequently, the team will formulate a set of recommendations, including implementation plans.

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6. Appendices

6.1. Appendix A: Evaluation Questions for Course Resources

The project team formulates three sets of questions/rubrics analyzing the three different types of resources provided by the sponsor: curriculum, podcasts, and AI art pieces.

6.1.1. Curriculum Review Rubric

With the Six Standards of Scholarly Teaching and Program Design in mind, the team will review course resources to address the following questions:

- CR.1. What are the student learning outcomes (SLOs)?
 - a. If SLOs are not explicitly stated, the team shall obtain them from the sponsor.
- CR.2. Are the student learning outcomes clearly defined?
 - a. Excellent: the curriculum clearly lays out the SLOs and defines them in easy-to-understand language.
 - b. Good: the curriculum includes the SLOs but does not go into detail about them.
 - c. Needs improvement: the curriculum does not include the SLOs.
- CR.3. Do the student learning outcomes align with the activities organized in the program?
 - a. Excellent: all SLOs are explicitly supported by the activities.
 - b. Good: some of the SLOs are supported by the activities, while others diverge towards outcomes not stated in the curriculum.
 - c. Needs improvement: the activities differ significantly from the SLOs.
- CR.4. To what extent does the student-generated work reflect the educational objectives?
 - a. Excellent: the student-generated work surpasses the educational objectives, showcasing a thorough understanding and explicit connection to them.
 - b. Good: the student-generated work is evidently aligned with the educational objectives but there is room for more explicit demonstrations.
 - c. Needs improvement: the student-generated work is limited in reflecting the educational objectives.
- CR.5. To what extent do the activities contribute to the overarching T-School vision?
 - a. Excellent: all activities contribute to and align with the T-School vision, showcasing a unified approach.
 - b. Good: some activities contribute to the T-School vision. There are opportunities to enhance the contribution of certain activities.
 - c. Needs improvement: very few activities contribute to the T-School vision.
- CR.6. How well do the activities foster an active learning environment?
 - a. Excellent: all activities require a hands-on group approach, promoting an engaging and participatory learning environment.
 - b. Good: most activities require a hands-on approach or are group-based. Some instances are missing one or both elements.
 - c. Needs improvement: all activities are either individual or only “sit and listen”, indicating a need to foster a more creative and participatory environment.

- CR.7. Does the current T-School syllabus effectively distribute time between sections?
- a. Excellent: the time allocated is sufficient for achieving desired SLOs, ensuring a well-paced coverage of the material.
 - b. Good: the time allocated ensures that all material is covered. Not all SLOs are achieved.
 - c. Needs improvement: significant differences in time allocation between sections exist, leading to incomplete explanations of certain topics.
 - i. If needs improvement, what components of the educational structure should the T-School consider adjusting?
 - d. In the absence of a syllabus, the team will recommend its creation to the sponsor.
- CR.8. How does the T-School curriculum introduce students to digital tools?
- a. Is the current method of introduction effective?
 - i. Excellent: the method is highly engaging, provides clear explanations for understanding, and students can seamlessly use the digital tool on their own after the program finishes.
 - ii. Good: the method engages most of the students, provides most explanations needed for understanding, and students can use the digital tool with minor help after the program finishes.
 - iii. Needs improvement: the method provides some explanation, and students are not engaged in the technology and do not / cannot use it after the program finished.
- CR.9. Is the student work presented in any way, so peer feedback can be received?
- a. Excellent: after each session students are encouraged to share their work with peers and receive feedback.
 - b. Good: at the end of the T-School program students are given an opportunity to share their work with peers and receive feedback.
 - c. Needs improvement: no such opportunity exists.
- CR.10. Is there an opportunity for instructor feedback?
- a. Excellent: after each session students receive individually tailored instructor feedback.
 - b. Good: after each session students receive generalized instructor feedback or only at the end of the T-School program receive individual feedback.
 - c. Needs improvement: no such opportunity exists.

6.1.2. Podcast Evaluation

The podcasts are in Mandarin, a language that the team is not proficient enough to evaluate effectively. Consequently, the student investigators will assess only the technological qualities, and will seek assistance from the buddy student, who is fluent in Mandarin, to evaluate the content.

Technological aspects:

- P.1. Is the audio quality clear and without disruptions?
 - If a video aspect is present, is the video quality clear and without disruptions?
- P.2. Are the volume levels consistent, ensuring a smooth listening experience?

Content elements:

- P.3. If T-School appoints constraints, does the podcast lie within them?
- P.4. How original and creative is the delivery of the podcast content?
- P.5. Is effective storytelling evident in the podcast?
- P.6. Is the communication engaging and clear?
- P.7. Does the podcast demonstrate effort to connect with listeners?
- P.8. If more than one episode is planned, does the podcast logically flow as a series?

6.1.3. AI-generated Art Piece

One student investigator has corresponding experience in text-to-image generative AI to facilitate this process, and two student investigators completed AI courses at WPI. The project team will evaluate the AI-generated art pieces the T-School students have created via the following questions and attempt to identify any missing essential elements.

Technological aspects:

- AI.1. Does the image aspect ratio align with the content appropriately?
- AI.2. Were AI-specific drawing keywords² utilized effectively?
- AI.3. Were AI-specific drawing directives³ utilized effectively?
- AI.4. Is there effective use of color, texture, and artistic technique in the artwork?
- AI.5. To what degree does the execution of AI-generated elements demonstrate precision⁴?

Content elements:

- AI.6. Does the student formulate new creative ideas?

² AI drawing keyword is a specific word to guide the generation. E.g.: color palette (pastel, blue-tinted, black and white), composition (portrait, closeup, landscape), art style (vintage photo, graffiti, impressionism, pencil sketch), time (1500s, 1990s), or emotional tone (happy, shy, angry).

³ AI drawing directive is a parameter followed by a numerical value. For example, these parameters influence how closely the prompt is followed, what aspect ratio to use or what version of the AI core (kernel) is used. E.g.: The degree of closeness in prompt matching is determined by the stylization parameter, ranging from 0 (closely match) to 1000 (full freedom), and selecting "--s 500" indicates a medium level of prompt connection in the generated outcomes. "--ar 2:3" sets the requested image aspect ratio. And using "--v 6" the user can specify the use of the newest algorithm – version six.

More information can be found at: <https://docs.midjourney.com/docs/parameter-list>

⁴ Precision means clear formulations in the text prompt. Prompt should be at most 60 words in length, heavily use descriptive adjectives, focus on objects included (cat) or objects not wanted in the image (no dog), descriptive action verbs, and exclude sentences. E.g.: "front faced vintage yearbook portrait showing an anthropomorphic cute little cat wearing minimal styled chef themed kitchen clothes, Wes Anderson cinematography, throwing pizza dough around in a cute tiny pizzeria kitchen solid muted pastel studio background, --ar 2:3, --v 6, --s 250"

- AI.7. How visually appealing and harmonious⁵ is the composition?
- AI.8. How well does it convey a meaningful concept or message?
- AI.9. To what extent does the artwork demonstrate attention to detail and skillful application of digital tools?

⁵ Harmonious composition is an artful arrangement of visual elements where colors, shapes, and proportions work together to achieve a balanced and unified aesthetic.

6.2. Appendix B: Consent Form for Interviews

Informed Consent Agreement for Interview Participation in a Research Study

Investigators: Spencer Dill, Eleanor Foley, Sakshi Gauro, Jakub Jandus

Contact Information: gr-tschoool-d24@wpi.edu

Title of Research Study: Cultivating Creative and Entrepreneurial Mindset in Digital Talent: An evaluation of T-School's Human-Centric Program

Sponsors: The Dean of Soochow Universities School of Liberal Arts and Social Sciences Dr. Chienkuo Mi and Soochow University Professor Yu-Cheng Liu.

Introduction

We are students from Worcester Polytechnic Institute (WPI) and we are conducting a study on the performance of the T-School program. This interview will help us gather your insights and experience from attending T-School. We will use the feedback to improve the program. Should you ever feel uneasy answering a question, feel free to please let us know and we can move forward without it.

Before you agree, we ask you to participate in a research study. Specifically, the Worcester Polytechnic Institute (WPI) Interactive Qualifying Project (IQP) which four WPI juniors are conducting. It is essential that you fully understand the purpose of the study, the procedures you need to follow, and any benefits, risks, or discomforts you may encounter because of your participation. This form presents information about the study so that you can make a fully informed decision regarding your participation.

Purpose of the study: Compile a set of recommendations to enhance the T-School program by analyzing documents, interviews, survey collection, and field observations.

Procedures to be followed: This interview will contain about 10 questions and last around 45 minutes. The interview will be audio recorded for a later transcription. After the project report is electronically submitted, the original audio file will be permanently deleted.

Risks to study participants: In the publication of this research paper, the names, majors, school year, and gender will be published unless the subject wishes to remain anonymous. In case of anonymity, the subject's name will be replaced by a pseudonym and all other identifiable data censored.

Benefits to research participants and others: There are no benefits to any party for participating in this research besides helping T-School improve.

Record keeping and confidentiality

The WPI Advisors will keep all signed consent form agreements and submit to the IRB at

the end of the study.

Compensation or treatment in the event of injury: This research does not involve more than minimal risk of injury or harm. You do not give up any of your legal rights by signing this statement.

For more information about this research or about the rights of research participants, or in case of research-related injury, contact:

Investigators: Spencer Dill Tel. +1 917 855-0114, Email: spdill@wpi.edu,

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IRB Manager: Ruth McKeogh, Tel. +1 508 831-6699, Email: irb@wpi.edu

Human Protection Administrator: Gabriel Johnson, Tel. +1 508 831-4989, Email: gjohnson@wpi.edu

Your participation in this research is voluntary. Your refusal to participate will not result in any penalty to you or any loss of benefits to which you may otherwise be entitled. You may decide to stop participating in the research at any time without penalty or loss of other benefits. The project investigators retain the right to cancel or postpone the experimental procedures at any time they see fit.

By signing below, you acknowledge that you have been informed about and consent to be a participant in the study described above. Make sure that your questions are answered to your satisfaction before signing. You are entitled to retain a copy of this consent agreement.

Study Participant Signature

Date: _____

Study Participant Name (Please print)

Signature of Person who explained this study

Date: _____

Consent for an audio recording to be taken.

Yes, I Consent

No, I Do Not Consent

6.3. Appendix C: Professor Interview

Before the start of the interview, the interviewees consent to the consent form in Appendix B: Consent Form for Interviews. Upon receiving the signed consent form, the team proceeds with the interview.

- C.1. What department are you in?
- C.2. What is your teaching expertise area?
- C.3. How long have you been teaching?
- C.4. How long have you taught at Soochow University?
- C.5. If you have to describe T-School to a person who has not heard about it, how would you describe it?
- C.6. Do you think the material provided helped in student skill development?
 - a. If you could design the course, what would you add or remove?
- C.7. What resources did you have prior to running the workshops?
 - a. How much did those resources help?
 - b. Are there any additional resources you think can help T-School run smoother?
- C.8. What parts of T-School do you enjoy the most?
 - a. What parts of T-School did you dislike?
 - i. What changes would you make?
 - b. What challenges as a teacher did you face when teaching/running this workshop?
- C.9. Compared to other classes you have taught, how was teaching T-School?
 - a. How smoothly did your workshop run? Were there improvements?
- C.10. How engaged were the students during the class?
 - a. Did they ask a lot of questions?
 - i. What kind of Questions did they ask? (Surface level or in depth)
 - b. How lost were the students?
- C.11. Were you satisfied with the quality of the work?
 - a. Can you think of a project that you particularly liked?
 - i. What did you like about it?
 - b. Can you think of a project that you particularly disliked?
 - i. What did you dislike? Any ways of improving?
- C.12. If you had a chance to make a project that fosters mutual understanding and collaboration between Humanities and Technology, what would it be?
- C.13. Is there anything else you would like to share with us?

6.4. Appendix D: T-School Students Interview

Before the start of the interview, the interviewees consent to the consent form in Appendix B: Consent Form for Interviews. Upon receiving the signed consent form, the team proceeds with the interview.

- D.1. What is your major and school year?
- D.2. How did you learn about the program?
- D.3. What skills did you have prior to taking the program?
 - a. How confident were you in them?
- D.4. What motivated you to take this course?
 - a. What did you wish to take out of T-school?
- D.5. What was your project in T-School?
 - a. Did you enjoy it?
- D.6. Are there any skills you learned from the program?
 - a. If yes, what are they? How did you learn it?
 - b. What parts of the program did you dislike?
 - i. Why did you dislike it?
- D.7. How long have you worked on T-School project outside of class?
 - a. How difficult was the course? Did it take more time than you had thought?
- D.8. Were there any challenges that you faced? Were you able to overcome them?
 - a. How did you overcome them if you did?
 - b. What part of T-School do you like to see more?
- D.9. Would you recommend this program to a friend?
- D.10. If you could explain T-School to someone who has not heard about the program, how would you describe it?
- D.11. Why did you choose to not continue this program?
 - a. What is some advice you would give to faculty running this program?
- D.12. Looking back, do you think you would have enjoyed the program more if things were different?
 - a. If yes, what are those changes?
- D.13. Is there anything else you would like to share with us?

6.5. Appendix E: Survey Questions

This appendix contains all the survey questions in block order. The block flow is decided by the pair of logical questions (Q1.3 and Q1.4) and is visually represented in Figure 7. Participants can access it at: https://wpi.qualtrics.com/jfe/form/SV_02mVUo8u470Aip0, and a one-to-one copy of the survey is provided below.

Survey to T-School Students

Start of Block: Introduction

Q1.1

We are students from Worcester Polytechnic Institute and we are conducting a study on performance of the T-School program. This survey will help us gather your insights and experience from attending T-School. The feedback received will be used to improve the program. Your response is anonymous and will remain confidential. Should you ever feel uneasy answering a question, feel free to skip it at your discretion.

The survey language can be switched in the top-right corner of this page.

Thank you for your time!

Q1.2 By continuing and submitting this survey you consent to participating in this research study.

- Yes, I consent to participate (8)
- No, I do not want to participate (9)

Skip To: End of Survey If Q1.2 = No, I do not want to participate

Page Break

Q1.3 Are you a student or a professor?

- Student (6)
- Professor (7)

Page Break

Q1.4 What is your role in T-School?

- Currently attending (1)
- Attended before (2)
- Never heard of T-School (3)

End of Block: Introduction

Start of Block: Shared Student Q

Q2.1 We would appreciate learning a few things about you.

Q2.2 What gender do you identify with?

- Male (24)
- Female (25)
- Prefer not to say (26)
- Other (27) _____
-

Q2.3 What is your major?



Q2.4 When do you expect to graduate?

End of Block: Shared Student Q

Start of Block: Current Students

Q3.1 Why did you decide to sign up for T-School?

Q3.2 Thinking back, how would you rate your presentation skills before participation in T-school?

- Much better (39)
 - Somewhat better (40)
 - About the same (41)
 - Somewhat worse (42)
 - Much worse (43)
 - Not applicable (44)
-

Q3.3 How interesting did you find the material that was taught?

- Extremely interesting (70)
- Very interesting (71)
- Moderately interesting (72)
- Slightly interesting (73)
- Not interesting at all (74)

Q3.4 Name two or more things you enjoyed about T-School?

Q3.5 List two or more things you disliked about T-School?

Page Break

Q3.6 Now that you've gone through the program, how would you rate your presentation skills?

- Much better (39)
 - Somewhat better (40)
 - About the same (41)
 - Somewhat worse (42)
 - Much worse (43)
 - Not applicable (44)
-

Q3.7 How engaging do you find the T-School topics?

| | Not engaging at all (6) | Slightly engaging (7) | Moderately engaging (8) | Very engaging (9) | Extremely engaging (10) | Not applicable (11) |
|-------------------------------|-------------------------------|-----------------------------|-------------------------------|-------------------------|-------------------------------|---------------------------|
| Workshops (24) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AI art project (25) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Podcast (26) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Stage presentation (30) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3.8 What parts of T-School aided your learning the most?

Q3.9 What parts of the program were obstacles to your learning?

Page Break

3.10 How much do you agree with the following statements?

| | Strongly disagree (80) | Somewhat disagree (81) | Neither agree nor disagree (82) | Somewhat agree (83) | Strongly agree (84) |
|---|------------------------|------------------------|---------------------------------|-----------------------|-----------------------|
| The program was organized in a manner that helped me understand underlying concepts. (18) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The program environment felt like a welcoming place to express my ideas. (19) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I have put a great deal of effort into advancing my learning in T-School. (20) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would highly recommend T-School to other students. (21) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This program gave me confidence to do more advanced work in the subject. (22) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The program presented a challenge. (23) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| T-School gave me the opportunity to create original creative work. (24) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The technology used was adequate. (25) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3.11 Are there any specific recommendations you believe could make T-School run smoother?

Q3.12 What will you do differently now that you've completed T-School?

End of Block: Current Students

Start of Block: Past Students

Q4.1 Why did you decide to sign up for T-School?

Q4.2 How interesting did you find the material that was taught?

- Extremely interesting (70)
- Very interesting (71)
- Moderately interesting (72)
- Slightly interesting (73)
- Not interesting at all (74)

Q4.3 Name two or more things you enjoyed about T-School?

Q4.4 List two or more things you disliked about T-School?

Page Break

Q4.5 What parts of T-School aided your learning the most?

Q4.6 How engaging do you find the T-School topics?

| | Not engaging at all (6) | Slightly engaging (7) | Moderately engaging (8) | Very engaging (9) | Extremely engaging (10) | Not applicable (11) |
|-------------------------------|-------------------------------|-----------------------------|-------------------------------|-------------------------|-------------------------------|---------------------------|
| Workshops (24) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| AI art project (25) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Podcast (26) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Stage presentation (30) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q4.7 What parts of the program were obstacles to your learning?

Page Break

Q4.8 How much do you agree with the following statements?

| | Strongly disagree (80) | Somewhat disagree (81) | Neither agree nor disagree (82) | Somewhat agree (83) | Strongly agree (84) |
|---|------------------------|------------------------|---------------------------------|-----------------------|-----------------------|
| The program was organized in a manner that helped me understand underlying concepts. (18) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The program environment felt like a welcoming place to express my ideas. (19) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I have put a great deal of effort into advancing my learning in this T-School. (20) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would highly recommend T-School to other students. (21) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This program gave me confidence to do more advanced work in the subject. (22) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The program presented a challenge. (23) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| T-School gave me the opportunity to create original creative work. (24) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The technology used was adequate. (25) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q4.9 Are there any specific recommendations you believe could make T-School run smoother?

Q4.10 What prompted you to stop attending T-School?

End of Block: Past Students

Start of Block: Random-picked Students

Q5.1 Oh, are you not familiar with this program?

Please read this brief description below and share your thoughts:

T-School is an attempt to diverge from the traditional higher educational model. It is organized by the School of Liberal Arts and Social Science here at Soochow University. To lay groundwork in the current digital technology age, T-School students partake in creating a podcast and an AI-generated work of art. However, the emphasis is not on the technology itself but on actively cultivating the students' innovative talent. Students collaborate with others of different majors, work with a team tutor, and have the chance to win prizes.

Q5.2 How engaging do you find the T-School topics?

- Not engaging at all (24)
 - Slightly engaging (25)
 - Moderately engaging (26)
 - Very engaging (27)
 - Extremely engaging (28)
-

Q5.3 Given the brief description, how likely would you be to attend T-School?

- Extremely likely (14)
- Somewhat likely (15)
- Neither likely nor unlikely (16)
- Somewhat unlikely (17)
- Extremely unlikely (18)

End of Block: Random-picked Students

Start of Block: Professors

Q6.1 What gender do you identify with?

- Male (9)
 - Female (10)
 - Prefer not to say (12)
 - Other (13) _____
-

Q6.2 What is your area of expertise?



Q6.3 How many years have you been teaching?

Page Break

Q6.4 Name two or more things you enjoyed about T-School?

Q6.5 List two or more things you disliked about T-School?

Q6.6 How effective was the material at supporting the student skill development?

- Extremely effective (16)
 - Very effective (17)
 - Moderately effective (18)
 - Slightly effective (19)
 - Not effective at all (20)
-

Q6.7 How close to ideal was the technology used?

- Extremely close to the ideal (26)
 - Very close to the ideal (27)
 - Moderately close to the ideal (28)
 - Slightly close to the ideal (29)
 - Not close to the ideal (30)
-

Q6.8 How would you describe the experience of teaching T-School compared to your other courses?

- Extremely easy (56)
 - Somewhat easy (57)
 - Neither easy nor difficult (58)
 - Somewhat difficult (59)
 - Extremely difficult (60)
-

Q6.9 Are there any specific recommendations you believe could make T-School run smoother?

End of Block: Professors

Start of Block: Extra

Q7.1 As we near the conclusion, is there any additional information not addressed in this survey that you would like to share with us?

Q7.2 You may use the box below to write your ideas

End of Block: Extra

End of Survey

We thank you for your time spent taking this survey.
Your response has been recorded.

If you chose not to participate, your response has been discarded.

6.6. Appendix F: Consent Form for Field Observations

Informed Consent Agreement for Participation in Field Observation for a Research Study

Investigators: Spencer Dill, Eleanor Foley, Sakshi Gauro, Jakub Jandus

Contact Information: gr-tschoo-d24@wpi.edu

Title of Research Study: Cultivating Creative and Entrepreneurial Mindset in Digital Talent: An evaluation of T-School's Human-Centric Program

Sponsors: The Dean of Soochow Universities School of Liberal Arts and Social Sciences Dr. Chienkuo Mi and Soochow University Professor Yu-Cheng Liu.

Introduction

You are being asked to participate in a research study. Specifically, a Worcester Polytechnic Institute (WPI) Interactive Qualifying Project (IQP). Four WPI juniors are working on this project. Before you agree, however, you must be fully informed about the purpose of the study, the procedures to be followed, and any benefits, risks, or discomfort that you may experience because of your participation. This form presents information about the study so that you may make a fully informed decision regarding your participation.

Purpose of the study: Compile a set of recommendations to enhance the T-School program by analyzing documents, interviews, survey collection, and field observations.

Procedures to be followed: This field observation will last for the duration of the Stage event (one and a half hours).

Risks to study participants: In the publication of this research paper, the names, majors, school year, and gender will be published unless the subject wishes to remain anonymous. In case of anonymity, the subject's name will be replaced by a pseudonym and all other identifiable data censored.

Benefits to research participants and others: There are no benefits to any party for participating in this research besides helping T-School improve.

Record keeping and confidentiality

The WPI Advisors will keep all signed consent form agreements to the IRB at the end of the study.

Compensation or treatment in the event of injury: This research does not involve more than minimal risk of injury or harm. You do not give up any of your legal rights by signing this statement.

For more information about this research or about the rights of research participants, or in case of research-related injury, contact:

Investigators: Spencer Dill Tel. +1 917 855-0114, Email: spdill@wpi.edu,

Eleanor Foley Tel. +1 781-292-0522, Email: epfoley2@wpi.edu,

Sakshi Gauro Tel. +1 781 330-5470, Email: sgauro@wpi.edu,

Jakub Jandus Tel. +1 508 723-5845, Email: jjandus@wpi.edu

6.7. Appendix G: Field Observation Metrics

Verbal Field Observation of Stage Event

Observer:

Date:

Location:

| | |
|-------------------------------|--|
| Language used in presentation | |
| Judge's reasoning for scoring | |
| Presenters Tone | |
| Presenters Preparedness | |
| Complexity of questions asked | |

| | |
|--|---|
| Descriptive Notes (objective descriptions) | Reflexive Notes (involve reflecting on personal thoughts... etc.) |
| | |

Nonverbal Field Observation of Stage Event

Observer:

Date:

Location:

| | |
|--|--|
| Presenters attempts at eye contact | |
| Body language of presenters (postures, gestures) | |
| Body language of audience (postures, gestures) | |
| Presenters displaying anxious body language | |

| | |
|--|---|
| Descriptive Notes (objective descriptions) | Reflexive Notes (involve reflecting on personal thoughts... etc.) |
| | |

Technical Field Observation of Stage Event

Observer:

Date:

Location:

| | |
|--------------------------------|--|
| Quality of slideshows | |
| Level of technicality observed | |
| | |

| | |
|--|---|
| Descriptive Notes (objective descriptions) | Reflexive Notes (involve reflecting on personal thoughts... etc.) |
| | |

Engagement Field Observation of Stage Event

Observer:

Date:

Location:

| | |
|---|--|
| Total Attendance | |
| Number of questions asked for each presentation, rhetorical questions asked | |
| Fraction of audience that seem engaged, audience interaction | |

| | |
|--|---|
| Descriptive Notes (objective descriptions) | Reflexive Notes (involve reflecting on personal thoughts... etc.) |
| | |