Pilot Study for the SATI Foundation to Track Northern Thai Youth on Substance Abuse, Mental and Physical Health, and Runaway Situations

An Interactive Qualifying Project
Submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
and
An Interactive Social Science Project
Submitted to the Faculty of
CHULALONGKORN UNIVERSITY
in partial fulfillment of the requirements for the
degree of Bachelor of Science

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Sponsor Agency:
SATI Foundation

Abstract

In Thailand, around 52 children were reported of being sexually, psychologically, or physically abused, or exploited each day. The SATI Foundation has asked us to find a way to predict the vulnerability level of youth from demographic data. For this, we conducted a pilot study to collect data and data management processes through which geographic regions or districts can be identified where the help of the SATI Foundation is most needed. Concerned areas are substance abuse, mental and physical abuse, and runaway situations in youth ages 9 to 15 at the SATI Foundation's partner schools in Northern Thailand. in Northern Thailand. Students were surveyed to probe their resilience, attitude, and knowledge of the four specified risk behaviors and their consequences and the collected responses to identify students with low resilience scores based on our scoring sheet system.

Executive Summary

The future of Thailand lies in the hands of the youth who live there. With a varied set of health risk behaviors affecting Thai youth, there is ample room for analysis and providing help. A health risk behavior is a repeated action which can negatively affect the physical or mental health of an individual. The health risk behaviors in focus for this project were substance abuse, mental and physical abuse, and runaway situations. Our project goal was to conduct a pilot study for data collection and measure students' resilience scores from 12 of the SATI Foundation's partner school network in Northern Thailand. Our definition of resilience is the ability to cope with any difficulties in students' lives. To achieve our goal, the project focuses on three main objectives:

1. Identify the causes of health risk behaviors focusing on substance abuse, mental and physical abuse, health issues, and runaway situations.
2. Design the survey to gauge youth resilience on specified health risk behaviors in Northern Thai youth.
3. Design a data analysis program for the survey results.

This project started with gathering information on the four specified health risk behaviors. Interviews with foundations including the Childline Thailand Foundation (Hub Saidek), the Winner House (Rehabilitation Centers for Drug Addicts Health Department), thinkSMALL foundation, Baan Kru Nam foundation and Baan Nokkamin foundation were instrumental in providing background information on the issues students and communities may be facing. From the interviews, we found that youth health risk behaviors may result from the effects of personal factors, family, friends and community.

With this background information, we moved forward with creating a survey to assess teachers and students' attitudes and resilience towards the focus on health risk behaviors. The survey consists of 2 main sections, the general information part which gathers demographic data of respondents and the resilience questions. Child behavior psychologists and the sponsor helped make the survey suitable for children in the age range of 9 to 15. We created a survey with parameters that were easy to implement and change as time passed as we made new developments. Also, we developed a program to interpret the survey responses, spot student demographics with low resilience scores, and guide the SATI foundation to those schools where their help is most needed.

We split the survey into three phases. After Phase 1, changes were made to the survey to be distributed for Phase 2. After completing Phase 1, surveyed students found the survey to be too long and boring. We removed three questions between Phases 1 and 2. Since many questions were kept throughout the three survey distributions, we can compare them throughout the survey. Some questions were frequently the most contentious, indicating many students answering positively or negatively with fewer neutral responses. Two examples of such questions were "I think it is okay for people to hit me" and "I am scared to become overweight". Since these questions were frequently among the most varied in response scores, the SATI Foundation should consider including more survey questions related to these themes to discover where they can improve youth resilience.

In order to compare student responses, we assigned answers a score value based on the response, positive health behaviors would receive a score of 1, a negative health behavior answer would receive a -1, and a neutral response would be 0. The scores were summed for all

question responses. For student resilience scores, we observed a variety of average response scores by school. The difference between the maximum and minimum average scores observed in Phases 2 and 3 exceeded that of the standard deviations observed for each school indicated that there may be a difference between student resilience in those schools that warrant further exploration. From the survey results, there are students in Baan Koon Sa Nai, Baan Doi Pee Lu, Doi Viang Wittaya, Baan Hua Euan and Baan Nong Pam school with relatively low resilience scores, indicating that they could become at-risk of health behaviors.

We have given the SATI Foundation recommendations based on our survey, our data analysis program, and future data use. The SATI Foundation can tailor workshops based on resilience scores. Our survey and our data analysis program are a first step in helping the SATI Foundation identify and help children in need to make a difference in their lives.

บทสรุปผู้บริหาร (Executive Summary)

พฤติกรรมเสี่ยงในเด็กและเยาวชน หมายถึงพฤติกรรมหรือการกระทำที่ก่อให้เกิดความเสี่ยงทั้งทางร่างกายและจิตใจอันก่อให้เกิดปัญหาอื่น ๆ ตามมา เช่น การใช้สารเสพติด การถูก ทำร้ายทางร่างกายและจิตใจ การขาดที่อยู่อาศัยและครอบครัว และปัญหาสุขภาพอื่น ๆ ปัจจัยที่ก่อให้เกิดพฤติกรรมเหล่านี้อาจเกิดขึ้นในสังคมและสภาพแวดล้อมทั้งที่บ้านและโรงเรียน อิทธิพลจากเพื่อนและบุคคลที่เด็กชื่นชอบ การอบรมเลี้ยงดูของครอบครัว และปัจจัยส่วนบุคคล อื่นๆ เช่น เพศ ความสนใจ ระดับพัฒนาการและสติปัญญา เป็นต้น

มูลนิธิสติเป็นองค์กรที่ให้ความช่วยเหลือเยาวชนในกลุ่มเสี่ยงและเยาวชนขาดโอกาสในพื้นที่ห่างไกลความเจริญโดยเน้นการส่งเสริมด้านสุขภาพและการศึกษาของเยาวชน มูลนิธิสติเน้นนโยบายเชิงป้องกันก่อนการเกิดปัญหา เช่น จัดกิจกรรมอบรมให้ความรู้และพัฒนาสิ่งแวดล้อมและสาธารณูปโภคเพื่อจรรโลงสุขภาวะอันดีในเยาวชนและครอบครัวอย่างยั่งยืน เพื่อเพิ่มผลสัมฤทธิ์ของการดำเนินงานเชิงป้องกันของมูลนิธิ มูลนิธิสติจึงต้องการศึกษาความสัมพันธ์ระหว่างทัศนคติและพฤติกรรมของเยาวชนกับระดับความเสี่ยงเรื่องการใช้สารเสพติด ปัญหาชีวิตจากสถาบันพื้นฐานรอบตัว การขาดที่อยู่อาศัยและแนวโน้มสู่การเป็นเด็กเร่ร่อน และปัญหาด้านสุขภาพในนักเรียนชั้นประถมศึกษาและมัธยมศึกษาตอนต้น จำนวน 12 แห่งในจังหวัดเชียงรายและแม่ฮ่องสอน

การดำเนินงานในเบื้องต้นเริ่มจากการสัมภาษณ์บุคคลากรของมูลนิธิที่ทำงานกับเด็กด้อยโอกาส เช่น มูลนิธิคิดเพื่อเด็ก บ้านพิชิตใจ มูลนิธิบ้านครูน้ำ ศูนย์เดอะฮับสายเด็ก และ มูลนิธิบ้านนกขมิ้น เพื่อเรียนรู้ถึงทัศนคติของเด็กที่มีพฤติกรรมเสี่ยงและปัจจัยที่ก่อให้เกิดพฤติกรรมเสี่ยงเหล่านี้ ผู้วิจัยได้ออกแบบคำถามเพื่อประเมินระดับภูมิคุ้มกันต่อความเสี่ยงในเยาวชนจากข้อมูลที่ได้ แบบสำรวจได้ผ่านการตรวจสอบเพื่อประเมินความเหมาะสมในเด็กวัยประถมศึกษาและมัธยมศึกษาตอนต้นโดยนักจิตวิทยาเด็ก ในเบื้องต้นนี้ผู้วิจัยทดสอบแบบสัมภาษณ์และเก็บข้อมูลแบบออนไลน์ผ่าน Google Form เพื่อให้การประมวลและวิเคราะห์ข้อมูลแบบออนไลน์เป็นไปโดยสะดวกและรวดเร็ว ผู้วิจัยได้ออกแบบและพัฒนาโปรแกรมเพื่อใช้ประมวลและวิเคราะห์ข้อมูลโดยการกำหนดคะแนนของคำตอบที่เลือกเพื่อประเมินระดับภูมิคุ้มกันของเยาวชนในสถานการ์ณต่างๆ ค่าเฉลี่ยของคะแนนรวมทั้งหมดของกลุ่มจะถูกนำมาใช้ในการระบุระดับภูมิคุ้มกันของความเสี่ยงในเยาวชนแต่ละกลุ่ม

ผลการสำรวจแบบออนไลน์เบื้องต้นพบว่านักเรียนส่วนใหญ่คิดว่าแบบประเมินยาวเกินไปและรู้สึกเบื่อผู้วิจัยจึงได้ปรับและลดจำนวนคำถามลง แบบทดสอบชุดใหม่นี้ได้นำไปทดลองใช้กับเยาวชนอีก 2 กลุ่ม ผู้วิจัยพบว่าสามารถใช้ค่าเฉลี่ย (Mean) และค่าเบี่ยงเบนมาตรฐาน (Standard deviation) ของคำถามแต่ละข้อในการเปรียบเทียบระดับความเสี่ยงของกลุ่มได้ ดังเช่นเมื่อถามนักเรียนว่า ฉันคิดว่าการถูกตีเป็นเรื่องปกติ และ ฉันกลัวอ้วน ผลการวิเคราะห์ชี้ให้เห็นว่า นักเรียนส่วนใหญ่มีทัศนคติที่ไม่ถูกต้องในสถานการณ์เหล่านี้ อันจะก่อให้เกิดความเสี่ยงอื่นๆในชีวิต ผลการวิเคราะห์ประเด็นต่างๆ สามารถใช้ระบุความเสี่ยงที่โรงเรียนซึ่งมูลนิธิ สติควรร่วมมือกับโรงเรียนในการประเมินสถานการณ์และวางแนวทางแก้ไขก่อนจะกลายเป็นปัญหาใหญ่ในอนาคต

ผลการวิเคราะห์พบว่านักเรียนของโรงเรียนบ้านขุนสาใน โรงเรียนบ้านดอยผีลู่ โรงเรียนดอยเวียงวิทยา โรงเรียนบ้านห้วยอื้น และโรงเรียนบ้านหนองผำ มีระดับภูมิคุ้มกัน ความเสี่ยงในระดับต่ำ ซึ่งแสดงให้เห็นว่าเด็กและเยาวชนในพื้นที่โรงเรียนดังกล่าวมีความเสี่ยงต่อความรุนแรง การใช้สารเสพติด การหนีออกจากบ้าน และปัญหาสุขภาพ หากไม่ได้รับการ อบรมดูแลอย่างถูกต้อง ผู้วิจัยขอเสนอให้มูลนิธิสติจัดกิจกรรมส่งเสริมความรู้และทักษะให้ นักเรียนของโรงเรียนเหล่านี้โดยเร็ว เพื่อที่เด็กๆ จะได้รู้ทันไม่ตกเป็นเหยื่อหรือเครื่องมือ สามารถรับมือกับปัญหาต่างๆได้อย่างถูกต้อง และสามารถดำรงชีวิตอยู่รอดขั้นพื้นฐานได้

Acknowledgments

We would like to thank our sponsor, the SATI Foundation, for providing us the opportunity to advise and assist them in addressing risk factors facing Thai youth. Our advisors Professor Svetlana Nikitina, Professor Brigitte Servatius, Assistant Professor M.L. Siripastr Jayanta, Assistant Professor Dr. Numpon Insin, and Professor Dr. Supawan Tantayanon were crucial in creating, designing, and implementing the project. They played a key role in facilitating collaboration and contact with our sponsor despite the large changes due to COVID-19. With their continual support and constant feedback we were able to create an amazing project. We would like to thank Professor Alex Sphar for his assistance in creating the project report. We would like to thank child behavior psychologists, Dr. Jirapattara Raveepatarakul and Dr. Arpapond Ussanarassamee, for their suggestions on improving our survey for children. We would like to thank the staff in the Hub Saidek, the Winner House, the thinkSMALL Foundation, Baan Nokkamin Foundation, and Baan Kru Nam Foundation for sharing their experience and knowledge with us. We would like to thank the directors, teachers, and students from the 12 participating schools: Thammajarik Uppatham 1 school, Mae Ab Wittayakom School, Baan Huay Eoun School, Doi Viang Wittaya School, Baan Jong School, Baan Doi Pee Lu School, Baan Koon Sa Nai School, Baan Huay San School, Baan Nong Pam School, Baan Pang Kam Noi School, and Baan Pang Kia School for participating in our survey. In addition, we would like to thank the WPI ATC, specifically Jim Monaco and Mike Hamilton, for their aid in the final presentation content and visuals. Finally, we would like to thank the WPI Research and Instruction Team for feedback on the final presentation.

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Chapter 1: Introduction

Freshness, vigor, spirit, and hope ideally depict the youth; however, some circumstances have put them at risk. The term "youth at risk" is the general term used for describing the range of cases that put youth into vulnerable state and developmental problems while considering the risk factor, risky behavior, and dangerous environment (LeCroy, 2018). From the ASPE report, youth from low-income families are more likely to have sex before age 16, become a member of a gang, attack someone or get into a fight, steal something worth more than 50 dollars, and also run away than are youth from middle- or high-income families (Kent, 2017). There are 1.8 billion young people in the world which should mean a potential for economic growth, yet some of that potential is put to waste as many of them are trapped in poverty without proper education, and 74 million young people cannot find work (United Nations, 2018). The lack of protection policy and standard measurement worsens the problem and leaves the at risk youth to become problems and could prevent them from transitioning into healthy adults.

From a socio-economic survey, approximately 44.0 and 51.8 percent of rural households in Thailand were vulnerable to poverty in 2002 and 2004, respectively. (Chandoevwit, 2007). With the income gap in Thailand, poverty is one of the most critical factors leading to risk and vulnerability. The problems that frequently develop from the risk states are failure in school, early premarital sexual activity, unsafe sex leading to HIV, violence, drug abuse, and juvenile delinquency. To solve the problem efficiently is to solve the root of the problem and reduce the inequality gap, which is easier said than done. Many organizations, including SATI, are sending help and giving opportunities to those at risk and preventing new groups from being at risk. Although there is progress and accomplishment, an extensive database and proper risk measurement and analysis are needed to pass on the help to the hot zone. It is currently difficult to predict the risk and identify the hot zones to distribute support and improvement. Risk analysis would be the key to helping youth notify and call out for help before it is too late.

Through meeting with SATI foundation, the sponsor has some problems with collecting data and interpreting data using the Microsoft Excel program. Since it is not efficient enough, the team has to design alternative methods to make the information gathering process and the interpretation easier and useful. The sponsor wants methods that could alert them to the risk group youth focusing on substance abuse, mental and physical health, and runaway situations. Therefore, key issues the SATI foundation faces are the absence of planned data collection and output interpretation that is timely and can accurately prevent risks.

There are large databases online available via many government sectors with varied accessibility. Most are civil registration data, with no application link to the database. Most of the websites are hard to understand and the data sets are complicated and extensive. One parameter that is often used to measure risk behavior in youth is resilience. Resilience is the ability to cope with any difficulties in life which is necessary for self-immune toward any problematic circumstances one might face. Many preventive measures studies on substance abuse, mental and physical health, and runaway situations focus on the children in upper secondary school aged around 15-19 years old. Within that age range, many children with high susceptibility of being at risk may have been involved in the abovementioned problems already. These are supported by a few studies focusing on younger students at the age of exploring, meaning that proper education and care are especially needed at this time. For this reason, the

team wanted to focus on understanding the root of these problems, designing the data gathering method that is suitable with younger students in grade 3 and above, and designing a meaningful interpretation method that is useful and practical to the users, SATI foundation.

The goal of this project was to conduct a pilot study for data collection and analysis probe to measure students' resilience score, from 12 of SATI's partner schools in Northern Thailand. Our definition of resilience is the ability to mentally cope with any toughness or difficulties in the children's lives. A program to interpret the survey responses was developed to spot resilience scores from demographic surveys to identify schools where help is most needed. The team began by identifying the causes of the four specified risk behaviors. The data were collected through interviews with various at-risk youth foundations. The team designed a survey and a data collection method based on these inputs from experts. The survey was designed to target children aged 9 to 15. Finally, the team administered the survey to students and teachers at 12 schools in northern Thailand. Data analysis was validated to identify vulnerable behaviors from the survey responses. The team offered two deliverables to the Sati Foundation, a survey and a program for data collection and analysis. Our survey and data analysis program can be further tested and adjusted by the SATI Foundation to identify and help children in need to make a difference in their lives.

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Chapter 2: Background

This chapter will begin with providing background on Thailand, such as its culture, healthcare and education systems. An understanding of Thailand will provide context for the four health risk factors the sponsor, the SATI Foundation, is focusing on- substance abuse, physical and mental health, and runaway situations. Next, these health risk factors will be discussed in detail to gain better comprehension of how to address these behaviors by creating a survey to identify students and schools that need attention from the SATI Foundation. All these topics are important as they assist the team in designing a survey to provide to SATI so that they may provide resources and education to the areas with alarming survey responses.

2.1) Background on Thailand

Thailand is a country located in Southeast Asia, and its capital is Bangkok which is located in the Central region. Thailand has 77 provinces which can be divided into six regional groups- Central, Eastern, Northern, Northeast or Isan, Southern and Western Thailand (Hafner et al, 2021). Thai is the national and official language. It contains different local dialects based on the regions (Hafner et al, 2021). In 2019 Thailand had a population of 69.63 million with an increasing poverty rate of 9.8% and more than 6.7 million people living within poverty. In addition to this Thailand has one of the lowest GDP growth rates in the region (NationsOnline, n.d).

2.1.1) Thai Culture and Community

Thai Culture

In Thai society, the concept of aging provides order. Age is an important sign that demonstrates one's status in the community and extends to every aspect of daily life (Hays, 2014). Forms of address are dependent on both age and social rank. Social interactions in a Thai community are often hierarchical and defined by a debt of gratitude between young people and elders (Hays, 2014). Generally, the oldest or socially highest-ranking person receives the most respect. This culture is commonly reflected among family, friends, and at work. For instance, members of the family are often required to abide by the advice and requests of their elders (Scroope, 2016).

Family is considered to be the foundation of social life for most Thai people. The Thai concept of family is often wide and inclusive. This is occasionally shown in family gatherings when extended families, cousins, and grandparents all meet up on holidays. It is normal for Thai people to live in their parents' house even after they marry and have children of their own. This culture contributes to the large family volume. Several generations may live under the same roof and many relatives will help raise a child (Scroope, 2016). There is also a strong emphasis on familial connections in Thailand, especially in rural communities. Children's career paths are often determined by a parent's business connections. Most children take up their family-owned business as a career when they are older (Scroope, 2016).

Thai Community

There are two main types of Thai communities classified based on area and socioeconomic status: rural community and urban community. In 2019, 50.69% of the Thai population lived in urban areas (Plecher, 2020). The population in the urban area is expected to increase with the current trend of urbanization as present in **Figure 1** (PopulationStat, 2020).

Before the beginning of the 21st century, Thai populations were more concentrated in rural areas, especially agricultural areas of the country's central, northern, and northeastern regions (Plecher, 2020). The most common occupations for this group are farmers, foresters, and fishermen. The Thai National Statistics Office has reported that in 2010 the average income of people in rural areas who are fishermen, foresters, hunters, and farmers is 26,607 THB per year, or estimated around 878.25 USD per year depending on the conversion rate (Chokaew, 2012). From the Problem of Poverty in Thailand Report in 2015, many people in rural areas have limited resources as their localities are far from the city making it almost impossible to have jobs other than agriculture (Saranchit, 2015). Agricultural products depend heavily on natural factors, such as amounts of rain, which could lead to drought or floods. As a result, their income stream is unstable. In the event of a crisis, these people need to take loans to offset agricultural losses. This is a cycle of debt which makes it difficult for people to move up their economic status (Saranchit, 2015).

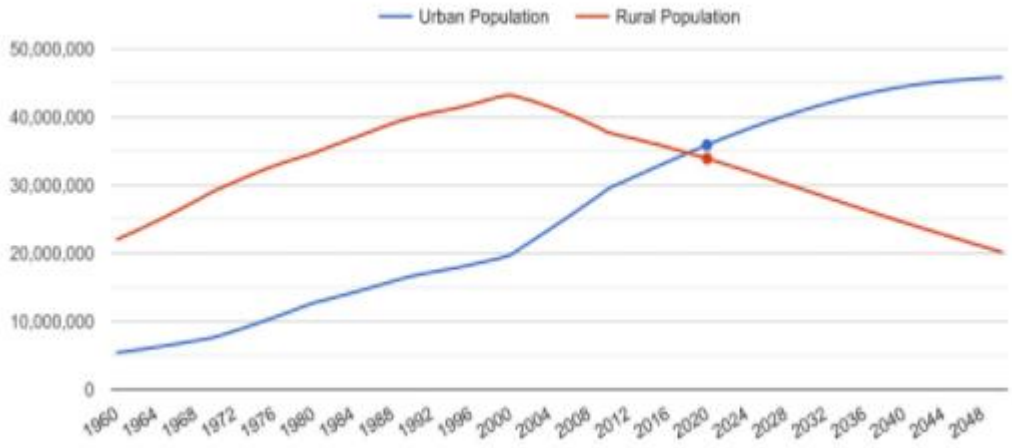

Figure 1: *Comparison and Prediction of Urban and Rural Population in Thailand from 1960-2050 (PopulationStat, 2020).*

Urban life is hectic and fast-paced, influenced by technology, globalization, and fast communication. The urban community has a dense population with packed houses, for example, the Suanluang 1 Community has around 600 houses in 15 Rai or 24,000 square meters (Pitchayapaiboon, 2013). The most common occupation for people in this area is trading, temporary work, and employment in factories. Their average income is considered low with pay around the minimum wages, 331 THB per day or estimated around 10.90 USD per day depending on the conversion rate (Sriviboon, 2013). Many people need to work overtime for the higher cost of urban living. The cost of living in Bangkok is around 21,000 THB or estimated around 691.76 USD per month excluding a house rental (Bangkok Post, 2019).

Internal Migration

Thailand has internal migration of people from rural to urban areas seeking work and education opportunities. It was reported that the leading migration suppliers are the North and Northeast regions of Thailand, while the main migration destinations are Bangkok and the Central region (United Nations Bangkok Office, 2018). The internal migration emphasizes the inequality between the two communities, as 46.81% of migrants move for job opportunities (Amare, 2012). Migration might be beneficial for increasing family income; however, it should not be the only solution. For instance, there are drawbacks for migrants who are parents leaving their children unattended at home, thereby unable to give their full care to their family. In the case study at the Suanluang 1 Community, one problem that arises in the community is children who are away from their parents might lack sufficient guidance when facing problems, or worse, they are neglected and lose their self-esteem (Pitchayapaiboon, 2013).

2.1.2) Healthcare

Health issues for Thai people in rural areas are the result of unequal opportunities to access public health services (Pinpratip, 2019). Although Thailand has a universal health care coverage service that ensures every citizen can receive medical treatment from public hospitals, limited resources of hospital availability and medical staff prevent all of the population from receiving quality health service. Especially in rural areas, there are insufficient doctors and medical equipment in local hospitals. According to the study by Pinpratip (2019), the highest ratio of doctors to patients was reported to be 1 to 5021 in Bueng Kan Province, as of 2017. Also, when most medical services are limited to large cities, local patients are burdened with the need to travel across cities to receive medical care. This leads to another obstacle for the local people accessing health services as most rely on daily wages and traveling to the city hospitals meaning they have to take a day off from work, causing them to lose a substantial amount of their income (Sittikan and Jongudomkarn, 2020). Consequently, people in rural areas develop a habit of not seeking medical help when their sickness or injuries are not severe enough to not hinder them from work and daily life. This behavior may result in untreated health impairments for people in rural areas.

2.1.3) Education

In Thailand, school is the central community for youth to rely on, get an education, and use as a safe place. School can be considered the second home for children as it does not only provide a regular curriculum covering all the academic aspects, but it also contributes to social skills, self-esteem, and physical development.

Thailand's main education problem is the inequality of opportunity. Inequality of opportunity means that students in Bangkok and large cities receive better schooling than students in rural areas. One of the most common causes for this problem is that public schools in rural areas of Thailand, especially small schools, lack resources such as teachers and budget for teaching equipment (Kitcharatporn, 2012). For instance, one of the SATI Foundation's partner schools has a class covering kindergarten to lower secondary school while having only 18 teachers in the school. This inadequate amount of teachers directly impacts the quality of education for children as one teacher would have to teach many subjects as well as subjects they may not be specialized in. The Program of International Assessment (PISA) 2015 indicates that the skills of students in small rural schools are falling behind when compared to larger urban schools (Sondergaard & Lathapipat, 2017). Moreover, poverty issues in rural areas

contribute to children not being able to complete their education. Some students have to drop out of school because their families cannot afford it (Kitcharatporn, 2012). When children lack education, their opportunities for lucrative careers are limited. This may incentivize children to pursue illegal and unethical business practices to make money as they grow older.

2.2) SATI Foundation

The sponsor of this project is the SATI Foundation. The SATI Foundation was founded in 2011 and aims to improve healthcare and education for at-risk and underserved youth in Thailand with their resources. They are a network of passionate individuals with diverse backgrounds who have gathered together under the same goal of helping those in need with their main focus on Thai youth. The SATI Foundation's mission statement is to promote mindfulness of those who are less fortunate and underserved, and finding and solving community problems through their non-profit organization. They plan to achieve this by focusing on education and improving health care for the underserved children in Thailand. In the course of completing the project, there will be a partnership with the SATI Foundation and its founder, Sakson Rouypirom, to achieve goals set out for this project. See **Appendix A** for a full description of the SATI Foundation.

2.2.1) SATI Foundation's Partner Schools

At the start of the project, the SATI Foundation provided the contact information of 20 of their partner schools who may be interested in participating in our survey. The partner schools consisted of schools in which the SATI Foundation has installed water filtration systems and provided medical checkups from 2016 to 2020. The schools are located in the rural areas of Chiang Rai, Chiang Mai, Mae Hong Son, and Sa Kaeo. These schools consist of kindergarten, primary school, and lower secondary school. The SATI Foundation has looked for a sustainable plan to collect data on the resilience of health risk behaviors of substance abuse, mental and physical, and runaway situations of youth ages nine to fifteen years old in Northern Thailand. The risk assessment process was initiated with 12 of the 20 of the SATI Foundation's partner schools. See **Appendix B** for names of schools along with their province, district, sub-district, and school type.

2.3) Youth Health Risk Behaviors

A health risk behavior is a repeated action which can negatively affect the physical or mental health of an individual. A study by Sirirassamee (2015) defines risk health behavior as behaviors that contribute to violence, substance consumption, and sexual behaviors. Our study is focusing on four youth health risk behaviors which are youth alcohol abuse, youth substance abuse, youth homelessness and runaways, and mental and physical health.

2.3.1) Youth Alcohol Abuse

Alcohol use is commonplace in many cultures; however, it can often lead to youth becoming dependent on this substance. Provinces that have the most alcoholics were Chiangrai, Lamphun, Phayao, and Nan,with 45.3%, 44.1%, 44%, and 42.4% of the population experiencing alcoholism, respectively (Tanaree, 2017). With this new diagnosis, alcoholism is being used to label youth who have psychological or social problems relating to alcohol. While extensive signs of problem drinking in youth have been found relating to social and psychological issues, it is difficult to say that youth develop a physical dependence on alcohol.

Physical dependence on alcohol is defined as having symptoms of withdrawal from the substance and evidence of physical damage within the body (Miller, et al., 2007). Evidence from the National Institute on Alcohol Abuse and Alcoholism demonstrates that youth can have a social and psychological dependence on alcohol which can lead to more serious problems for them in the future.

Most of the adverse effects from alcohol come from acute intoxication coming from binge drinking. For persons between 12-20 years old, binge drinking is defined as five or more drinks on occasion with the most typical type of drinking they will partake in. There is also a link between binge drinking and other risk behaviors in youth. For Thailand, 3.92% of high school students reported drinking which separated into 1.65% had binge drinking behaviors, and the other 2.27% drinking casually (NSO, 2017). The patterns were similar between males and females and binge drinking increased with their ages and school years. Binge drinkers were also found to get involved with other risk behaviors such as being sexually active, smoking cigars and cigarettes, attempting suicide, and using other drugs and substances. Drinking can cause depression and anxiety which stems from the central nervous system (Vichaidhit, 2020). Moreover, if they have been binge drinking, they are at higher risk of getting liver cirrhosis and liver cancer (Thongauthaisri, 2020). This may be also the case for youth in Thailand.

2.3.2) Youth Substance Abuse

Substance abuse is defined as a pattern of harmful use of a substance for mood-altering purposes. It can be legal substances, such as alcohol and nicotine, or illegal substances such as illegal drugs. Drug abuse has been a problem in Thailand for decades and the National Household Survey on Substance and Alcohol Use in Thailand has shown that substance abuse has increased over the years. From the study on substance abuse policy in Thailand, they found that 2,964,444 people ages 12 to 65 admitted to using at least one addictive substance in their lives (Saingam, 2018). The main drug smuggling area is the northern border area especially in Chiang Rai and Chiang Mai Provinces. There are powerful groups in bordering countries that have a seemingly unlimited production of methamphetamine and small militias to protect these operations (Office of the Narcotics Control Board (ONCB), 2019). Operations involved in the trade and sale of illegal substances are often profitable which may attract impressionable children to pursuing similar lifestyles.

The use of illegal substances had a great impact on Thailand's public health and national security. The impact on health affected both the mental and physical health of substance users. Substance abuse has been a leading cause of premature death and diseases. Drugs pose many vulnerabilities, especially to the youth, as dealers will make them look appealing. Once one becomes addicted, the quitting process is difficult.

2.3.3) Youth Homelessness and Runaways

Youth Homelessness

The United Nations separates homelessness into two categories, primary and secondary homelessness. Primary homelessness is when a person has no consistent shelter or living quarters. Meanwhile, secondary homelessness is when a person moves frequently between dwellings with no particular usual residence. Homelessness magnifies other problems such as sexual exploitation and drug abuse (Office of the High Commissioner for Human Rights, 2008). In a 2006 study, in Australia, the pathways towards youth homelessness were researched

by interviewing 35 homeless youths with an average age of 19.9 years. The study found that youth became homeless on average at 15.8 years of age. Of these homeless persons, 60% of them left school before 16 years of age. The study sought to define pathways to homelessness; or factors that lead to homelessness for these youth. Five pathways were identified. Pathway one: drugs and alcohol, pathway two: trauma and psychological problems, pathway three: drug, alcohol, and family problems, pathway four: family problems, and pathway five: trauma from experiencing death, physical harm, or threats (Martijn & Sharpe, 2006). See **Figure 2** for a graphical representation of the study results.

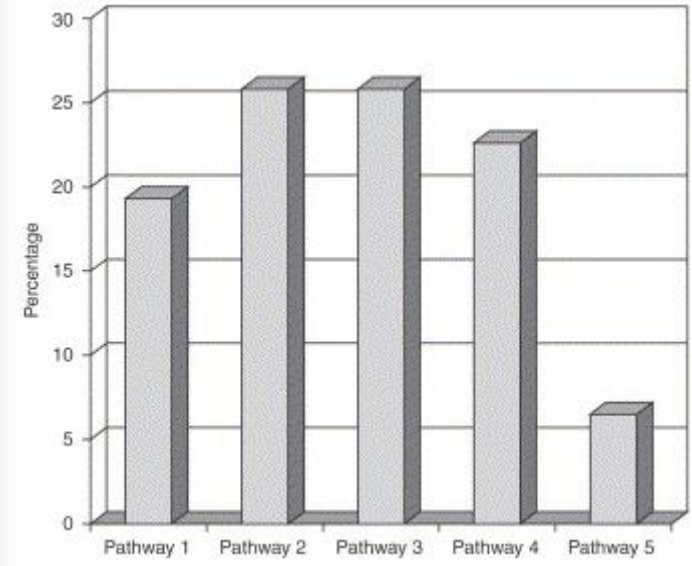

Figure 2. *Response to Pathways to Homelessness (Martijn & Sharpe, 2006)*

On the level of pathway components, drug and alcohol usage is the most common factor in youth homelessness; therefore it should be targeted to limit youth homelessness. The study found that the most common contributing factors for homelessness were trauma, psychological problems, family problems, and alcohol. Crime was originally expected to be a pathway to homelessness; however, in only one respondent was crime identified as a contributing factor. After becoming homeless, youth have little chance at maintaining their previous lifestyle. In the study, youth were revisited, 87.5% had developed new tendencies for crime, drug and alcohol abuse, psychological problems, and trauma. This highlights the importance of interfering with youth homelessness rapidly, as only 12.5% were considered to be stable upon being revisited. Further risks of youth homelessness include an elevated suicide rate, as 48% of homeless women and 27% of men attempted suicide (Martijn & Sharpe, 2006). To prevent youth homelessness, it is important to identify the factors that may lead to homelessness and address them as soon as possible.

Runaways

According to SATI Foundation's definition, runaways cover both the youth who run away from home as well as those who are expelled from the house. The duration of their time away from home may range from only a night to more than a year. Many children leave their homes when they lose faith in their lives or wish to escape from the harmful environment inside their homes. It was reported that more than 30% of runaways are from foster care as those places do not satisfy their needs and limit their freedom (Howard et al., 2004).

The main factors leading children to run away are family, poverty, and personal choices. The runaways' family relationships are often strained through physical abuse, sexual

abuse, or other harsh treatment (Howard et al., 2004). One of the runaways in a focus group interview from a case study in Udonthani, Thailand, shared his experience, "I must take care of my younger siblings, feed them, and take them away when my parents are arguing or battling with each other. Mostly when my parents are drunk, they frequently quarrel … sometimes I could not escape. My mother would vent her emotions at me, beat me, and hit me with a stick" (Mueannadon et al., 2014). Arguing inside families with physical and verbal abuse may cause children to view living on the street as a better choice; nevertheless, 89% of parents believe that their child is to blame for running away and not due to their family problems (Tucker et al., 2010).

Moreover, poverty forces children to start working at a young age and eventually stray further away from home. Most of the work these children do is labor work with very low wages making it almost impossible to escape poverty (Saranchit, 2015). Their personal life plays a vital role in leading them to become runaways. This includes psychological problems, school difficulties, substance use, and adverse peer-group pressure (Howard et al., 2004). In the Udonthani focus group interview, children admitted to knowing the consequence of substance use, but suggestions and challenges from peers are undeniable (Mueannadon et al., 2014). The inability to deny what they know as harmful is considered one of the largest reasons why many children are at risk.

Many risks come with being a runaway, such as the high risk of pregnancy, substance use, involvement in prostitution, crime, disease, and death. To prevent this risk, there must be cooperation with both parents and children. The leading destination for runaways in Thailand is Bangkok or any large city in their region like Khonkaen for the northeast region and Chiangmai for the northern region (Surakhachondet, 2017). It is challenging to track runaways as there is no permanent home for them, and they often relocate to find money or as a mechanism to protect themselves. It is a challenging task to prevent runaways from occurring again, as research suggests that the frequency of runaways increases the possibility of more runaway situations (Tucker et al., 2010). Positive understanding within the family, in addition to medical and psychological treatment, is needed when returning home or foster care to mitigate the runaway situation from repeating. SATI Foundation can help runaway children through their programs while maintaining their focus on outright prevention. This can be done by being alerted to specific districts of Thailand with youth considering the idea of running away or who are experiencing troubling times within their homes.

2.3.4) Mental and Physical Abuse

Mental and physical abuse are types of child maltreatment, child maltreatment is a behavior toward a child that causes physical and/or emotional harm. A report from Social Assistance Center Hotline 1300 said that from October 2018 to September 2019, children and youth were abused 5 cases per day on average and most of them are physically abused by their mother or father (Chenphuengpawn, 2020). This report shows that the children are often abused by someone who is close to them. Moreover, the Thai norm of disciplining children is contributing to physical violence such as spanking and beating. Even though this punishment is banned in many schools, the practice is still accepted and occurs continuously in both school and family.

Mental health in youth is also a problem. The Department of Mental Health in Thailand reported that there were around 10,000 calls from youth between the ages of 11 to 19 to the mental health helpline in 2019. The top three mental health problems reported by youth are

51.36% from stress and anxiety, 21.39% from love problems, and 9.82% from depression. Dr. Kiattiphum Wongrajit, the former director-general of the Department of Mental health said that the fast-changing world has affected youth. As a result, they tend to have more stress. The increasing cumulative stress in youth makes them have both poor physical and mental health. He also stated that cumulative stress shapes the children and youth to have behavioral problems such as aggressive behavior, alcohol use behavior, and drug or substance abuse behavior (PPTV Online, 2020). In conclusion, if youth have unhealthy mental health, they are at higher risk of self-harm, alcohol and drug use, and risky sexual behavior.

2.4) Association of Family and Friends with Youth Health Risk Behavior

When focusing on youth groups, research has shown that children and young adults are greatly impacted by their family dynamics, whether it be positive or negative. In the development of adolescents, a strong connection to family or role models is important in the avoidance of adolescents participating in risky behavior. “In the National Longitudinal Study of Adolescent Health it was found that when teens felt connected to their families and schools, they reported less risk-taking behavior, including decreased use of cigarettes, alcohol, and marijuana” (Tuttle, Campbell-Heider, & David, 2006). At the early ages, youth look to their family for emotional support. If the child does not have a strong family support system, then having one at school or with an older role model can be impactful on the decisions they make later on in life. Furthermore, in schools where youth are starting to make connections with peers, they tend to adapt to the patterns of their peers. Having a strong support system in school communities allows these students to make more informed decisions about risk-taking behaviors.

Within a family unit, the presence of a family member with a history of substance abuse or other risk-taking factors can result in a vulnerability to risk-taking behavior in youth. “Children of parents who are impaired by substance abuse, mental health problems, and violence are at increased risk for developing similar problems and other related adverse health outcomes" (Tuttle, Campbell-Heider & David, 2006). Children absorb their surroundings, especially when they are younger. If a child grows up seeing violence and substance abuse they will believe that it is a normal activity. When they grow up there will be a greater chance they continue the pattern of substance abuse and violence within their own home.

In addition, youth are prime targets for peer pressure. Bonnie (1970) explains “During adolescence, thinking becomes more abstract and less concrete. These cognitive changes are coupled with psychosocial development, including social perspective-taking, susceptibility to peer pressure, and increased need for autonomy”. Adolescents may be affected by peer pressure which may cause them to engage in risk behaviors at a higher rate than other segments of the population. The mental stressors that adolescents go through during puberty may also contribute to permissive or accepting attitudes towards risky behavior. From an early age, having positive role models, supportive families, and communities reduce the risk of children and adolescents participating in risky behavior that could impact the rest of their lives negatively.

These factors are relevant in our project goals as one of the stakeholders is youth. These youth may be influenced by their family, friends, and community as explained above; therefore, it is important to incorporate questions regarding their family and social life.

2.5) Association of Self-Esteem and Resilience with Youth Health Risk Behaviors

Self-esteem is defined as the degree to which the qualities and characteristics contained in one's self-concept are perceived to be positive (APA Dictionary of Psychology, n.d.). According to (Guido et. al., 2015) who is one of the pioneers in this domain, stated that self-esteem is generally used to refer to an individual's evaluation of themself, including feelings of self-worth. Self-esteem can be evaluated in different specific domains such as social, competence, affect, academic, family, and physical (Advances in Experimental Social Psychology, 2016).

Researchers have evaluated the connection of self-esteem with youth health risk behaviors. In one study, researchers aimed to explore the association of self-esteem and resilience with smoking and cannabis use among adolescents. They found that negative self-esteem seems to play an important role regarding smoking and cannabis use among boys mean age 14.3 years (Veselska et al., 2009). Another study talked about associations among adolescents' self-esteem in 6 domains including peers, school, family, sports/athletics, body image, and global self-worth with risk behaviors related to substance use, bullying, suicide, and sexuality. They found that self-esteem in each domain was significantly associated with at least one risk behavior stated in the study. They concluded that increasing self-esteem in adolescents especially in the family and school domains could protect adolescents from engaging in risk behaviors (Wild et al., 2004).

The term resilience is often used to describe a concept concerned fundamentally with how a system, community, or individual can deal with disturbance and change to adapt to an environment of growing risk and uncertainty (Mitchell and Harris, 2012). Rather than taking the recovery route after the risk occurred, resilience is used to prevent unnecessary risks from happening in the future. To assess the social problems related to risk group youth such as mental health and abuse, a form of student resilience survey is used in many studies to analyze the protective factors that may reduce the likelihood of risks. The resilience survey takes a psychological approach towards assessing the ability of an individual to deal with tough situations such as self-esteem, empathy, goals and aspirations, and family, school, and community connection (Bates and Boren, 2020).

Chapter 3: Our Survey

The goal of this project is to conduct a pilot study for data collection and management process through which geographic regions or districts can be identified where the help of the SATI Foundation is most needed. Students in 12 of the SATI Foundation's partner schools in Northern Thailand were surveyed to gather information on their resilience, attitude, and knowledge of the four specified risk behaviors and their consequences. A program to interpret the survey responses was developed to analyze the collected response and identify the demographics of youth with low resilience scores. To achieve our goal, the project focuses on three main objectives:

1. Identify the causes of health risk behaviors focusing on substance abuse, mental and physical abuse, health issues, and runaway situations.
2. Design the survey to gauge youth resilience on specified health risk behaviors in Northern Thai youth.
3. Design a data analysis program for the survey results.

3.1) Data Collection from Interviews

Interviews with schools and foundations were pertained to the perceived problems affecting youth in their environments. Evaluation of the perceived risks informed question creation to better fit the risks students face. Interviews with foundations also functioned as expert interviews on how to interact with at-risk populations and educated the team on effective ways to reach and engage our target audience of Northern Thai children aged 9 to 12 years old.

3.1.1) Interviews with Schools

Interviews were conducted with 12 school representatives from the SATI Foundation's partner schools to gather data on their availability and cooperation for survey distribution. In addition, we asked general information to identify the location and number of willing participants for the survey. Questions included in the interview were the status of their internet connectivity and their preferred survey options for students and teachers. A full list of interview questions for school representatives can be seen in **Appendix G**. Answers obtained can be seen in **Appendix I**. The interviews were conducted through phone calls, messenger applications, line application or email depending on the participants' preference.

3.1.2) Interviews with Foundations

To collect information and context of the specified health risk behaviors through expert opinion, the team conducted interviews with foundations that work with troubled youth in Thailand including the Childline Thailand Foundation (Hub Saidek), the Winner House (Rehabilitation Centers for Drug Addicts Health Department), thinkSMALL foundation, Baan Kru Nam foundation and Baan Nokkamin foundation. These foundations all have experience with working with children in rural areas of Thailand regarding substance abuse, mental and physical abuse, and runaway situations. The description of each foundation can be found in the **Appendix E**.

Interviews were conducted through Zoom, except for Baan Nokkamin which was done in person, to explore how these foundations operate to help troubled youth, evaluate and identify "at-risk" children, explore the root causes of problems faced by children they have worked with, and obtain statistics to find a trend among risk factors. A full list of questions asked during the foundation interviews can be found in **Appendix F** and the transcribe of the full interview can be found in **Appendix H**.

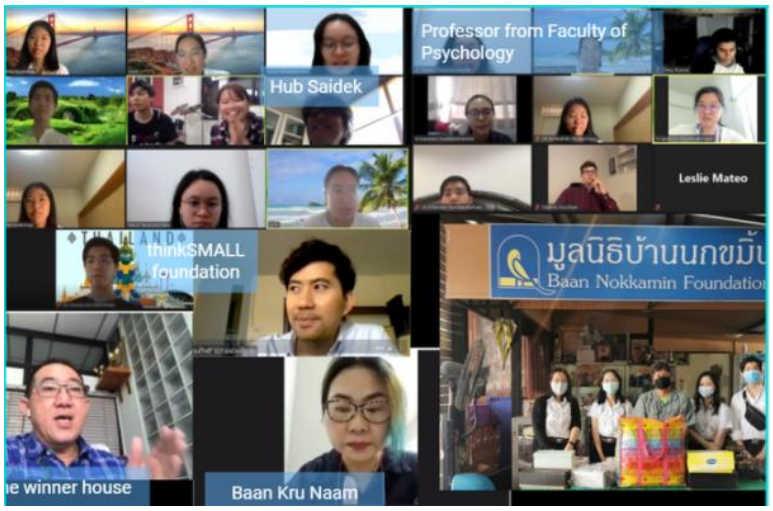

Figure 3. *Interviews with Foundations through Zoom and On-site*

3.1.3) Key Finding from Caretakers at Hub Saidek

Family Dynamics Impact on Youth Mental Health

Children from families in poverty are reported to have a high chance of running away from home. Parents of runaways did not receive a proper education when they were young or became parents as adolescents. Due to this, they have limited access to minimum wage jobs. Low salaries or unemployment cause stress for parents raising a family with children. Parents would often hit their children and yell at them with harsh words such as "go wherever you want, I don't care about you," which makes children feel worthless and unaccepted. Alcohol and drug abuse deepen this problem. Parents often use alcohol and drugs to cope with stress, it is likely that their children would follow in their footsteps. Although this information is from Hub Saidek staff's experiences with troubled youth, it is confirmed from findings in Section 2.4: Association of Family and Friends with Youth Health Risk Behavior.

Foster Care Runaways

The Hub Saidek has reported a large number of runaways who escaped from their state-owned foster care. State-owned foster care has an age limit by laws; once the children reach the age limit, they are transferred to a new shelter. This transition is a popular time for children to run away. Children often choose to leave their state-owned foster care as it does not satisfy their needs. In addition, violence and restrictions of freedoms are common issues at the shelter. This may lead the children to choose homelessness which contributes to lower resilience to health risk behaviors as seen in Section 2.3.3: Youth Homelessness and Runaways.

3.1.4) Key Findings from Mr. Satit Sutancharoen, a National Coordinator of the thinkSMALL Foundation

Child Sexual Abuse from Family Members

According to Mr. Satit Sutancharoen, the perpetrators in most child sexual abuse cases are trusted people close to the child such as relatives, neighbors or stepparents. Due to their young age, children are often not aware that sexual abuse is occurring, instead, they perceive the actions to be signs of affection. Mr. Satit Sutancharoen shared the story of a drunk father sexually abusing his daughter and made the daughter believe that it is a way to express his love. The daughter felt uncomfortable but she did not know that it was wrong. Sadly, this is a reality that many children face, and inquiring about their knowledge on the topic in a non-triggering manner can be essential in getting them the help they need.

Normalized Early Marriage and School Dropout

Mr. Satit Sutancharoen also elaborated on social norms in Northern communities. He explained that girls often do not fund the need to study or join the workforce and instead marry young to someone rich to aid their families suffering from poverty. Also, school dropouts are very common due to financial problems within the family. These social norms negatively impact the youth's self-worth causing them to believe that marriage is their only goal in life or that they have to drop out early to live.

Knowledge and Self-value are Key for Substance Abuse Prevention

Lastly, Mr. Satit Sutancharoen elaborated on his experience with substance abuse prevention. Children need to be educated on the consequences of drugs to resist peer pressure. Moreover, they need to develop self-value which will help them find a preventive method for themselves. When they are faced with tough situations in their lives, having self-esteem will allow them to cope with the challenges positively without resorting to drug use.

3.1.5) Key Findings from the Winner House

Children Involved in Substance Use Lack Self-Esteem and Resilience

The Winner House was also interviewed on the subject of youth substance use. The director informed the team that the majority of children exposed to drugs and substances were primary school students. The three main reasons why children were involved with drugs and substances are due to curiosity, friends, and fun. The other reasons are self-medication and misinformation. Many children have heard that drugs and substances give energy and allow escape from reality. These reasons indicate that children cannot deny wrongdoing and have low self-esteem. The foundation believes that resilience allows children to make better decisions on substance use. They categorized youth resilience into three levels: normal, low, and at risk. Normal signifies that they deny all drugs and substances. Low means that there is a chance that they would be involved with substances when faced with difficulties or when the substance is made to look appealing. At-risk means that when the children are exposed to drugs, they will use them immediately. When youth have low resilience other risk factors- including family, friends, and community- should be considered. Resilience will make children have the ability to overcome any harsh environment without involvement with drugs and substances.

3.1.6) Findings from Mr. Surachai, the director of Baan Nokkamin Foundation

Runaways Are Often Associated with Family Issues

The majority of the children in the Baan Nokkamin Foundation had family issues such as divorced, deceased addicted, and/or jailed parents. In some cases, parents are not ready to raise kids and do not care for their children. These children end up living with grandparents or other relatives who may not have enough financial resources to support and raise them. As a result, they lack familial warmth and support which may lead to runaway situations.

Runaway Children Value Friendship but Lack Pride for Themselves

Runaways felt that they can live on their own as they can beg for money on the street, ask for food from temples or at the markets, and/or can sleep wherever they desire. They often stick together and normalize their routine of begging and sleeping on the street. The director saw that runaway children did not have a sense of pride or dignity for themselves. Mr. Surachai said that when offered the opportunity to go back to school, the runaways rejected. He sent the runaway group to summer camp to interact with other children their age. Once they started to introduce themselves, they were asked about where they lived and where they went to school. These questions made the group of runaways feel embarrassed. After summer camp, the runaways came to Mr. Surachai and said that they would love to go back to school. He concluded that it is essential for children to have dignity and pride for themselves.

3.1.7) Key Findings from Baan Kru Nam Foundation

Children Near the Country Border Do Not Receive Children Rights

Baan Kru Nam Foundation gave information on stateless children, which are children with a lack of nationality resulting in no legal personality. Stateless children near the country border in Chiang Rai do not receive the protection required by international conventions on children's rights. It was noted by the foundation that children holding Thai citizenship receive those rights and welfare, this includes shelter, education, and medical services. Stateless children do not have access to this. As a result, they have become beggars, resorted to prostitution, or have become victims of human trafficking. Moreover, since the children do not have Thai nationality, they do not have access to universal health coverage and cannot receive medical treatment from hospitals. Their stateless and homeless status has caused them to be discriminated against and looked down upon in the community. This leads to a public violence attitude toward the stateless children, resulting in physical and emotional damages.

Survey Questions Should Be Simple and Avoid Sensitive Topics

Survey questions for students should contain simple words that are easy to understand, especially for primary school students. They should not ask about sensitive or embarrassing topics because children may be afraid to answer them, resulting in dishonest answers. Kru Nam suggested that to gain an in-depth understanding of each topic, a focus group interview method would be best as it allows for trust-building. A small group of children would be ideal as it would lead to a quality conversation with the participants.

3.2) Designing our Survey to Measure Thai Youth Resilience

From the findings above, the team concluded that four main causes that lead to the health risk behaviors of the youth mentioned in Chapter 2 Section 2.3 Youth Health Risk Behaviors are personal, family, friends, and community. Personal factors which may contribute to specified health risk behaviors include knowledge and awareness, self-esteem, and achievement.

Using these findings, the team designed the surveys to obtain data from students and teachers at 12 of the SATI Foundation's partner schools. The survey collected demographic data from the population of teachers and students in each school as well as addressed the resilience of the children in terms of knowledge on focus health risk behaviors, social relationships, self-esteem, emotions, and achievements.

In order to promote the surveys and improve response rates, we selected schools that the SATI Foundation had already established relationships with. The partner schools contacted were informed of the purposes of the research and received the consent letter for collecting data from the teachers and students as well as the institutional review board. This is important for the return rate because the survey was carried out with no physical interaction between the team and the respondents. Therefore, the response rate relied heavily on the schools to promote the surveys to the students and teachers.

The survey was conducted online using Google Form. According to (Helweg-Larsen, Boving-Larsen, 2003), online surveys were found to increase the feeling of privacy and ensure the anonymity of answers. However, the participating schools are located in rural areas and the students do not have mobile phones with internet connection.; therefore, they are expected to fill in the survey at the school computer classroom. This may have caused some students to be embarrassed or afraid to answer some questions honestly. To address this issue, questions were designed to be approachable. Moreover, the survey was distributed to students to fill out during class time with teachers accompanying them; therefore, we expected that students had a good understanding of what to do and had enough time to complete the survey.

3.2.1) Survey Components

Our survey consisted of two sets of questions. The first set was for teachers which aimed to explore the context of the local community to identify whether the students in that school were exposed to a high level of risk due to their environment. The second set was a questionnaire for the students who were considered as the marginalized youth group that the SATI Foundation planned to help through their programs.

The questionnaire was created from the interview findings and also took inspiration from previous research including Children's Depression Inventory (CDI) by Prof. Dr. Umaporn Trankasombat (2002), Student Resilience Survey: Psychometric Validation and Associations with Mental Health (Lereya et al., 2016), (Al-Fayez, 2012), and resilience on drug and substance abuse by Kusuma Swangpun (2015) to create the survey. This research was conducted with high school students, so adjustments had to be made to be appropriate with younger students.

Students Survey

The student survey consisted of two parts, the general information and the resilience questionnaire on health risk behaviors. See **Appendix J**. for student survey questions. The general information includes questions on age, sex, school name, grade level, and family status of the children to collect demographic data. The resilience questions consist of three themes:

1. Knowledge and awareness of drug and substance use, physical and mental abuse, and runaway situations.
2. Social relationships including family, friend, and community connection
3. Psychological state including self-value, emotion, and achievement.

Teachers Survey

Due to the limitation of the topics that may be understood by students, the team constructed a survey for teachers. See **Appendix K**. for the teacher survey questions. The survey consists of two parts, general information on the teachers and community, and the resilience questionnaire. The resilience questionnaire inquires on the teacher's opinions on their students' resilience against runaway situations, physical and mental abuse, and substance abuse. The resilience questions consist of two sections:

1. Their community and school environment.
2. Their classroom environment.

3.2.2) Addressing Ethical Considerations

An important factor taken into consideration when designing the survey was the ethics of the questionnaires which should be aligned with the general principles of research ethics, especially as our research focused on vulnerable topics such as abuse and violence in children. According to UNICEF (2012), ethical principles in research concerning children may involve three key ethical issues: consent, protection of children, and anonymity.

Firstly, consent was obtained from the participants and they were informed of the purposes of the study and how their answers will be used. The consent forms for the participants and the consent letters for the school administration, can be found in **Appendix C** and **Appendix D**, respectively. Participation was entirely voluntary. Secondly, the survey was designed to protect the youth participants from being re-traumatized by sensitive topics such as abuse and violence. The questionnaires avoided asking about bad experiences that may trigger their trauma and instead focused on analyzing their resilience against those issues. Furthermore, the survey did not contain leading questions on health risk behaviors such as substance abuse that might unexpectedly influence children towards those issues. Lastly, anonymity and confidentiality were obtained by surveying students through Google Forms, which ensured the privacy of the participants' answers.

3.2.3) Feedback from Sponsor and Psychologists

The sponsor and two child behavior psychologists at Chulalongkorn University were integral in the design and editing of our survey draft sent out in phase one. The first draft was sent to the sponsor and to Dr. Jirapattara Raveepatarakul and Dr. Arpapond Ussanarassamee at the department of Children Psychology, Chulalongkorn University. The team wanted to ensure that the survey can address the needs of the sponsor and was designed appropriately for children.

Feedback from the Sponsor

First, the sponsor cautioned the team of the use of language and asked us to certify that the content is suitable for children. We verified this point by checking with child behavior psychologists on the content and wording of the survey. Secondly, the sponsor suggested including questions on family life to gather general information on the community of the respondent as well as identify any correlations between resilience and family connections. Lastly, the sponsor asked that we focus on reaching our target response rates for the students by ensuring that the content of the survey was understandable to children as well as engaging. He suggested we include cartoons or imagery appealing to children. He emphasized that the survey would not be useful unless it works well with children; therefore, this needed to be a priority for the project.

Feedback from Child Behavior Psychologists

The first draft of the survey was sent to two professors at Chulalongkorn University in the children's psychology department named Dr. Jirapattara Raveepatarakul and Dr. Arpapond Ussanarassamee. The two professors were very insightful on how to conduct a focus group as well as how to organize and edit our survey.

The first concern they had on the survey was over the format of the questions, especially as the target group were young students. They noticed that questions were not self explanatory enough, possibly leading to confusion and misinterpretation. Next, the multiple choice questions had too many options. The first draft of the survey included questions with a scale of options as answers, ranging from one to ten. The professors disagreed as too many options can be confusing. They recommended a maximum of three choices per question. We decided to get rid of the scale entirely and reword the questions to be straightforward. All questions were made multiple choices with only three choices- "yes", "no", and "sometimes"- making it very clear and simple for the students. The only questions that were not multiple choice was the general information section as well as the final section asking for feedback. The professors also suggested to refrain from asking for personal experiences and to concentrate on how certain subjects make the respondent feel.

The next suggestion from the professors was to make a set of instructions that can be read out loud by the teachers or proctors so that students taking the survey were clear on how to fill out the survey. Another concern they expressed was the possibility of administering the survey orally if the literacy of the students did not allow them to understand and complete the survey on their own. To determine the literacy of the students and understanding of each question, a pilot study with a focus group was recommended. For the questions themselves, they suggested making them as clear as possible and simple. The experts also advised against including questions on sexual abuse as it is too intense for the younger students. The sponsor

agreed on this statement and the section on sexual abuse was removed. They also remarked that the questions were too direct and the students may not answer honestly as their teachers had the possibility of seeing their answers. To combat this our survey refrained from asking directly if students were engaging in harmful activities. Instead questions focused on their attitudes towards health risk behaviors. Finally, the professors recommended testing our questions with a focus group to see how children react to the survey. The understanding of the language and content of the survey will be observed. Ideally, this focus group would happen over zoom in order to observe non-verbal cues from the participants.

3.3) Survey Logistics

After receiving feedback from the sponsor and child psychologists, the team edited the survey based on their recommendations. The draft of the survey was completed and administered to a focus group discussion with the students at one of SATI's partner schools to test the applicability and effectiveness of the survey before its actual release. The team constructed the focus group through Zoom with ten students of different grades. The team let the students complete the survey first for timing purposes without aid from the team. Next, the team asked about their understanding of each question by reading questions one by one. Observations were recorded as well as their responses and feedback on the survey.

After the focus group, the team constructed a new version of the survey based on the recommendations from the focus group. The team would administer the survey in three phases. After administering the survey in the first phase, the team waited for the responses and improved the survey according to the feedback received. The improved version of the survey would be tested again by a focus group method with a new group of participants to check the understanding of the new version of the survey. Then, the survey was administered to the second phase and went through the same process for the third phase.

In the first phase, the survey was administered to 278 students and 45 teachers in four schools, Thammajarik Uppatham 1 School, Baan Tham School, Baan Koon Sa Nai School, and Baan Pang Kam Noi School. In the second phase, the survey was administered to 253 students and 41 teachers in four schools, Doi Viang Wittaya School, Baan Jong School, Baan Doi Pee Lu School, and Baan Huay San School. In the third phase, the survey was administered to 425 students and 45 teachers in five schools, Mae Ab Wittayakom School, Baan Huay Eoun School, Baan Nong Pam School, Baan Mak Prik School, and Baan Pang Kia School. **Figures 4-6** show distribution and adjusted dates.

	Students	Teachers	Distribute Date	Adjustment Date	Focus Group
Thammajarik Uppatham 1 School	96	18	19/02/21	23/02/21	24/02/21
Baan Tham School	82	12			
Baan Koon Sa Nai School	68	11			
Baan Pang Kam Noi School	32	4			
Total	278	45			

Figure 4. *Phase One of Schools (The dates are in the order of day/month/year)*

	Students	Teachers	Distribute Date	Adjustment Date	Focus Group
Doi Viang Wittaya School	39	8	25/02/21	03/03/21	04/03/21
Baan Jong School	155	15			
Baan Doi Pee Lu School	27	9			
Baan Huay San School	32	9			
Total	253	41			

Figure 5. *Phase two of schools (The dates are in the order of day/month/year)*

	Students	Teachers	Distribute Date	Adjustment Date
Mae Ab Wittayakom School	288	15	04/03/21	10/03/21
Baan Huay Eoun School	96	11		
Baan Nong Pam School	41	9		
Baan Pang Kia School	119	10		
Total	425	45		

Figure 6. *Phase three of schools (The dates are in the order of day/month/year)*

3.4) Response Expectations

Surveys can be expected to have response rates between 5% and 30% on average, meaning if 1000 surveys are administered, 50 to 300 responses can be expected (Customer, 2019). Without a large number of responses, flexible statistical learning methods will be a poor fit. In addition, the number of responses was important for determining the effectiveness of predictive models used. The survey was distributed to the schools listed in **Appendix B**. In this project, surveys were distributed to 952 students and 131 teachers. The minimum total responses expected across all phases are 47 student responses and six teacher responses. Given the past working relationship the SATI Foundation has engaged in with these schools, we expect total teacher responses to exceed six. Responses below these numbers would severely limit data analysis options, however, responses are expected to be higher due to the strong distribution methods.

The target response rates for this survey were chosen using Cochran's Formula. This was used to apply the normal model to the data at a chosen margin of error and confidence interval. The target margin of error for this project was 10% to allow for a lower response rate and the target confidence interval was 95%. To improve the response rate as much as possible, surveys were distributed in three phases of sizes 250, 250, 500 students. There is an inverse relationship between minimum response rate and sample size. Distributing the survey in one phase to all students gave a minimum response rate of 9.1% to use the normal model with a 95% confidence interval at a 10% margin of error. While this response rate was much easier to achieve than the minimum response rates of 28.8% and 16.6% of the 250 and 500 student phases respectively, it did not allow for an improvement of the survey. By targeting higher response rates and focusing on the last phase for data analysis, the survey was made more effective based on the trial runs with focus groups between phases (Israel, 1992).

3.5) Point System

Data obtained from the survey was categorical, taking the form of rating questions according to defined scales and yes or no responses to prompts. To understand and present this data, descriptive statistics and inferential statistics were used. Question response distributions were observed through bar charts to identify student response frequencies. The students' ages were recorded in the survey, and responses were examined to see if age correlates with certain questions or question categories. Questions were separated by section in the survey, allowing for analysis of the entire survey response or themed subsets. These themes are General Information, Friend/Family/Community Connection, Risk Behaviors, Emotions, Achievement, and Self Worth. Responses are positive, neutral, or negative towards a respondent's participation in risk behaviors. By adding up the number of negative, positive, and neutral answers, the student responses can be compared to provide meaningful statistics. The weight for a positive response is one point, the weight for a neutral response is zero points, and the weight for a negative response is a negative point. These weights may be changed in future iterations of the survey, as the SATI Foundation gets more experience with the interpretation of the results. Using this point system, distributions of scores and question response data were made, allowing for comparisons within the two datasets. Using these comparisons, important questions and significantly low resilience score respondents were identified in under 10 minutes.

We fit a normal distribution to the data, centered around the observed mean, and used the observed standard deviation of our responses. We then interpreted individual response scores as being statistically significant by using z-tests (Chen, 2020). If a student's score is two standard deviations away from the observed score, they will be deemed to have a statistically significant response in terms of being at risk (Newcastle, 2018). We expected to use a z-test for this because we expected to have over 50 student responses. If we received fewer responses than expected, we would have used T-tests. The percentage of students at risk in the school was then calculated by taking the number of statistically significant students at risk divided by the total responses by the school. This helped the SATI Foundation choose which schools to prioritize for their workshops. The average response values per question will also be calculated, showing the general attitude of the student population towards risky behaviors. This will help guide the content of the workshops.

3.6) Data Processing Program

To efficiently process the data received from the survey, a data processing program was created to convert the approximately 50 questions from each phase into a singular score value to compare across students. The Survey Processing Program's Developer's Guide and User Manual can be found in Appendix L and Appendix M, respectively. This program was written in Java version 11. It functioned by accepting a file path to a CSV of survey responses. This CSV was exported from Google Sheets. Since Google Sheets stores multi-response questions and timestamps, a CTRL - F operation must be performed to preprocess the data in Sheets to replace commas with a new character such as space or a colon. The program functioned by creating a Data object. This Data object created a list of Question objects and a Score object, as well as a list of ages, schools, and villages from the General Information section of the survey. A Score was created using a ScoreMap object to interpret the survey response text. A ScoreMap took an Integer, the question number as it appears in the survey after the General Information section, and assigned a Map of String to Integer to assign text

that appeared for that answer to the score. In this case, the text being matched is a, b, and c indicates the choice for that question. These responses were then matched to a 1, 0, or -1, depending on the context for that question. For each question in each response, the question number was matched to the appropriate score, and this score was summed on a per respondent basis to find the total Resilience Score of a respondent. The Score object then summarized the data by calculating mean, median, and standard deviation to identify outliers that were more than 3 standard deviations above the mean. It also calculated both the mean and standard deviations with those outliers removed. The Data object then retrieved this information as requested from the Score object it holds.

```
public Score(List<List<String>> data) {
    initZScores();
    ScoreMap sm = new ScoreMap(null);
    HashMap<Integer, HashMap<String, Integer>> qm = sm.getQuestionMap();
    ArrayList<Integer> scores = new ArrayList<Integer>();
    ArrayList<ArrayList<Integer>> questionResponses = new ArrayList<>();
    for (int i = initialQuestion; i < finalQuestion; i++) {
        questionResponses.add(new ArrayList<Integer>());
    }
    for (List<String> row : data) {
        int score = 0;
        for (int i = initialQuestion; i < finalQuestion; i++) {
            HashMap<String, Integer> scoreCoding = qm.get(i);
            String text = row.get(i);
            questionResponses.get(i - initialQuestion).add(scoreCoding.get(text));
            score += scoreCoding.get(text);
        }
        scores.add(score);
    }
    this.scores = scores;
    this.questionData = new ArrayList<>();
    for (ArrayList<Integer> individual : questionResponses) {
        this.questionData.add(new Question(individual));
    }
```

Figure 7. *A code snippet from the Data Processing Program, Score Constructor*

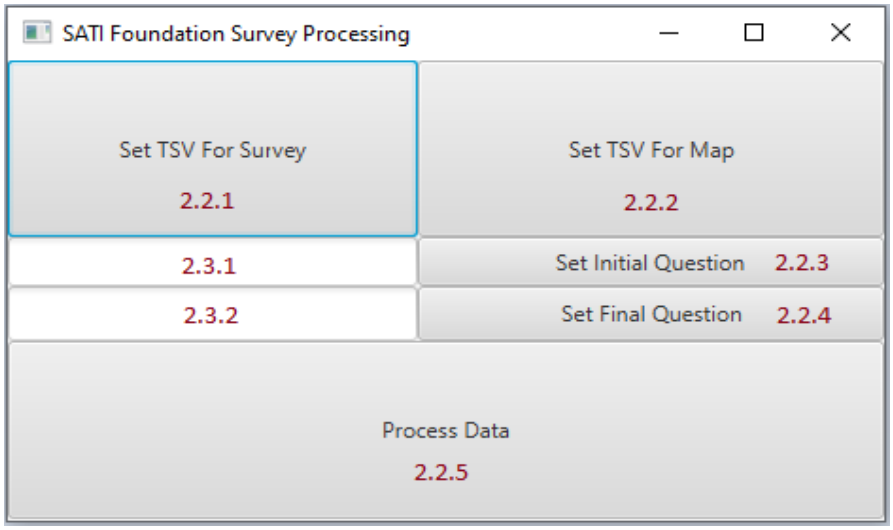

Figure 8. *Application Interface of the Data Processing Program*

The Data object also contained a list of Question objects. These Question objects were created for each question in the survey. Each Question object contained a list of Integers representing each processed response to that question. This was a list of 1's, 0's, and -1's. Each Question also stored the mean and standard deviation for that survey question. These questions had an export function that assembles a list of the mean and standard deviation for that question for export by a function in the Data object that wrote the complete list to a CSV for import into Google Sheets or Excel for chart or graphic generation. This writing occurs using a CSVExporter which took a File to write the data to, a List of String headers that describe the data, and a List of Lists of Strings that contained the data to write. The CSVs produced by this program went to a folder called CSVOutput for storage.

Chapter 4: Our Survey Results

4.1) Survey Phase 1

Survey Phase 1 involved students and teachers from Thammajarik Uppatham 1 School, Baan Tham School, Baan Koon Sa Nai School, and Bann Pang Kam Noi School. The student survey has eight questions on general information and 53 questions on resilience regarding focus health risk behaviors.

4.1.1) Focus Group with Baan Koon Sa Nai School

The team conducted a focus group discussion with ten students from Baan Koon Sa Nai school in order to test the understanding of the questions in the survey as well as estimate the time needed to fill the survey completely. The first draft of the survey was tested. Students spent ten minutes to complete the survey. After reading each question aloud to the students to check their understanding, the team found that they mostly understood every question with the exception of some words such as “gossip”. This word was replaced with wording “talk behind your back” for the next draft to improve understanding. The students also suggested that panda pictures be added. We removed 3 questions in response to the survey length criticism.

According to the final section of questions in the survey which were asked for survey feedback, there were eight out of ten students who found the survey interesting and fun, five out of ten students who found the survey clear, and only one out of ten students found the survey boring, too difficult and embarrassing. Moreover, they suggested that it would be better if there were some cartoon characters inside the survey.

Figure 9. *Focus Group with Children from Baan Koon Sa Nai School*

4.1.2) Results from Survey Phase 1

Student Survey

In Phase 1, the student survey received 78 responses equivalent to a 28% response rate. From the responses, 48.7% of the response were from Thammajarik Uppatham 1 School, 38.5% from Baan Pang Kam Noi School, 12.8% from Baan Koon Sa Nai School, and there were no responses from Baan Tham School as presented in **Figure 10**.

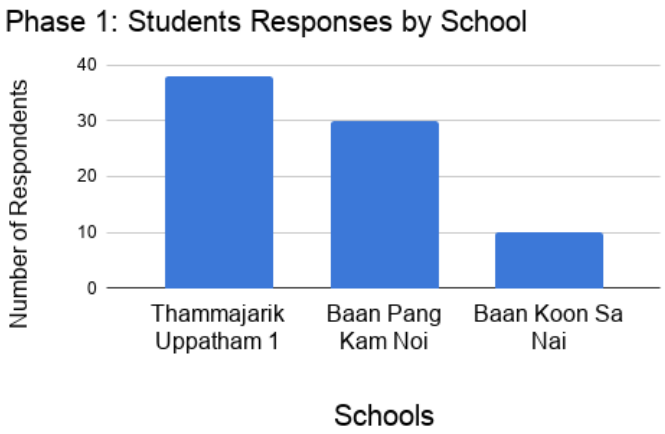

***Figure 10**. Phase 1 student response rate column chart*

The responses came from grade three to grade nine students; however, there were no responses from grade seven students. The majority of the responses were made by grade five students. The distribution of the surveys completed by grade level is presented in **Figure 11**.

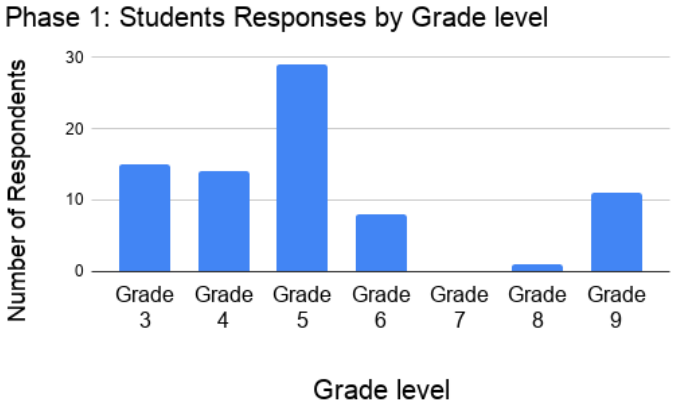

***Figure 11.** Phase 1 student grade level response rate column chart*

As for the final section in the survey used for feedback, 59% of students, 46 responses, thought that the survey question was clear and understandable, 38.5% of students, 30 responses, found the survey question interesting, and 20.5%, 16 responses, found that the questions were too difficult. These 16 responses came from grades three, four, and five students. Moreover, 10.3%, 8 responses, felt that the survey was too long. Other answers to the final section were that the survey was boring and that some felt embarrassed when answering the survey questions. These comments guided the team to make adjustments to the survey for Phase 2.

Results of Data Processing for Phase 1

The distribution for scores in Phase 1 is shown in **Figure 12**. The histogram shown used buckets of size five. The distribution of scores was relatively bell-shaped, suggesting a normal distribution may be a good fit.

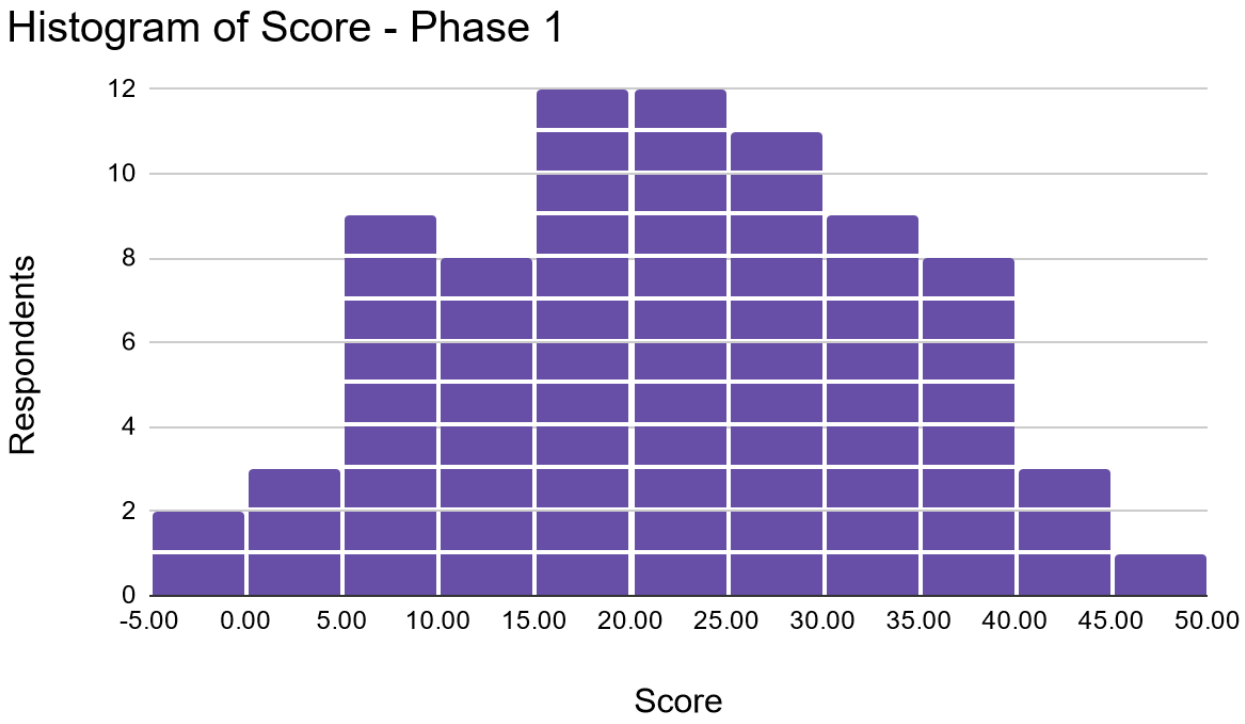

***Figure 12**. Histogram of respondent scores for Phase 1*

The responses for Phase 1 were found to have a mean score of 21.38, a median of 20, and a standard deviation of 11.31. **Table 1** contains a table of students found to be at risk for multiple confidence intervals. Students found to be at risk scored below an amount of standard deviations below the mean. For a 95% confidence interval using a normal distribution, values that were 1.960 standard deviations away from the mean were considered statistically significant. For this 95% confidence interval, 1 out of the 78 respondents was found to be at risk. Making the confidence interval smaller increases the number of students found to be at risk.

Confidence Interval	Z Score	Number of Respondents
80%	1.282	9
85%	1.440	5
90%	1.645	3
95%	1.960	2

***Table 1.** Phase 1 students at risk*

The respondents for Phase 1 came from three schools, as shown in **Figure 10**. When splitting the responses by school and analyzing respondent scores, minimal differences from the combined dataset was observed. The results for Thammajarik Uppatham 1 school are shown in **Figure 13**. The mean resilience score for this subsection of the data was 21.45, with a standard deviation of 11.87. The histogram uses a bucket size of five and shows a roughly uniform distribution of data.

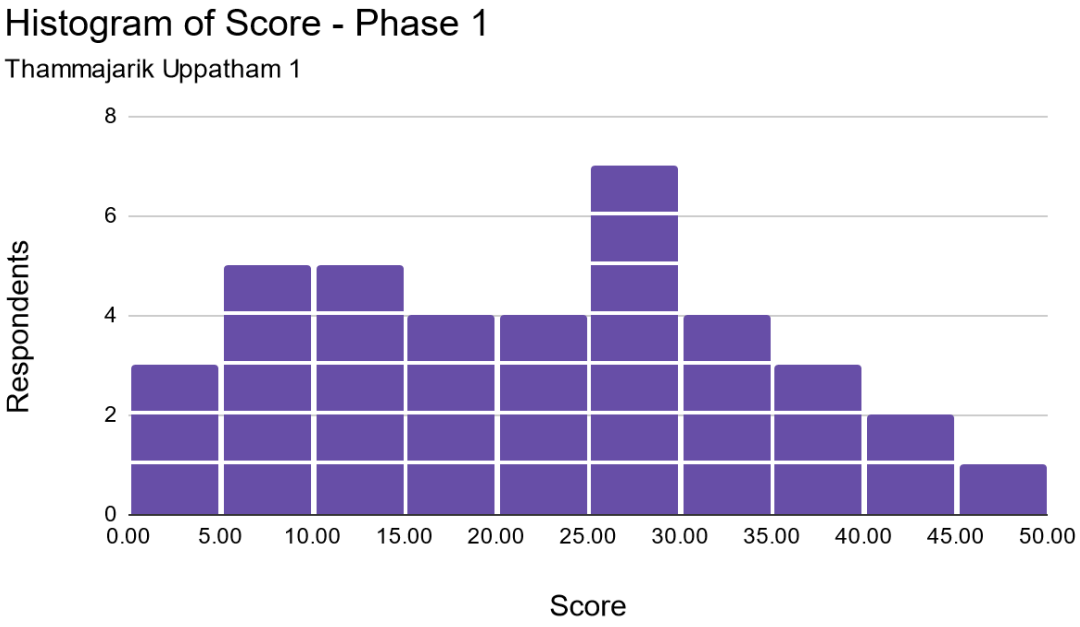

Figure 13. *Histogram of respondent scores in Thammajarik Uppatham 1 for Phase 1*

The results for Baan Pang Kam Noi are shown in **Figure 14**. The mean resilience score for this subsection of the data was 23.13 with a standard deviation of 9.90. The distribution for this data is interesting, with clusters between buckets 15.0 to 20.0 and 30.0 to 40.0.

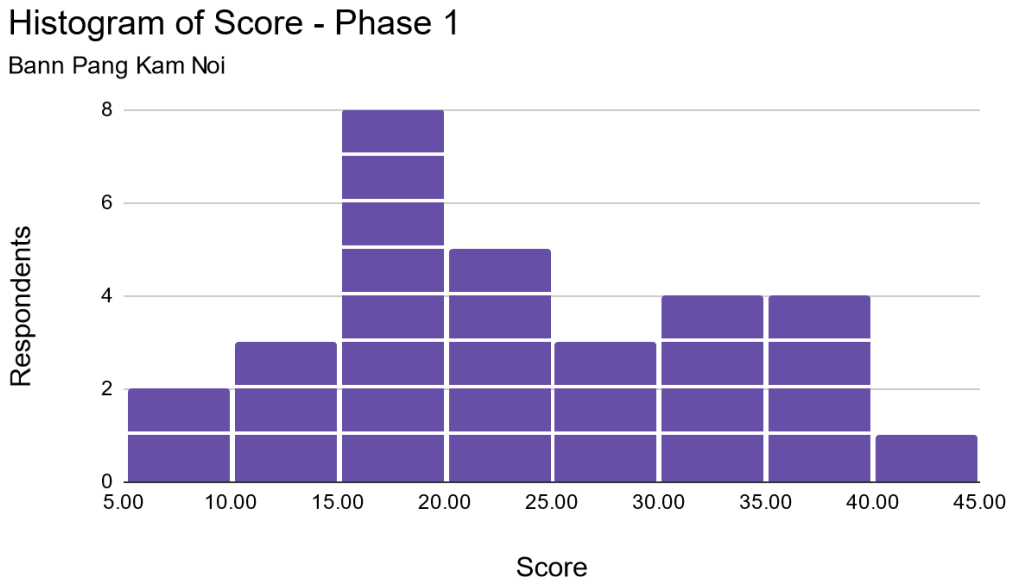

Figure 14. *Histogram of respondent scores in Bann Pang Kam Noi for Phase 1*

The results for Baan Koon Sa Nai school are shown in **Figure 15**. The mean resilience score for this subsection of the data was 15.9, with a standard deviation of 13.47. The mean and standard deviation were notably different from the other two schools. This may have been due to a lower response pool. In Baan Koon Sa Nai, only 10 responses were received compared to 38 from Thammajarik Uppatham 1 and 30 from Bann Pang Kam Noi. The response rates were similar though since Bann Koon Sa Nai was a smaller school. This was the only school to have a respondent that scored below 0. Though there were fewer responses, this lower score may be something for the SATI Foundation to explore at a later date.

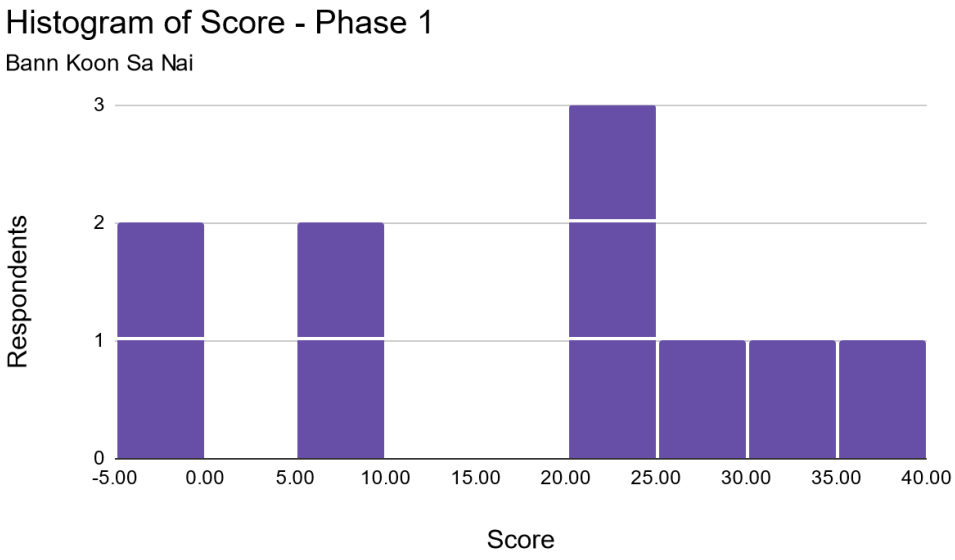

Figure 15. *Histogram of respondent scores in Baan Koon Sa Nai for Phase 1*

The mean and standard deviation of question responses were calculated to identify questions where students responded differently. The mean question scores for Phase 1 can be seen in **Figure 16**.

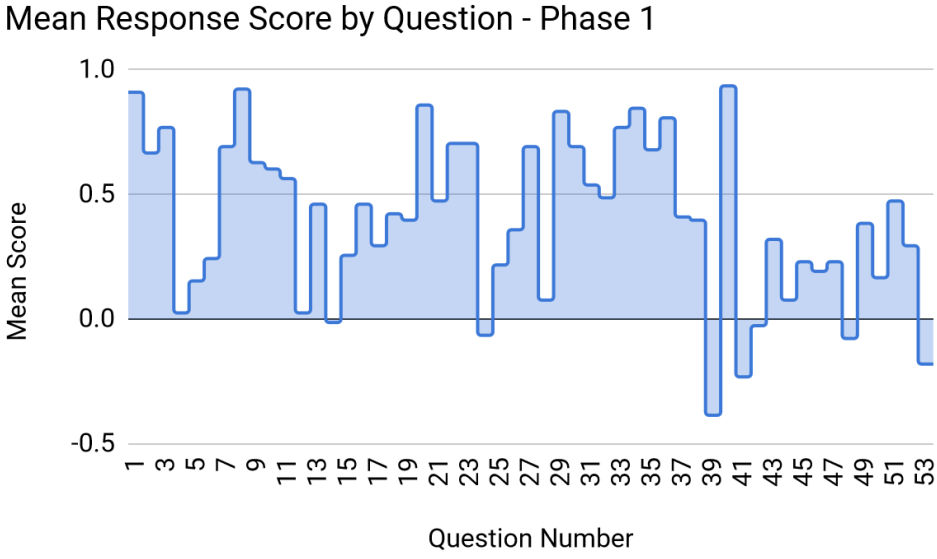

Figure 16. *Stepped Area Chart of Question Mean Response Score in Phase 1*

As seen in **Figure 16,** there were some questions that received heavily negative or positive responses. The five questions with the most positive average responses were questions 1, 8, 20, 34, and 40. These questions were "I know about the consequences of drugs", "I have access to clean water", "I believe that my parents love me", "I want to go to school", "I love myself". A positive question score indicated a student's tendency to view healthy behaviors positively or unhealthy behaviors negatively, with the specific behaviors depending on the question. The three questions which had the most negative mean response scores were questions 39, 41, and 53. These questions were "If someone talks behind my back, I will feel bad", "I feel bad when being compared with my friends or siblings", and "If my test score gets worse than it used to be, I will feel worried". A negative scoring response represents the opposite perception of behaviors to that of the positive question score. The most contentious questions asked during the survey had the highest standard deviations, the chart for which can be seen in **Figure 17**.

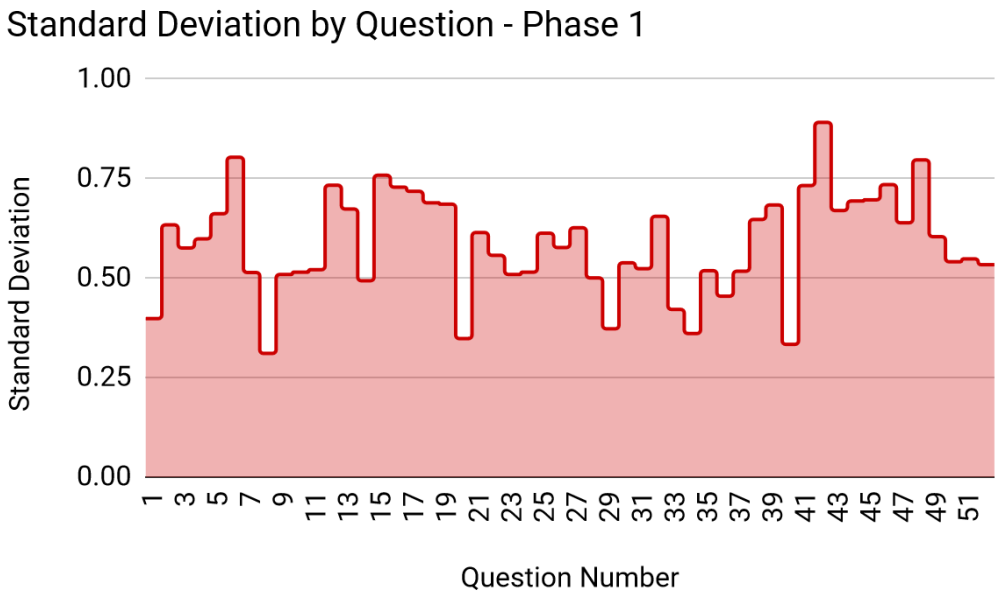

***Figure 17**. Stepped Area Chart of Question Standard Deviations in Phase 1*

The five most contentious questions in this survey, the questions with the highest standard deviations, were questions 6, 15, 42, 46, and 48. The high standard deviations for these questions may have identified an area of further exploration by the SATI Foundation. These questions were "If I wish to know more about drugs, I will ask my friends", "I think it is okay for people to hit me", "I am scared to become overweight", "If I was wrongly accused, I will be very angry and never forgive them", and "When a teacher praises a classmate, I wish that person was me". The high standard deviation may also have indicated more confusing questions that need to be clarified in future iterations of the survey. As we adapted the survey to student feedback, many questions were retained in full, and analyzing if these questions had consistently high standard deviations can provide insights on divided opinions in the student community. The five questions with the lowest standard deviations were questions 8, 20, 29, 34, and 40. These questions had mean scores of 0.923, 0.858, 0.833, 0.846, and -0.935 respectively. As expected, the questions with the lowest standard deviations tended to be questions where respondents frequently chose a positive or neutral response or a negative or neutral response.

Teacher Survey

In Phase 1, there were 25 responses from the teachers which is equivalent to 55.5% response rate. The responses were from three out of the four schools participating in Phase 1. For the teacher survey, the most common problems stated to be in the community were drug usage and verbal abuse. Of the 25 respondents, 16 rated verbal abuse as a four or five on a scale from 1-5, strongly disagree to strongly agree. This indicates that teachers believed verbal abuse was a very severe problem in their community. Of the 25 respondents, 14 ranked drug usage as a four or five. In addition, 88% of respondents said their school had some measures in place to contact students who missed multiple days of school. According to the respondents, students' physical needs were being met, with the majority of respondents rating students' access through the school to clean drinking water, food, and individual help as four or five. Most respondents, 16 of the 25, stated that they did not compare student work in front of the class. The data for this survey is intended for a Thai audience, as the responses are very subjective and should be used to provide context to student responses or note areas for further research in improving students' school time.

For the final section on feedback, 72% of the teachers found that the questions were clear and understandable, 12% of the teacher found the questions interesting, and 8% of teachers found the questions boring. There were suggestions to change the format of the choices which the team took into consideration for Phase 2.

4.2) Survey Phase 2

Survey Phase 2 included students and teachers from Doi Viang Wittaya School, Baan Jong School, Baan Doi Pee Lu School, and Baan Huay San School. In this phase, there was a reduction in the number of questions, from 53 to 49 questions. In addition, there was a wording change to adjust to more suitable languages for students in grades three to five.

4.2.1) Focus Group with Thammajarik Uppatham 1 School

The team conducted a focus group discussion with seven students from Thammajarik Uppathum 1 School in order to test Phase 2 of the survey. After reading each question aloud to students to check their understanding, the team found that they understood every question.

Figure 18. *Focus Group with Children from Thammajarik Uppatham 1 School*

4.2.2) Results from Survey Phase 2

Students Survey

From Phase 2, the students survey received 54 responses equivalent to a 21% response rate. From the responses, 48.1% were from Baan Doi Pee Lu School, 40.8% were from Doi Viang Wittaya School, 9.3% were from Baan Huay San School, and 1.9% were from Baan Jong School as presented in **Figure 19**.

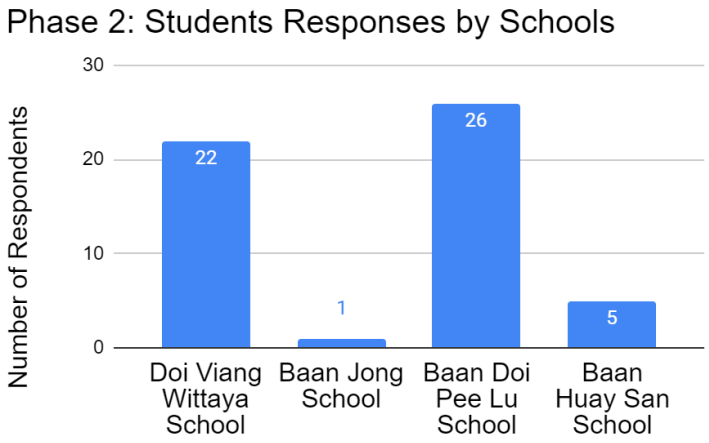

Figure 19. *Phase 2 student response rate column chart*

The schools in Phase 2 only had students up to grade six. The majority of the responses were by Grade three students. There were no responses from students in grade six. The comparison of students' responses by grade level between Phase 1 and 2 is presented in **Figure 20**. There was an increase in students' responses in grade three students and decrease in students' responses for older students.

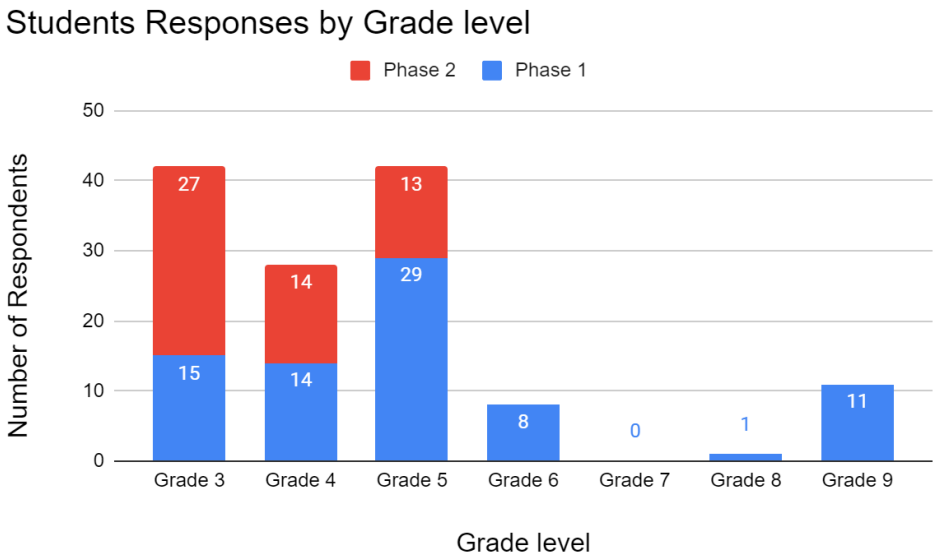

Figure 20*. Comparison of student response rate by grade level between phase 1 and phase 2 column chart*

As for the final section on feedback, 77.8% of students, 42 responses, thought that the survey question was clear and understandable and 46.3% of students, 25 responses, found the survey questions interesting. The percentage increases from the Phase 1 results indicated a better understanding of the survey questions. Nevertheless, 20.4% of students, 11 responses, found the survey questions boring and 16.7%, 9 responses, thought that the survey was too long. These comments were considered when providing suggestions for the SATI Foundation.

The distribution for scores in Phase 2 is shown in **Figure 21.** The histogram shown uses buckets of size five. The distribution of scores was roughly bell-shaped, suggesting a normal distribution would be a good fit.

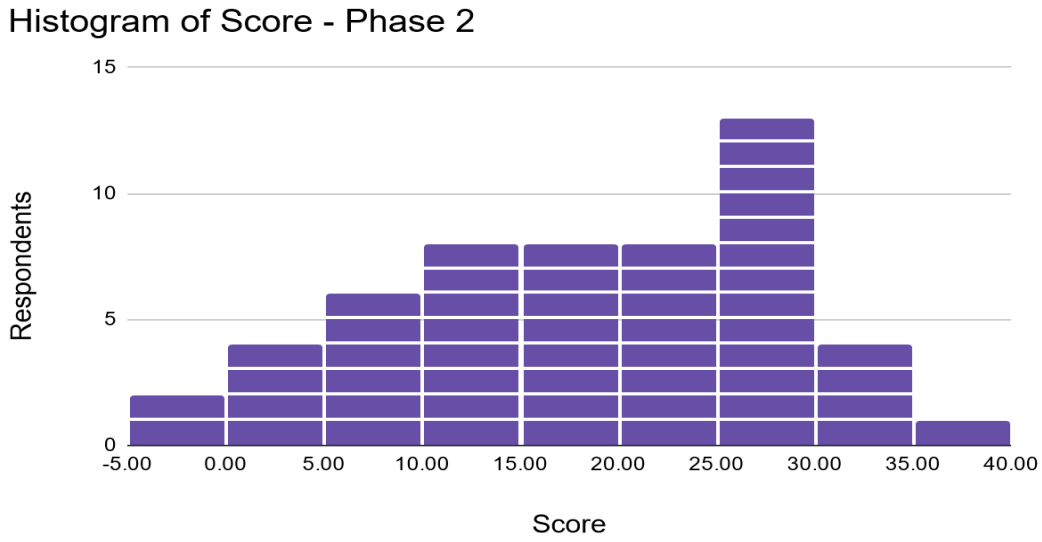

Figure 21. *Histogram of respondent scores for phase 2*

The responses for Phase 2 were found to have a mean score of 18.04, a median of 18.5 and a standard deviation of 9.88. **Table 2** contains a table of students found to be at risk for multiple confidence intervals. Students at risk scored below an amount of standard deviations below the mean. For a 95% confidence interval using a normal distribution, values that were 1.960 standard deviations away from the mean were considered statistically significant. For this 95% confidence interval, 1 of the 54 respondents was found to be at risk; however, making the confidence interval smaller would increase the amount found to be significantly low resilience, albeit weakening the strength of the statement.

Confidence Interval	Z Score	Number of Respondents
80%	1.282	7
85%	1.440	6
90%	1.645	4
95%	1.960	1

Table 2. *Phase 2 students at risk*

Distributions by school were created to observe responses in each school. Bann Jong School was excluded because only one response was received. Histograms of respondent scores can be seen in **Figures 22-24**.

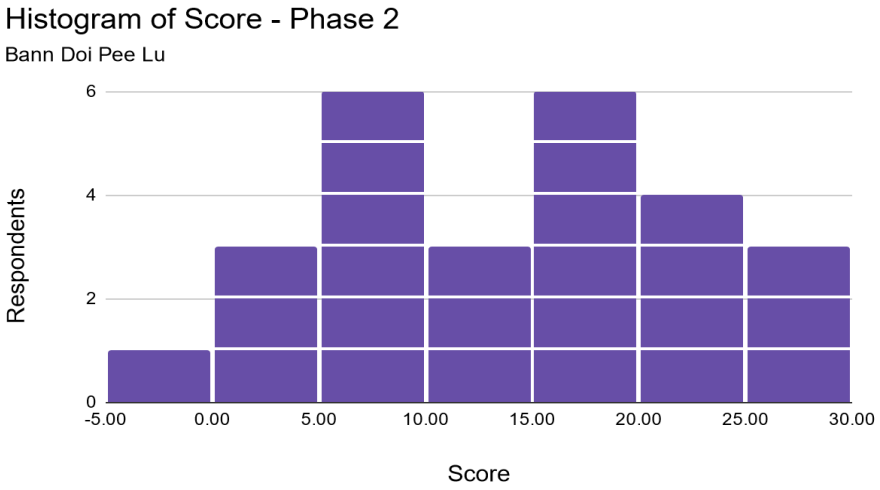

Figure 22. *Histogram of respondent scores in Baan Doi Pee Lu for Phase 2*

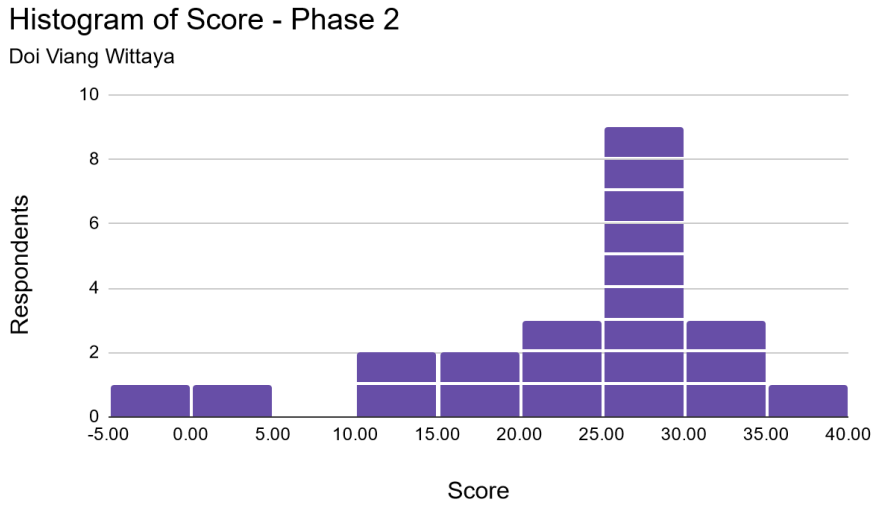

Figure 23. *Histogram of respondent scores in Doi Viang Wittaya for Phase 2*

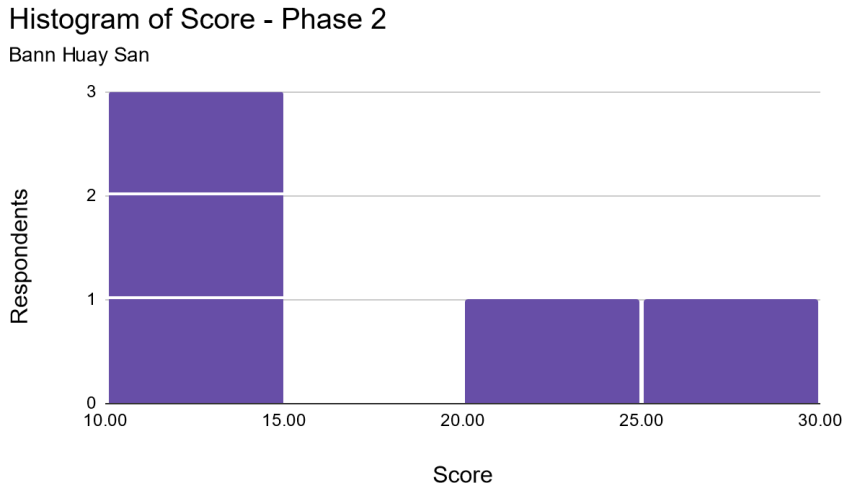

Figure 24. *Histogram of respondent scores in Bann Huay San for Phase 2*

Figures 22-24 show the distribution for the three schools that we received more than one response in Phase 2. A difference here can be seen between Bann Doi Pee Lu and Doi Viang Wittaya. Doi Viang Wittaya had nine responses in the 25-30 bucket, while it has no more than three responses in any other bucket. The data was centered around a median of 26 with a mean of 22.9 and a standard deviation of 9.84. In Baan Doi Pee Lu, the data was more evenly distributed, with data distributed around a median of 14.5, a mean of 13.8, and a standard deviation of 8.65. The difference in means between these two schools was very interesting as the data was almost a standard deviation apart for both schools. In previous schools from Phase 1, they received a survey with three more questions, so the maximum impact to the score between the two would be a change in +3 or -3 depending on if every student answered positively or negatively. In Bann Pang Kam Noi, a mean response average was similar to that of Bann Doi Pee Lu and was observed at 15.9, while Thammajarik Uppatham 1 had a mean of 23.13. Both had similar standard deviations to the schools with high response count from Phase 2. Both schools from Phase 1 and 2 which scored significantly lower than another school in their phase should be considered for the SATI Foundation workshops.

The mean and standard deviation of question responses were calculated to identify questions where students are responding differently. The mean question scores for phase 2 can be seen in **Figure 25**.

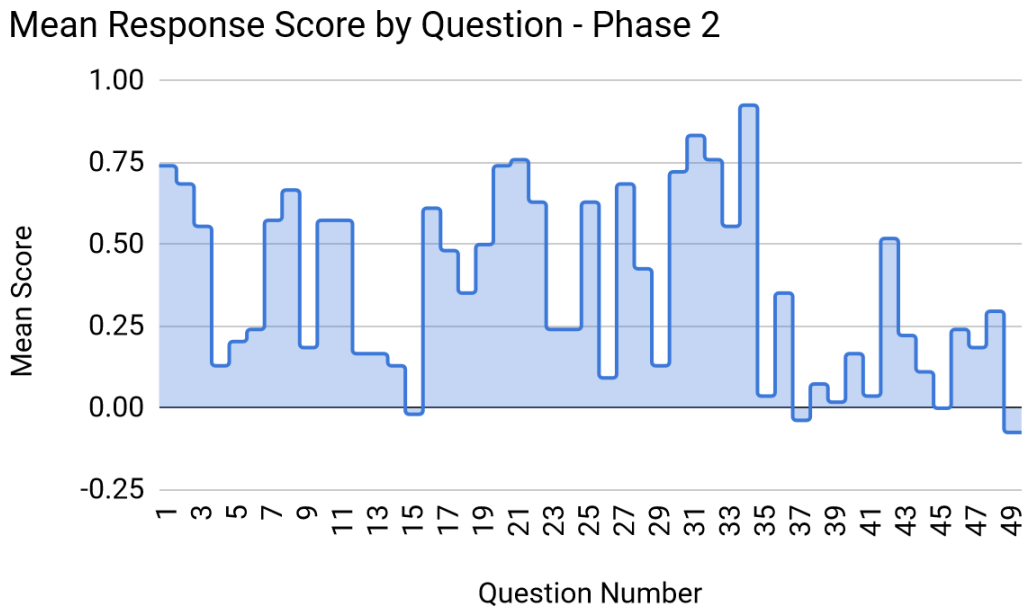

***Figure 25**. Stepped Area chart of Question Mean Response Score in Phase 2*

As seen in the combo chart, there were some questions that received heavily negative or positive responses. Three questions with high average response scores were questions 1, 20, and 34. These questions were: “I know about the consequences of drugs”, “I believe that my family members love me”, and “I love myself”. The three questions which had negative mean response scores were questions 15, 37, and 49. These questions were “I think it is okay for people to hit me”, “If someone talks behind my back, I will feel bad”, and “if my test score gets worse than it used to be, I will feel worried”. The most contentious questions asked during the survey had the highest standard deviations, the chart for which can be seen in **Figure 26**.

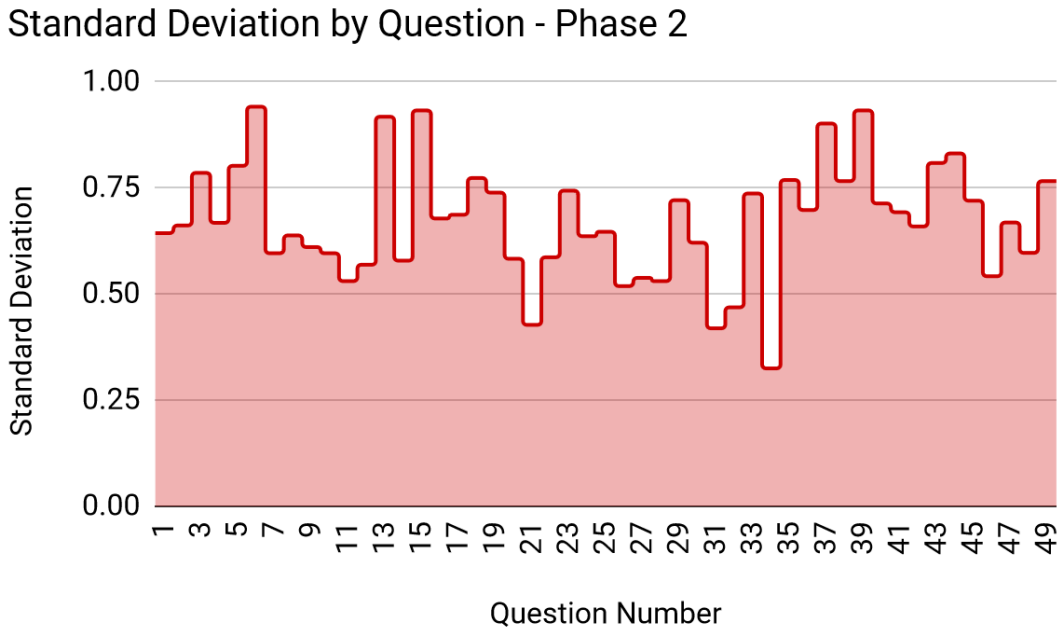

Figure 26*. Stepped Area chart of Question Standard Deviations in Phase 2*

The five most contentious questions in this survey, the questions with the highest standard deviations, were questions 6, 13, 15, 37, and 39. The high standard deviations for these questions may have identified an area of further exploration by the SATI Foundation. The questions were "If I wish to know more about drugs, I will ask my friends", "using violence (punching) is considered normal", "I think it is okay for people to hit me", "If someone talks behind my back, I will feel bad", and "I am scared to become overweight". The high standard deviation may have also indicated more confusing questions that need to be clarified in future iterations of the survey. The five questions with the lowest standard deviations were questions 21, 26, 31, 32, and 34. The questions were "I can talk to my family about my problems", "My parents fight at home", "I enjoy spending time at school", "The teachers at school are kind to me", and "I love myself". These questions had mean scores of 0.759, 0.093, 0.833, 0.759, and 0.926 respectively. Question 26 was particularly interesting in this survey phase because it has a low standard deviation, but a mean close to zero, indicating responses tended to be more neutral as seen in other questions. The question was "my parents fight at home". The other questions all had fairly high responses on average, indicating that most responses were probably ones and zeros.

Teacher Survey

In Phase 2, there were 16 responses from the teachers, which is equivalent to 39% response rate. Five responses were received from teachers in Baan Doi Pee Lu School and Baan Doi Viang Wittaya School, and four responses and two responses were received from Baan Jong School and Baan Huay San School, respectively.

From the teachers' responses, the most prominent problem within the community was family related problems, drug and substance abuse, and verbal abuse. For instance, 11 out of 16 teachers believed that family related problems were either at high or extremely high prevalence in their community. In addition, drug and substance abuse and verbal abuse were

chosen as high or extremely high concern by nine teachers. When asked about the reason why some students drop out of school, the answers were financial problems, lack of support from their family, and marriage. All four schools had a measure to follow up with students who had been missing from schools for more than three days. The measure included sending letters to the student's home, calling the parents, and visiting the student's home. Moreover, students have access to clean water and nutritious food according to the teachers. When considering the classroom environment regarding students' resilience, most teachers agreed that they would help students when faced with difficulties, seven teachers disagreed and stated that they would yell when students became loud and were not paying attention in class.

4.3) Survey Phase 3

Survey Phase 3 included students and teachers from Mae Ab Wittayakom School, Baan Huay Eoun School, Baan Nong Pam School, and Baan Pang Kia School. There were 49 questions for the students surveys.

4.3.1) Results from Survey Phase 3

Students Survey

For Phase 3, there were 89 responses received from students, equivalent to 20.9% response rate. From the responses, 20%, 53%, and 27% of respondents were from Mae Ab Wittayakom School, Baan Huay Eoun School, and Baan Nong Pam School, respectively. A histogram of respondents for Phase 3 can be seen in **Figure 27**.

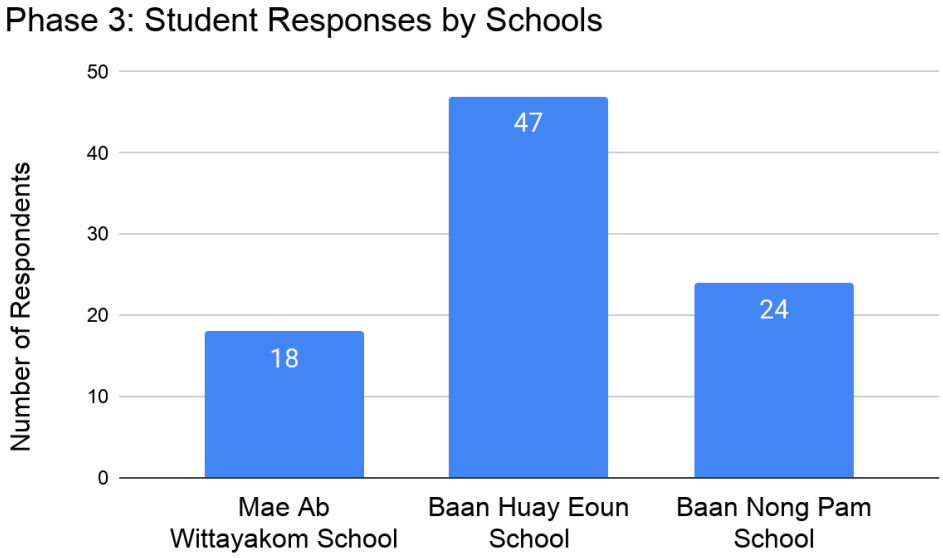

Figure 27. *Histogram of respondents for Phase 3*

When compared with other phases, the responses from Phase 3 had similar amounts of respondents from the primary school students. There was still a low amount of respondents from lower secondary school students.

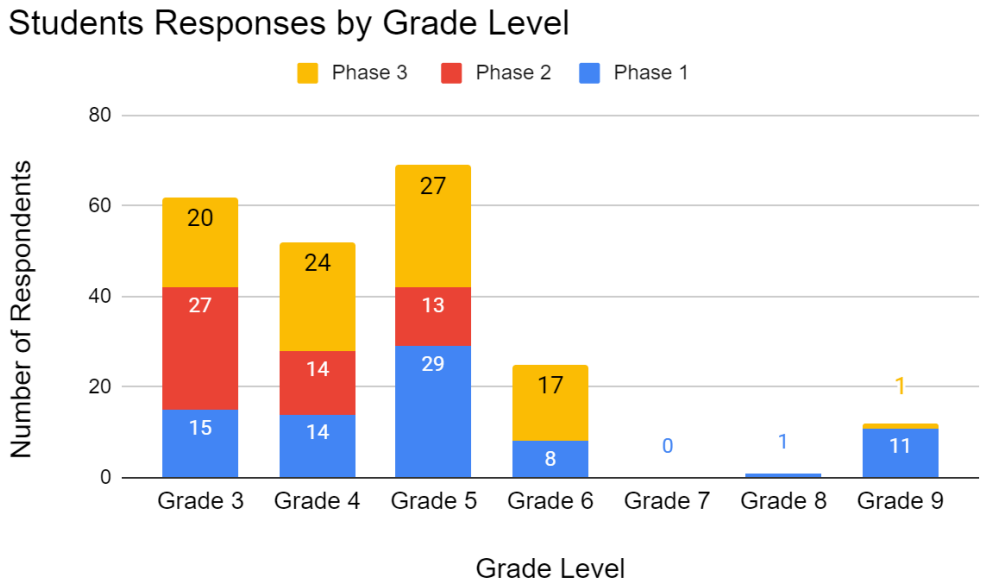

***Figure 28**. Histogram of respondents by grade for all phases*

The distribution of age was very interesting for this phase as there was only 1 respondent from grade 9, but there were 15 respondents aged between 14-15. In Thailand, the ages for primary school, grade one to grade six, is 6 to 11 years old. The result could have indicated that there were many students entering the school system later than normal which could be the area for the SATI Foundation to further explore. A histogram of respondents by age can be seen in **Figure 29**.

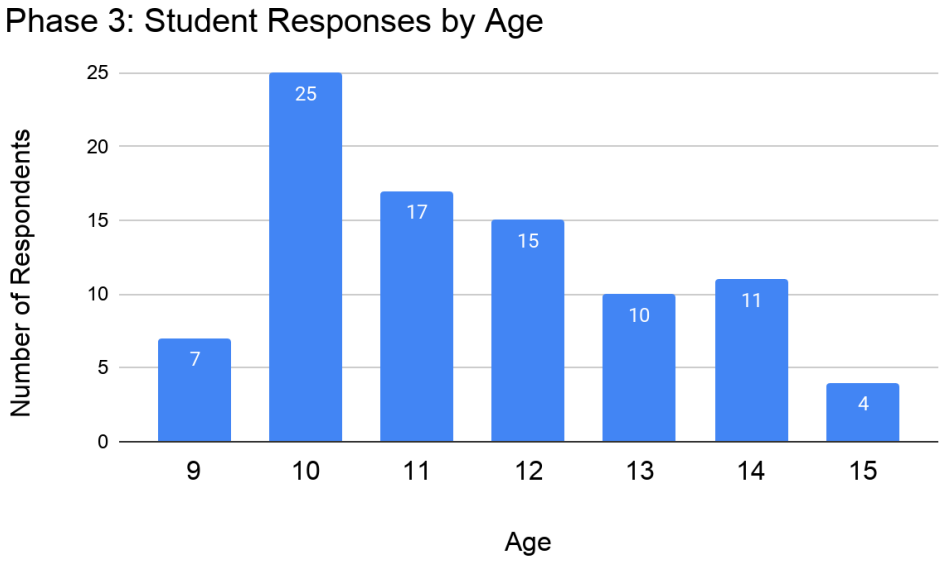

***Figure 29**. Histogram of respondents by age for Phase 3*

As for the final section on feedback, 65.2% of students, 58 responses, thought that the survey was clear and easy to understand, 18% of students, 16 responses, found the survey questions boring, 13.5% of students, 12 responses, felt embarrassed when answering the questions, and 12.4% of students, 11 responses, thought that the survey was too long. These comments were considered when providing suggestions for the SATI Foundation.

The distribution for scores in Phase 3 is shown in Figure 30. The histogram shown uses buckets of size five. The distribution of scores was roughly bell-shaped, suggesting a normal distribution would be a good fit.

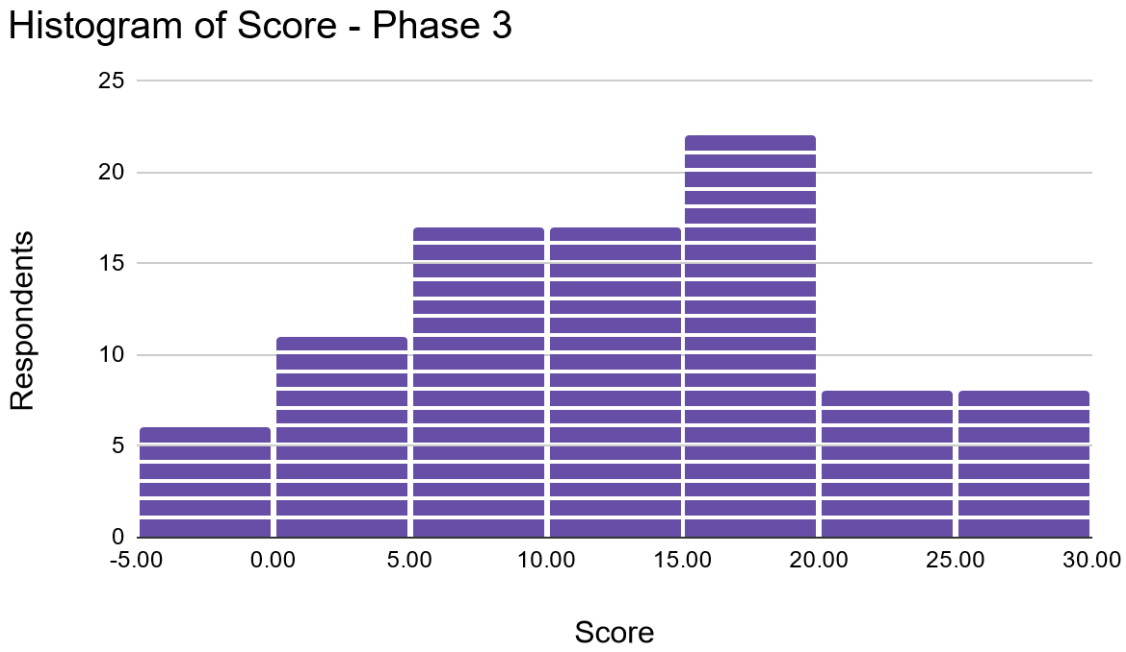

***Figure 30**. Histogram of respondent scores for phase 3*

The responses for Phase 3 were found to have a mean score of 12.30, a median of 13.0 and a standard deviation of 8.06. Table 3 contains a table of students found to be at risk for multiple confidence intervals. Students at risk scored below an amount of standard deviations below the mean. For a 95% confidence interval using a normal distribution, values that were 1.960 standard deviations away from the mean were considered statistically significant. Between a 95% and an 80% confidence interval, 1 and 11 of the 89 respondents were found to be at risk, respectively.

Confidence Interval	Z Score	Number of Respondents
80%	1.282	11
85%	1.440	7
90%	1.645	6
95%	1.960	1

***Table 3.** Phase 3 students at risk*

Figures 31-33 show the distribution for the three schools which we received more than one response in Phase 3.

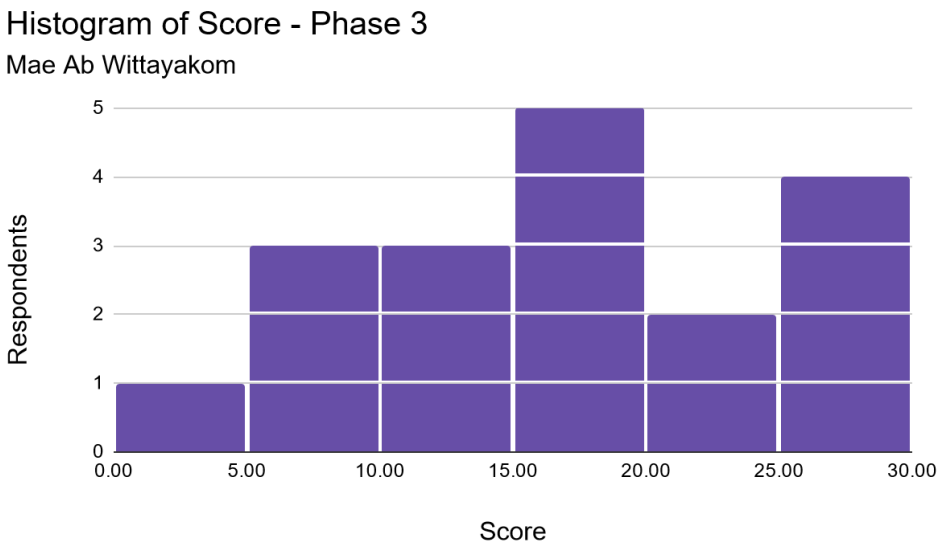

***Figure 31**. Histogram of respondent scores in Mae Ab Wittayakom for Phase 3*

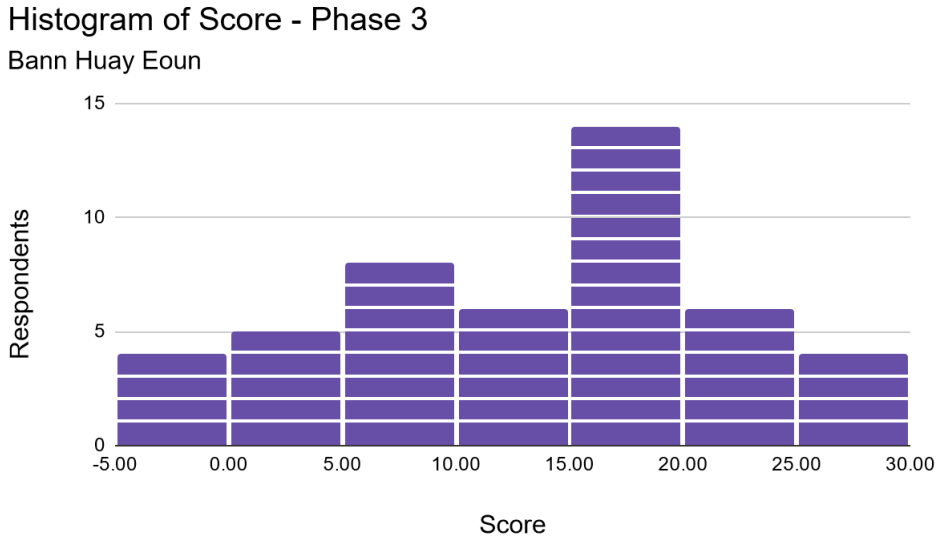

***Figure 32**. Histogram of respondent scores in Baan Huay Eoun for Phase 3*

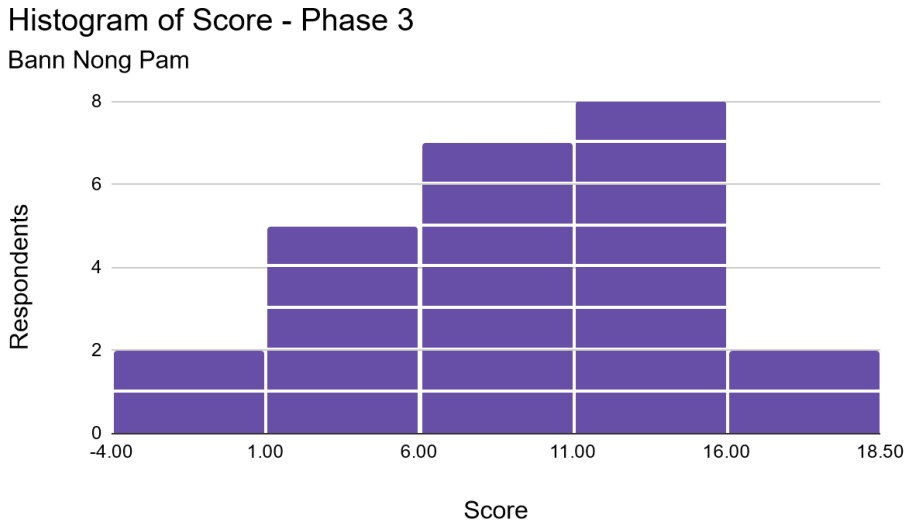

***Figure 33**. Histogram of respondent scores in Baan Nong Pam for Phase 3*

The distributions by school were interesting in this phase. **Figure 31** shows the responses in Mae Ab Wittayakom, which featured an average score of 16.28, a standard deviation of 7.58, and a median of 16.5. **Figure 32** shows the responses of Bann Huay Eoun, which features an average score of 12.9, a standard deviation of 8.50, and a median of 15. **Figure 33** shows the responses of Bann Nong Pam, which featured an average score of 8.08, a standard deviation of 5.95, and a median of 8.5. In this phase, the lowest response average was observed, with Baan Nong Pam scoring below a ten on average for the first time in the survey for a school with over five responses. This average is accompanied by a very small standard deviation. In other schools in the phase, response averages were similar to those observed in Phase 1 and 2, with smaller standard deviations.

The mean and standard deviation of question responses were calculated to identify questions where students responded differently. The mean question scores for Phase 3 can be seen in **Figure 34**.

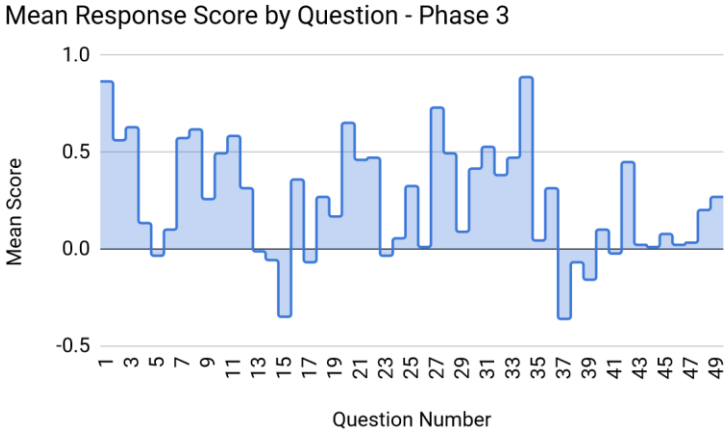

***Figure 34**. Stepped Area chart of Question Mean Response Score in Phase 3*

As seen in the combo chart, there were some questions that received heavily negative or positive responses. Three questions which had primarily negative responses were questions 15, 37, and 39. A negative scoring response represents the opposite perception of behaviors to that of the positive question score. Question 15 was "I think it is okay for people to hit me". Question 37 was "If someone talks behind my back, I will feel bad", and Question 39 was "I am scared to become overweight". Question 15 had negative responses in the previous phase as well, where it received a score close to 0. Questions 37 and 39 also had mean response scores close to 0, indicating that these questions tend to generate more negative responses than other questions in the survey. A stepped chart of standard deviations in Phase 3 can be seen in **Figure 35**.

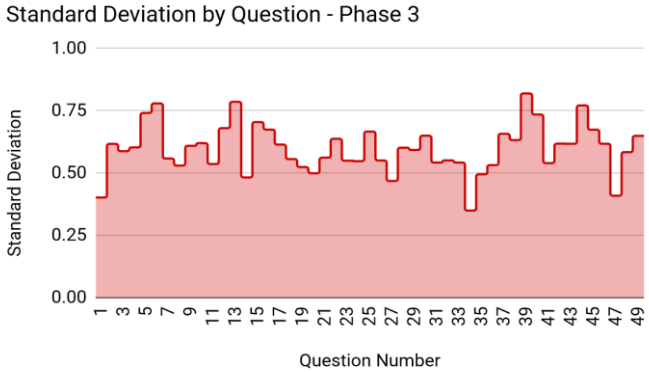

***Figure 35**. Stepped Area chart of Question Standard Deviations in Phase 3*

The five most contentious questions in this survey, the questions with the highest standard deviations, were questions 5, 6, 13, 39, and 44. The high standard deviations for these questions may have identified an area of further exploration by the SATI Foundation. These questions were “I always see my guardian smoke cigarettes”, “If I wish to know more about drugs, I will ask my friends”, “Using violence (punching) is considered normal”, “I am scared to become overweight”, and “If I was wrongly accused, I will be very angry and never forgive them”. As we adapted the survey to student feedback, many questions were retained in full, and analyzing if these questions had consistently high standard deviations provided insights on divided opinions in the student community. Two such questions which both had high standard deviations between phases were questions 6 and 13. In Phase 2, question 6 had a standard deviation of 0.942 while in Phase 3, it had a standard deviation of 0.780. In Phase 2, question 13 had a standard deviation of 0.918 and in Phase 3, it had a standard deviation of 0.786. The five questions with the lowest standard deviations were questions 1, 14, 27, 34, and 47. These questions were “I know the consequences of drugs”, “Parents and teachers often scold me”, “I have a lot of friends at school”, “I love myself”, and “I did well on my exams and got good scores”. These questions had mean scores of 0.923, 0.858, 0.833, 0.846, and -0.935 respectively. As expected, the questions with the lowest standard deviations tended to be questions where respondents frequently chose positive or negative responses.

Teacher Survey

In Phase 3, there were 10 teacher respondents, equivalent to a 22% response rate. Four of the responses were received from teachers in Mae Ab Wittayakom School and Baan Huay Eoun School and two responses were received from teachers in Baan Nong Pam School. There were no responses from Baan Pang Kia School.

The problems within the communities, such as health problems and physical abuse, were ranked as moderate by the teachers. Problems related to drug and substance abuse and verbal abuse were ranked as high or extremely high by five teachers while family related problems were ranked as high or extremely high by six teachers. The teachers commented that many parents needed to work in different provinces and they did not have time for their children. Four out of ten teachers reported catching students smoking cigarettes. Furthermore, a teacher reported the use of inhalant by a student. All three schools had a measure to follow up with students who had been missing from school for more than three days. The measures included visiting students' homes, contacting the parents, and asking other students who live nearby about the missing students. For the reason why students had dropped out of school in the past, teachers reported it was because of financial problems, marriage, lack of support from family, and the need to work. All schools provided nutritious lunch for students. Nine out of ten teachers agreed that students have access to clean drinking water. When considering the classroom environment to see if it supports students’ resilience, most teachers agreed that they would help students when faced with difficulties. Six teachers said they did not compare students’ work and nine teachers thought that students were happy with their classes.

4.4) Conclusion

According to the survey results, the trends from the responses in 3 phases were analyzed. We can conclude that the questions with high standard deviations responses may have identified an area that SATI foundation can further explore. These questions received controversial responses that indicate some groups of students have divided opinions on those topics. Questions with significantly high or low means indicate that a large number of students tend to answer similarly. It might mean that our questions prompt the respondents to answer in a particular way and it does not provide us with any new information that we can explore. However, some questions that most respondents answer negatively could mean that they have a high susceptibility of being at risk, which is the area that SATI should investigate further. The questions presenting those trends from 3 phases are listed on **Table 4.**

Questions with High SD	Questions with Negative Mean Responses	Questions with Positive Mean Responses
- If I wish to know more about drugs, I will ask my friends - Using violence (punching) is considered normal" - I think it is okay for people to hit me - I am scared to become overweight	- If someone talks behind my back, I will feel bad - I think it is okay for people to hit me - I am scared to become overweight - If my test score gets worse than it used to be, I will feel worried - I feel bad when being compared with my friends or siblings	- I know about the consequences of drugs - I believe that my family members love me - I love myself - I have access to clean water - I want to go to school

Table 4. *Summarization of questions with interesting trends from 3 phases*

Moreover, when analyzing student responses from each school, we found that there are students in Baan Koon Sa Nai, Baan Doi Pee Lu, Doi Viang Wittaya, Baan Hua Euan and Baan Nong Pam school with relatively low resilience scores, indicating that they could become at-risk of health behaviors.

Chapter 5: Recommendations and Closing Statement

It was clear from our survey results that some students are in need of assistance, based on their resilience scores seen in Chapter 4: Our Survey Results. Although the children with low resilience scores may face many hardships, we expect this project to aid in identifying children to get them the help they need through the SATI Foundation's non-profit activities. We hope that the SATI Foundation can help these youth in improving their lives and attitudes towards health risk behaviors such as substance abuse, mental and physical abuse, and runaway situations. As the project came to an end, the team came up with recommendations to the SATI Foundation regarding the survey, the data analysis program, and data usage.

5.1) Recommendations on Our Survey

Identifying Interesting Questions

From the data collected and analyzed, interesting questions that caused large disagreements can be identified. Using the mean and standard deviations, questions with a low mean and high standard deviation signal that many students were on opposing ends of the questions asked and few neutral results were received. Questions where students have opposing viewpoints could be an area the SATI Foundation can explore further. We recommend that the SATI Foundation add more questions on topics with disagreeing viewpoints to gain greater understanding of the students' views on particular issues. However, if the SATI Foundation does not want to add more questions to the survey or re-survey the participants to delve into particular issues, we suggest that they hold workshops in-person or virtually that focus on the questions that resulted in disagreeing viewpoints. This allows for a more hands-on approach that will allow the SATI Foundation to engage with its audience on issues that are more relevant to their needs.

Eliminating Leading Questions

Although we have consulted with two child behavior specialists as well as the sponsor to ensure that the survey has no leading questions, our survey may still contain leading questions that subtly prompt the participant to answer in a particular way. We recommend the SATI Foundation to perform an extensive examination into all the questions and rephrase questions that suggest a particular answer. Perhaps the inclusion of more open-ended questions could mitigate the use of leading questions. Open-ended questions include questions that focus on the who, what, where, and when. These types of questions may provide the best information from the participants as it allows for a range of answers with increased specificity.

Splitting the Student Survey by Age Groups

In this project, one survey was created for all students ranging from ages 9 to 15. Although we received responses from almost all grade levels as seen in **(Figure 28)**, Phase 2 lacked responses from students above the sixth grade which may be due to a lack of reception of changes made to the survey after Phase 1. Splitting the survey according to age group may be beneficial as age groups can be targeted with different engagement methods. For instance, there could be a survey for students from third to fifth grade containing cartoons and another survey targeting students from sixth to nine grade with content that is engaging to them. More

research will have to be conducted to discern what engagement methods work best on the older students.

Splitting the survey according to age may also be beneficial as the questions were made to be simple so that the younger children could understand the language and content fully. By adjusting language and content to be more complex and engaging for the older students, results could be more complete and informative on their resilience towards health risk behaviors. In addition, the older students may possess more experiences and understanding regarding the focus health risk behaviors such as substance use.

Adding Incentives

Adding incentives to complete a survey can increase response rates by 8% or more if done correctly (Ramshaw, 2021). Due to COVID-19, the team was not able to visit the schools. In addition, time constraints and the long distance made it difficult to provide incentives to the students for participating in the survey. For the future, we recommend that the SATI Foundation collaborate with school administration to incentive survey completion. For instance, incentives could include extra credit on an assignment or treats. Cooperation from the teachers in implementing incentives could be a cost effective and easy way to increase student response rates.

5.2) Recommendation on Scoring Sheet and Data Analysis Program

Changing Values on Scoring Sheet

For this project the scoring sheet system had every resilience question have equal value. We recommend weighing questions differently to stress specific questions or topics so that the resilience score will reflect on that emphasis. For instance, at the start of the project the SATI Foundation requested emphasis on mental health sections, these sections could hold greater value on the scoring sheet resulting in more attention to low resilience scores on that section. By skewing the weights assigned to each question, a more complete analysis can be created of the respondent on specific sections of the survey.

Adding Features to Data Analysis Program

Included in the deliverables for this project, we have provided the SATI Foundation with a developer's guide as well as a user manual for the program we created. The developer's guide has been provided in **Appendix L**. In the future we recommend that the SATI Foundation recruit someone with a background in Java so that they are able to follow the developer's guide and add more features if necessary. Due to time constraints, only basic features to the program were added such as graphical user interface. However, there is much more that can be added. Some examples of other features that could be added to the program are dynamic creation of CSV's which contain subsets of the data. For instance, this could aid in identifying school names and columns. Better support for questions could be also added, as the current iteration only supports questions with three response options. Moreover, UI translation or enhancements could be made. This may help the SATI Foundation in identifying locations of low resilience score students. Finally, we recommend that a consistent database of survey results is created when the SATI Foundation settles on a final draft of the survey. This will allow for comparison from prior survey results and allows for ease in direct comparisons by making results easily searchable.

5.3) Recommendations for Data Use

Workshops Based on Resilience Scores

According to the data provided, we recommend that the SATI Foundation provide their workshop program to schools that reported low resilience scores. Workshop programs could be in the format of self-esteem development in youth and educating the children on specific health risk behaviors such as mental and physical abuse. There are three main activities that the SATI Foundation implements. First, an activity to allow children to express themselves and their skills. Second, a role-playing activity that demonstrates and trains children on real life situations regarding health risk behaviors. Finally, we suggest that the SATI Foundation utilize relaxation activities as children with low resilience scores may experience intense and stressful situations. In addition, these activities could result in increased trust with the surveyor resulting in higher response rates in the survey. In addition we suggest the SATI Foundation to collaborate with local leaders to further prevent health risk behaviors in children. This collaboration allows for tracking of progress, or lack of progress, so that steps may be taken accordingly.

5.4) Closing Statement

Children all over the world are susceptible to health risk behaviors such as substance abuse, mental and physical abuse, and runaway situations. In Thailand, around 52 children were reported of being sexually, psychologically, or physically abused, or exploited each day. It is very possible that this number is undercounted as many of these incidents go unreported for various reasons, whether it be due to fear or believing that no one cares (UNICEF Thailand, n.d). In addition, there are more than 20,000 Thai youth living on the streets (Humanium, 2019). Organizations such as the SATI Foundation have a mission to help these children that are often overlooked and forgotten about. They provide children with numerous workshops and resources to improve their situations. The SATI Foundation's projects include general education and occupational training, work study, preventive healthcare mobile initiatives, scholarship, and clear water programs. Our team hopes that our survey and data analysis program can become a great step in assisting the SATI Foundation identify children who are in dire need of their help as well as extend their reach. Our team hopes that we have contributed to the reduction of the amount of youth exposed to health risk behaviors and that we have assisted in success in their adulthood.

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Appendix

Appendix A: SATI Foundation

The founder, Sakson Rouypirom, was born and raised in America and then relocated to Thailand in 2011 after receiving a pre-med degree in psychology from NYU. He recognized that many communities in Thailand were underserved in many basic needs. He decided to found SATI Foundation Non-Profit in 2010, which focuses on providing healthcare and education access to remote areas in Thailand. The name Sati, comes from a Buddhist Pai word which means mindfulness. He also is a co-owner of Broccoli Revolution, a vegan restaurant that also serves cold-pressed juice in Bangkok. This business donates a percentage of sales to fund SATI programs. Their programs include providing clean water in Chiang Rai and farming sustainable and organic vegetables in the hill tribes. One of their accomplishments is the launch of the Faces/Now exhibition SKY at Case Space Revolution which is an art therapy program. SATI has also collaborated with Paron School of Art and Hub Saidek Foundation to raise awareness of runaway youth through murals and public bus paintings that were painted by children from the Hub.

This project is important to the sponsoring organization as it allows for data collection on a vast range of topics such as demographic, economic, social and public health data in order for it to be utilized to help those underserved communities. Once this data is collected it can be interpreted to predict risk as well as provide relevant information on “hot zones” or communities that are especially in danger for problems such as water scarcity, poor education, and health issues. Effective collection of this data will hopefully result in identification and analysis of the risks that certain communities are facing and involvement with that community to plan, design, implement, monitor, and evaluate these risk activities. This project is not simple as it must be flexible and applicable to work across many different communities in Thailand; however, this difficult task must be overcome in order to get a substantial amount of reportable data to represent Thailand as a whole.

The sponsor’s goal for the project is to come up with a data collection method that can survey underserved and at-risk populations, specifically youth ages nine to fifteen in Northern Thailand. The data collected will be on the resilience towards the health risk behaviors these communities face. The four focus health risk behaviors are substance abuse, mental and physical abuse, and runaway situations. Using that information the goal would be to provide positive outlets for these communities as well as getting them involved in identifying the issues they face. These positive outlets will be in the form of workshops and developing different skills that will help the people participating obtain useful knowledge and skills that they can use for their future.

Appendix B: 12 Participating SATI Foundation's Partner Schools

School Name (EN)	School Name (TH)	Province	District	Sub district	School Type
Baan Huay Eoun School	โรงเรียนบ้านห้วยอื้น	Chiang Rai	Mae Fa Luang	Thoet Thai	Primary
Mae Ab Wittayakom School	โรงเรียนแม่แอบวิทยาคม	Chiang rai	Ai	Ban Saeo	Kindergarten - Lower Secondary
Thammajarik Uppatham 1 School	โรงเรียนธรรมจาริกอุปถัมภ์ 1	Chiang rai	Mae Chan	Mae Chan	Kindergarten - Lower Secondary
Bann Pang Kia School	โรงเรียนบ้านปางเกี๊ยะ	Chiang Mai	Mae Jam	Mae Suek	Kindergarten - Primary
Bann Tham School	โรงเรียนบ้านถ้ำ	Chiang rai	Mae Sai	Pong Ngam	Kindergarten - Primary
Bann Jong School	โรงเรียนบ้านจ้อง	Chiang rai	Mae Sai	Pong Pha	Kindergarten - Primary
Bann Nong Pam School	โรงเรียนบ้านหนองผำ	Chiang rai	Mae Suai	Mae Suai	Kindergarten - Primary
Doi Viang Wittaya School	โรงเรียนดอยเวียงวิทยา	Chiang rai	Mae Suai	Wawi	Primary
Bann Pang Kam Noi School	โรงเรียนบ้านปางคามน้อย	Maehongson	Pang Mapha	Pang Mapha	Primary
Bann Huay San School	โรงเรียนบ้านห้วยส้าน	Maehongson	Khun Yuam	Khun Yuam	Primary
Bann Mak Prik School	โรงเรียนเขตพื้นที่การศึกษาอำเภอปาย จังหวัดแม่ฮ่องสอน	Maehongson	Pai	Mueang Paeng	Primary
Bann Doi Pee Lu School	โรงเรียนบ้านดอยผีลู	Maehongson	Pai	Mae Na Toeng	Primary
Bann Koon Sa Nai School	โรงเรียนบ้านขุนสาใน	Maehongson	Pai	Pong Sa	Primary

Appendix C: Consent Scripts for Students and Teachers

English Version

We are students from Worcester Polytechnic Institute and Chulalongkorn University looking to collect data on youth participation in health risk behaviors. We are specifically looking to collect data on drug and substance consumption, mental and physical abuse, and runaway situations in youth in primary and secondary school.

We ask that you please consider participating in our survey for our research project. The purpose of the research project is to address health risk behaviors in Thai youth with a focus on alcohol abuse, substance abuse, and sexual behaviors to help underserved Thai communities. The research will be published; however, all names will be kept confidential to keep anonymity.

The survey should take at most 15 minutes to fill out and we would appreciate thoughtful answers to our questions. A follow-up survey or interview may be requested. All in-person contact will be socially distant and follow proper safety guidelines.

Research will be sent to our Sponsor to help identify specific zones in the Bangkok region that may need humanitarian help. Responses may be published but all names will remain confidential throughout the whole survey process.

This process is voluntary, all questions may be skipped and names will never be shared.

Please feel free to ask us any questions about the study, survey questions and potential interviews. Also please feel free to contact us after the survey or interview for any follow up questions.

We can be contacted with the following email: gr-iqpatriskyouthteam9@wpi.edu

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Researcher's Name and Signature Date

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Interviewee's Name and Signature Date

For more information about this research or about the rights of research participants, or in case of research-related injury, contact:
IRB Chair (Professor Kent Rissmiller, Tel. 508-831-5019, Email: kjr@wpi.edu) and the Human Protection Administrator (Gabriel Johnson, Tel. 508-831-4989, Email: gjohnson@wpi.edu.)

Thai Version

การขออนุญาติในการทำแบบประเมิน

แบบสอบถามนี้เป็นส่วนหนึ่งของรายวิชา Interactive Science and Social Project ของคณะวิทยาศาสตร์ สาขาเคมีประยุกต์ จุฬาลงกรณ์มหาวิทยาลัย ร่วมกับมหาวิทยาลัย Worcester Polytechnic Institute ในการจัดทำโครงงานวิจัยการระบุตัวชี้วัดความเสี่ยงจากข้อมูลภูมิประชากร (Demographic data) และแบบทดสอบภูมิคุ้มกัน (Resilience Questionnaire) เพื่อพัฒนาการรับมือความเสี่ยงในอนาคต ในประเด็นปัญหายาเสพติด, ปัญหาการทำร้ายร่างกายและจิตใจ, ปัญหาการหนีออกจากบ้าน และปัญหาด้านสุขภาพ ในการทำแบบสอบถามครั้งนี้ ใช้เวลาทำประมาณ 10 - 15 นาที

ทั้งนี้ข้อมูลทั้งหมดที่ถูกเก็บในแบบสอบถามนี้จะถูกใช้สำหรับการดำเนินงานของมูลนิธิสติเท่านั้น ข้อมูลทั้งหมดจึงถูกเก็บเป็นความลับ มีเพียงคณะผู้พัฒนาที่สามารถเข้าถึงได้ จะไม่มีการนำไปใช้ในเชิงพาณิชย์ โดยการตัดสินใจในการเข้าร่วมการเก็บข้อมูลของท่านจะเป็นไปตามความสมัครใจ ท่านสามารถปฏิเสธที่จะเข้าร่วม หรือสามารถถอนตัวออกจากการวิจัยเมื่อไหร่ก็ได้ โดยที่การปฏิเสธหรือการถอนตัวจะไม่มีผลเสียใด ๆ ต่อท่าน

หากมีข้อสงสัยเพิ่มเติมท่านสามารถติดต่อเพื่อสอบถามข้อมูลได้ที่
นางสาวนันทนัช จันทร์ย้อย หนึ่งในคณะนิสิตผู้ทำการวิจัย
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Appendix D: Consent Letters for Participating Schools

ที่ อว 64.16.2.02/0278.11/2564

ภาควิชาเคมี คณะวิทยาศาสตร์
จุฬาลงกรณ์มหาวิทยาลัย
254 ถนนพญาไท แขวงวังใหม่
เขตปทุมวัน กรุงเทพฯ 10330

1 กุมภาพันธ์ 2564

เรื่อง ขอความอนุเคราะห์ข้อมูลและการกระจายแบบสำรวจสำหรับโครงการวิจัย

เรียน ผู้อำนวยการโรงเรียนบ้านปางคามน้อย

สิ่งที่ส่งมาด้วย รายชื่อนิสิตที่ขอความอนุเคราะห์เข้าเก็บข้อมูล

เนื่องด้วยในภาคการศึกษาปลาย ปีการศึกษา 2563 หลักสูตรวิทยาศาสตรบัณฑิต สาขาวิชาเคมีประยุกต์ ภาควิชาเคมี คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ได้มีการเรียนการสอนรายวิชาโครงงานวิทยาศาสตร์และสังคมแบบปฏิสัมพันธ์ (2302307 Interactive Science and Social Project) ให้แก่นิสิตชั้นปีที่ 3 เป็นประจำทุกปี โดยมีวัตถุประสงค์ให้นิสิตชั้นปีที่ 3 เข้าใจความเชื่อมโยงของปัญหาจริงในสังคมและฝึกทักษะการวิจัยพื้นฐานที่จำต้องมีกระบวนการเก็บข้อมูลเพื่อนำมาประมวลผลได้อย่างมีนัยสำคัญตามทฤษฎีที่เกี่ยวข้อง ในปีการศึกษานี้ นิสิตมีโครงงานวิจัยจำนวน 9 โครงงาน โดยหนึ่งในโจทย์วิจัยเป็นการระบุตัวชี้วัดความเสี่ยงจากข้อมูลภูมิประชากร (demographic data) เพื่อการพัฒนานโยบายของชุมชนหรือองค์กรในการรับมือความเสี่ยงในอนาคตคณะนิสิตเลือกที่จะทำการวิจัยเพื่อปกป้องเยาวชนจากสารเสพติด การทำร้ายร่างกายหรือจิตใจของเด็กเร่ร่อนและเด็กด้อยโอกาสในพื้นที่ต่างจังหวัด

ภาควิชาเคมี สาขาวิชาเคมีประยุกต์ จึงใคร่ขอความอนุเคราะห์จากโรงเรียนบ้านปางคามน้อย ให้นิสิตเข้าเก็บรวบรวมข้อมูลผ่านแบบสำรวจผ่านการกระจายแบบสำรวจ ทั้งนี้ท่านสามารถติดต่อนิสิตที่ขอความอนุเคราะห์เข้าสัมภาษณ์ได้ที่ นางสาวนันทนัช จันทร์ย้อย เบอร์โทรศัพท์ 095-558-7278 หรืออีเมล chancecommunity@gmail.com

จึงเรียนมาเพื่อโปรดพิจารณา และขอขอบพระคุณล่วงหน้ามา ณ โอกาสนี้

ขอแสดงความนับถือ

(รองศาสตราจารย์ ดร.วรวีร์ โฮเว่น)
หัวหน้าภาควิชาเคมี

เพื่อทราบ:
ผศ.ม.ล. ศิริพัสตร์ ไชยันต์ (อาจารย์ที่ปรึกษาโครงการ โทรศัพท์ 0816463126)

Appendix E: Information on Foundations

Childline Thailand Foundation (Hub Saidek)

The Childline Thailand Foundation, also known as the Hub or the Hub Saidek, is the organization for supporting children who are in need in the Bangkok area, especially the runaways. The foundation is located near the Bangkok Railway station (Hua Lamphong) as train is the cheapest mode of transportation from rural parts of Thailand and many runaways come to Hua Lamphone as their first destination when arriving in Bangkok. The runaways who contacted the Hub usually come with the problems, including alcohol, drug, violence, involement with prostitution, stay in the abusive environment. Runaways need a safe space and the Hub is aiming to fulfill that needs by providing children food, showers, medical support and education (Childline Thailand Foundation, n.d.). Through the discussion with Mr. Sakson, SATI Foundation has been working alongside the Hub to provide medical care and skill workshop activities to the runaway youth.

The Rehabilitation Centers for Drug Addicts Health Department (the Winner House)

The Rehabilitation Centers for Drug Addicts Health Department, also known as the Winner House, is the program under the Office of Drug Abuse Prevention and Treatment of the Bangkok Metropolitan Administration.

Inside the Winner house, they provide the LifeStyle Program to provide education on the consequence of the drug and provide the lifestyle choice as the preventive measure to the addict who registers for the program from getting addicted again. The program in the Winner House is volunteer basis and free of charge. The volunteer members would receive treatment through skill training workshops, sport, music, and family activities with the goal that they can live in the society without relying on drug usage. SATI foundation also provides the workshop inside the Winner House. The requirement for entering the program is male age 15 or above, have no physical and psychological disorders caused by substance abuse, no contagious disease, and no litigation (The Winner House, n.d.). If they have physical and psychological disorder or contagious disease, they would be sent for that treatment first before entering the program in the Winner House.

thinkSMALL Foundation

The thinkSMALL Foundation is the non-profit organization registered under the public welfare that works with other schools or organizations to develop a preventive activity for children. Their mission is “Training teams to keep children safe from abuse, trafficking and drugs” (thinkSMALL Foundation, n.d.). The foundation focuses on providing education and empowering children to be aware of the children and human rights and the danger of drug and trafficking. They believed that prevention is the best method to fight against drug, alcohol, unsafe sex, and strengten children’s decision making skills before they are tempted for trafficking or any wrongdoing. They have worked with over 120, 000 children across Thailand. They have the drug prevention program called Drug Free School Program, involving 3 steps which are performing entertainment show, Hand out “I am #1!! I Say NO to Drugs!” wristbands, and add drug prevention curriculum in schools (thinkSMALL Foundation, n.d.).

Baan Kru Nam Foundation

Baan Kru Nam Foundation is the foundation for runaway children in the Northern part of Thailand. Baan means house as this foundation wants to provide shelter, education and a safe place for runaways to stay. One of the problems of runaways in the northern part is that it is closer to the border of Thailand in Mae Sai, Chiang rai. Many children have no national identification card and struggle to get the help they need. Without the national identification card, they are not able to receive the treatment in hospital, go to school, work legally, and become the victim of trafficking. One of the volunteers who was helped by Kru Nam, the founder of the foundation, has shared Kru Nam's perspective on working with the children, "He is a person like us. It's up to us what to do. We must try to open up and think of him as your younger brother, not someone you have to work with. If we look at a new angle, we will see a different perspective" (Faculty of Learning Sciences and Education Thammasat University, 2019). The foundation is working with other organizations in Chiangrai with the help of Mahidol university, UNICEF, and the department of mental health of the Ministry of Public Health to develop a database for children who live near the country's border to present to the public sector (North Public News, 2018).

Baan Nokkamin Foundation

Baan Nokkamin Foundation was founded in 1993 when the founder met runaways who were neglected by parents. The foundation realizes that to protect these children, they need a house so they establish as the shelters for runaways and expands to around 300 shelters across Thailand. Apart from the runaways shelter, they also have a drug addict treatment center located in Chiang Rai and Senior Nursing Home. Baan Nokkamin is aiming to create a pseudo family for the children and make sure that the children would have their prestige as a person and can live in the society proudly.

Appendix F: List of Questions Asked for Foundation Interviews

1. What type of problem do most children who enter the Winner house have?
2. What factors are causing these problems for children?
3. What are the criteria for helping those children?
4. Do you have any preventive measures for taking care of those children and how can you manage it?
5. What are the problems that you can see in the Winner house?
6. Do you have a system that collects information about children ? If so, what information is collected ?
7. We are working with very young children in the rural area, do you have any recommendation or suggestion on designing our survey?
8. Can we have the statistics of the children under the care of the Foundation, such as age, education, family status, place of residence, and the reasons that they have entered for the benefit of research and databases?

Appendix G: List of Questions Asked for School Representative Interviews

1. If we want to collect data for our project goal, will the school like to participate in the project?
2. What are the most preferred methods for communication and data collection process?
3. Does the school have a strong internet connection?
4. If the survey is in the google form format, will the students be able to do that in schools?
5. How many students are enrolling in the school per grade level?
6. How many teachers are in the school?
7. For additional information, is the school available for zoom meeting?

Appendix H: Interviews with Foundations

The Hub Saidek

1. What kind of problems are the children facing when they contact the Hub Saidek?
    a. Runaway, Physical abuse, substance use, prostitute, children who live in an unsafe area
2. What are the reasons the children decide to contact the Hub?
    a. Children need a safe area
    b. Recommendation from friends who received help from the Hub
    c. Runaway from home due to child neglect (physical, educational, emotional, and medical) or from the previous shelter (Shelters do not SATIsfy children's needs, violence in the shelter, reach the age limit of shelter, want to gain freedom)
    d. Physically hurt
    e. Drug addict
3. How did the Hub initiate?
    a. Started operating the call center called ‘childline’ to help children in need of food and shelter
    b. Locate near the Bangkok Railway Station (Hua Lamphong) because a train is the cheapest way of transportation, therefore many runaways come to Hua Lamphong as their first destination when arriving in Bangkok
4. How does the Hub reach children?
    a. Staff visit the Pomprab district frequently, with the help of children who received service from the Hub in the past. The child would guide the staff to where the risked children are located and avoid the more dangerous area.
    b. When the staff meets the children around age 0-12, they will ask questions like do you go to school and which hospital do you have access to. Staff needs to build trust and normalize the problems so the children would open up more for converSATIon and help. It takes around a week or two to gain their confidence and actually have a converSATIon with them. In the first week, the staff would try to see them often and ask basic questions like have you eaten anything yet, offer them food, or where did you go last night. Staff would ask

childrens' friends for more information. The building trust process is crucial to make sure that children will allow the staff to give necessary help and tell the truth. Most of the time, when strangers approach them, the story will be the exact opposite, full of lies.

   c. Children age above 12 would most likely not talk to the staff as a way to protect themselves. They might contact the staff by themselves when their lives are in danger.
   d. If children were to one who contacts the Hub, they are mostly in severe problems, such as getting abused, physically hurt, and addicted to drugs.

5. What are the criteria for helping those children?
   a. Determine whether the children their fundamental rights:
      i. Right of Survival such as food and home
      ii. Right of Development such as education
      iii. Right of Protection
      iv. Right of Participation
   b. If children are no longer in the educational system and desire to continue studying, the Hub will contact the public boarding school.
   c. Children have no documentation, no birth certificate, etc.
   d. The Hub collects these children's data and presents to the public sector for better policies and more involvement to solve problems.
   e. When staff meets the children, the staff try to provide options and suggest they come to the Hub. If the children stay with their family, the staff would need to contact family members and gain their trust.
6. Ways to determine the level of urgent for each case
   a. determine from the physical appearance, environment, family, and observed lifestyles. For instance, if too skinny and shabby and always busy at night time and tired and sleepy in the afternoon, that would be a sign for the staff that this might be urgent
   b. For urgent, the Hub would coordinate with the public sector to provide the necessary help
   c. If the children have family members, the Hub might determine a less urgent case.
   d. They have an application to collect records of cases called ‘smart refer’.
   e. The Hub would help children set their life goals and help them achieve that specific goal such as to find a job or to go to school.
   f. For children age below 12 with no home, they would be sent to the public sector.
   g. Children age above 12 might continue to live on their own, therefore the practice would be different depending on the case. They mostly do not want to be sent to the public sector as many runaways from the public shelter that registered in the system.
7. What are the problems that you can see in the Hub?
   a. To contact the public sector for help is a difficult and slow process. Most children do not want to get back into the system.

b. The shelters have an age limit, and once they reach a certain age, children need to get transferred to another shelter within the range of their age. The shelter would teach some basic skills, but it also limits freedom. The children would run away while it's time to transfer to their new shelter.
c. Funding for the Hub relies on donations covering both the budget for helping children and payment for the staff.
d. Do not get full cooperation from the public sector and lack a proper system between the private and public sectors.
e. Do not have a detailed dataset.
f. Problems in the district consider a hot zone involving substance use and a lot of violence.
g. The program for skill development for children is not continuous. For now, the help that they provide is to fulfill the basic needs.

8. Factors leading up to Problems (Runaway)
    a. The insecurity of family such as divorced parents, financial problems
    b. When the family could not fully support the children mentally, and children feel left out and defenseless, as time passes, children feel worthless and develop Mental health like depression or trust issues and eventually lead to some runaways.
    c. Some parents are in poverty, addicted to drugs, and associate with the problems, so they grow up surrounding these problems. They would normalize the situation and follow their parents' footsteps. In other words, children think they do not need help.
    d. Parents did not receive a proper education, adolescent mother, have financial problem
    e. Families under poverty and no money results in parents working more and neglecting their children.
    f. A word from their parents like ‘go wherever you want’ , ‘I don't care about you’ causes children to feel unaccepted from parents
    g. When runaways leave their home, they need the money to survive and want to feel accepted and worthy. They mostly stay with a group of friends and make wrong decisions together like trying drugs, prostitution in order to enjoy the thrill and feel worthy.
9. Preventive Measures
    a. Families need to properly take care and love their children.
    b. Community and school need to check on and follow up on the missing children. It is not a mandatory measure as the public sector has no policy regarding these problems.
10. Additional suggestions
    a. Ask schools what their policies and practices are when children are missing from school. They should try to contact family and give support to students.
    b. To give away a survey; many children cannot read, definitely reject the written survey.

From total of 219 cases:

Region	Number of Cases
Central	114
Northern	7
Northeast (Isan)	30
Western	6
Eastern	9
Southern	13
Laos	2
Cambodia	1
Myanmar	1
Not specified	36

Number of times children contact the Hub with different types of problems in year 2020

Problems	Male	Female
Violence	1882	791
Used for Benefit	1796	763
Precarious situation	2167	1029
Mental health	1375	602
Physical abuse	1479	739
Sexual Harassment	850	344
Family	1167	548
Relationship with friends	1442	675
Relate to school	447	182
Gender and awareness	1182	544
Discrimination	904	403

Parenting	1034	502
General information	892	420
Nationality	49	33
Beggar	53	34

thinkSMALL foundation

1. The background of this foundation
    a. thinkSMALL foundation works to influence and empower children. thinkSMALL focuses on 'PREVENTION' rather than 'after care.' They focus on strengthening the children by education and activity before they are harmed mostly in drugs, alcohol, sexual promiscuity, social bullying and harassment.
    b. They focus on working with the local leader for them to track and prevent the children after the foundation's help. They want to work in the long term and sustainable way so they choose to work on the local leader.

    **The local leader is the key in their operation.

2. The process of the foundation
    a. Find the local leader
    b. Run their activity
    c. Track the result with local leaders

    **If there were a severe case such as those children already faced the problems, they will send them to another foundation or the public sectors who take care of them.

3. The factors causing the problems (Three main problems)
    a. The personnel factors : Lack of education in the prevention of problems
    b. The family
    c. Environment and society

    ***Different regions have different factors because of different cultures.

    In Northern part, the factors include :
    a. The poverty
    b. Lack of the knowledge in the right of the children, humanity and the self-value
    c. Social values/Social norm
    d. Poor residence environment
    e. Family
    f. Society and School

4. The suggestion in making a survey for primary school students
    a. Use easy words for them to understand the questions. Not too deep but not leading questions.
    b. Children need to understand the context of the questions.
    c. Use the closed questions.

The Winner House

Structure of drug administration and prevention in Thailand has several stakeholders that work together. The largest is various ministries which have an executive board of Bangkok and look at the whole picture in order to plan a drug strategy drawn from all stakeholders, such as ministries in both government and private that have different plans. Board of director = permanent secretary(operate). Operative area = office of all 50 districts. The workers work spatially on 5 measures such as surveillance, prevention, treatment, law enforcement, and management services. Defense = Ministry of education. The children in primary group = Executive Function system. Prefrontal cerebral processes in development of restraint, flexibility, reasoning, planning, and decision making so that children can be able to distinguish. LEC = Life Education Center teaches children(grade 1-6) to recognize their own worth, know how to love yourself, care for themselves, and know their own body. Secondary level = Life skills which has K(knowledge), A(attitude), and S(skill).Its has 7 skills > 1. Adolescent development 2. Warning 3. emotional management 4. refusal 5. to have a relationship with others 6. Decision 7. Appreciation of life. Universities teach about volunteerism, help others, build other competencies, have a supervising manual to study.

If they can't prevent drug abuse, cigarettes, and alcohol, they will have the measures to use amphetamine, ice, heroine, and ketamine. Ketamine used in medical but children use ketamine in a wrong way for example use for sex. Kenma powder (K-nom-pong) is a new drug abuse in 2021 which has many formulas to make it such as ketamine plus salt plus methamphetamine plus ice or ketamine plus barium. This drug has a small amount of ketamine but a high amount of sleep medications > cause many people died when using Kenma powder.

If the person who is addicted is caught by police, he/she will have 2 choices 1. volunteer in a camp to change his/her behavior and rehabilitating 2. forced through the treatment process through hospitals, Department of conduct in other provinces, and the public health service center in Bangkok by using another drug for treatment.

The protective measures include all areas in Thailand have way to defense, and open a clinic(19 clinics) to treat all of the forms. For example, heroin addicted> treat by eating methadone, treat by check in in the morning and check out in the evening for 4 months.

In the present, the winner's house has children that are 15-40 years old. The winner house develops children, makes them understand about refuse through daily life, teaches them how to take care of themselves, social practice, and learn self esteem and then they can go out to the community.

The children can visit the winner house by using the phone to contact the winner house or walk in. Before they are approved by the winner house, they will get the survey to do, answer about the history of them. The winner's house has scientists assess physical, mental, and social health. If they are assessed, there is a cyclologic problem, they will send

the children to a doctor to do the treatment. The winner house needs to do this process because the winner house needs to filter whether the children can be together or not. The important thing is that there is no cost to treatment.

Q: What are the reasons people contact and take part in the program provided by the Winner House?

From the Winner House' data analysis team, it was found that on average 15- 19 years old and 20- 24 years old are the majority age to become addicted to drugs and substances. The education level mostly is primary school. There are some secondary school and university students. There are every family status including married parents, divorced parents, and no status of parents. The married parents often neglect their children and concentrate on working only.

The top three reasons why the children take part in the Winner House is curiosity, friends, and for fun. The children are curious whether the drug could give them energy, is it fun, and how good the drug can be. The other minor reasons are for comforting, self-medication, to concentrate in work, and to be more energetic.

The Winner House team has analyzed the top three reasons and realize that if there is a good prevention like EF LEC for primary school students, they will be able to access the risk and deny those wrongdoing. There is the assessment form used within the organization which measures resilience, normally conducted with secondary students, age between 15-17. The questions are separated into 2 parts which are the general data (7 questions) which ask the question like how does your family live, their age, their gender, their parents, family status. The second part would be about the ability to deny and resilience against drug and substance (36 questions) Each question has 4 subsections.

Example of question in part 1 is personal information, gender, age, surrounded community, educational level, family background with drug involvement, and friends. For part 2, the question would test their resilience against drugs and substance, asking about the environment. Environments include physical environments like unlawful purpose places and personal environments like friends, family, and people within the community. The assessment result would be put into 3 different levels, which are normal, low, and at risk. Normal means that they can deny all drugs and substances. Low resilience means that they might have a chance to be interested in drugs. At risk means that if someone offered them drugs, they would use them immediately without thinking of denying that offer.

The assessment was used so students can evaluate themselves and the organization would need to come up with the implementation for the children after knowing their resilience level. The organization is thinking of a way to create motivation for students to fill in the survey.

In addition, the organization believes that drug and substance is the beginning to many other problems include committing crimes, teenage pregnancy, and unsafe sex leading to HIV. The

work process in the organization focuses on integration of care, meaning that they tie many problems together to fit with the current trend. The organization has the preventive program called CVTx-HR which is community based therapeutic- harm reduction. This would promote the well being of people in the community and aid the addicts to be able to live within the community happily.

Q: If the children have resilience, does it lower the impact of other risk factors?

Yes, if the children have resilience, no matter what situation they will be in, they will be able to reject the wrongdoing. Nobody would be able to appeal to them. If they have low resilience, other risk factors like the environment are needed to be considered. These factors are family, community, and friends.

The organization emphasizes on the importance of the involvement within the community. The community needs to provide a safe space. They need to provide hobbies and outside school activities for children. The place can even provide income to people within the community. The organization hopes that this safe space will pull everyone together to promote sport, outdoor activities, and games. The place also needs to provide income for the community by introducing them to jobs so that they will not choose to go to drugs. Selling drugs can provide higher income for children, but not everyone does that because they want to. The family situation or other environment might have forced children to be involved with the drug business.

Q: Can the director send the assessment form to us?

Yes, I hope you can adapt something from the assessment. Right now, the assessment is available only through the e-learning system and accessible only by the school within the system.

Q: From the assessment form, how to provide a scoring system for the question to determine whether they are normal or at risk?

There are details within the question and the subsections of the question, which those factors would be analyzed. The details on the scoring system can be sent to you after the interview.

The assessment maker tested out the questions with two groups of students which are the normal students in school and the students with problems in Thai Child right organization. They would weigh the question and measure the reliability. The assessment form is quite old, and revision is needed to shorten the questions and make one question include many aspects for convenience of answering.

Q: The students we are working with are very young, like primary and lower secondary, are there any recommendations for constructing the question?

The question needs to be simplified and the choice needs to be limited to at most 3. Do not use too technical and formal words.

Baan Kru Naam Foundation

1. Can you tell us about how this foundation started and how it operates?

Our foundation has been caring for young children since 2001. Using art as a therapy can help us recognize the state of mind of stray kids who may be diagnosed with HIV due to sexual abuse. One case is in Chiangmai where these homeless children are forced to be an illegal prostitute. These children have no rights since they do not have any nationality.

Our foundation works in 2 parts. The first is teachers who work as a field coordinator to learn and work with these children. The technique called "mapping" is used to gain access to children who may have language barriers. By doing so, our staff can understand more about the risks of these children. We learned that many of these children were physically abused by their parents and government officials. Two years later, we were able to help 7-8 children from an agency that tries to persuade these children into illegal prostitution in Chiangmai. The state also denies taking responsibility. So our foundation, Baan Kru Nam, decided to care for these children instead. The children become better people, want to be educated, and want to build their future. First, we rent houses for these children to live in but after a while the number of children increased. The owner of the house does not want to give rent to us anymore. Then we decided to build our own houses for these children which is Baan Pak Dek Chiangsaen. Our foundation received donations and used it to build more houses so that the children have a permanent house to live in. Our foundation also built a "drop in center" which works with UNICEF to provide healthcare, sanitary care, and education to these children

2. The children who live with the foundation, did they come in by themselves or the foundation rescued them? If they came in by themselves, from where did they hear about the foundation? If they were rescued, which criterias did the foundation use to find these children?

There are two types of children. The first are beggars and the second are those who were sexually abused and sell smuggled goods that were not taxed. We are able to follow these childrens into their village and find these child beggars sleeping near the border seam or at the market. Some may live with their parents. Those children who are hard to find are those who were sold to karaoke shops or noodle shops. Our foundation used the mapping technique to find out where those children went. We also make sure that the housing provided has security and takes into account the children's future.

3. From what we have studied, we found out that some of the factors contributing to the problems include drug addiction, children runaways, stress from themselves or their

parents, and social environment. Do you agree with these factors? And are there any more factors?

The first problem has to do with their rights. The children do not know of their rights. The second problem is using violence to solve problems. The third one is other people's viewpoints and attitudes towards these children. For example, a child got hit by a car and no one was willing to help because other people viewed these children as a stateless with no citizenship.

4. From the work of the foundation, What causes will affect the occurrence of the problem the most?

There is a problem with language but we get trust from children that is created by we give love and take care for children. Furthermore, children have health care problems because the service is not accessible and children are very malnourished.

5. Do you have any evaluation method to see which types or groups of children are at risk and whether they need help from the foundation?

Keep the survey for each organization. What kind of survey can be adjusted for children. There is a database to know where this child is and where he has been. So, this method will make it work faster.

6. Do you collect statistics of the children who are helped by foundation?

Keep information about the children of each home and update the information about the public relations of each house to the state

7. Do you have any suggestions about questionnaires and surveys?

You need to make the activity with children that can write and read letters. Moreover, children should exchange ideas to their friends. Lastly, we must focus on work and take the results to analyze altogether.

Baan Nokkamin Foundation

Originally, the founder of the foundation was a swiss missionary who came to work in Thailand and found some runaway youths who are homeless and have no family. He later took them into his care and built a house to be a shelter for the runaways which is called Baan Nokkamin in 1993. It later expanded into a foundation that provides shelter home for runaway children and also nursing home for elderly people which are located in several places across many regions in Thailand. At first, there were about 20 children in their care. They tried sending some of the children back home but their parents did not care enough about them. Others were sent to find jobs if they are old enough to work. Now there are over

300 branches of their shelter home across the country including the drug rehab house in Chiang Rai which focuses on strengthening mental health.

The major issues faced by the runaway children are mostly family-related. For example, the parents divorce, pass away, are jailed or are drug addicts. Some parents had kids when they were too young and not ready to raise children, sometimes due to poverty. These children then ended up with their grandparents or other relatives who may not have enough resources to care for them. As a consequence, they lack familial love and warmth. They wanted to escape from their home which led to running away, mostly to Bangkok. There, they found other homeless children living on the streets who earned money and food by begging, so they did that.

At first, the foundation went to the area as a road teacher and invited the children to join the foundation. But now, the defensive method is used by another agency that sends children to the foundation. The foundation receives children who are at high risk before children who are low risk because the runaways children do not choose where. So, the risk that was mentioned before includes the family is out of balance and does not care.

Study case 1: child who lives with aunt only. She hasn't father, mother, and uncle and also doesn't have any job, money, and home. To solve this problem, the foundation finds a home and sends the child to school. Later on, the foundation looks for a sponsor to build a small house and finds the work for her aunt.

Study case 2: child who was born in an unplanned pregnancy and parent break up. The child becomes runaways and enters the foundation. The child wants to talk to the mother who has a new husband but the mother hangs up immediately. Later on, the mother has some problem that needs the child to help her. She calls the child and asks for help about the debt. When the child is struggling, she doesn't help but when she has a problem, she calls the child and asks for help.

Study case 3: Children who find money by begging. Children think that they can make money by begging until they are old because the society around children have beggars of all ages for children to see. So the child thinks like that and has no dignity in himself. The solution is to use real situations such as meeting people and asking where they came from and where to learn. The child did not dare to answer because it was embarrassing to answer. This solution can change children from beggar to good children.

Baan nokkamin foundation Is a replacement family that build back on a broken life to success life by creating an institution, a family as if it were a real family

Additional information

A. Asking children must be careful as it will affect their minds. A child can kill himself
B. Ask has to be a positive question, like have you ever participated in any activities? Do you feel that you need to improve?

C. Poor social immunity such as being easily deceived means we need to fix it urgently !!!
D. The child did not dare to answer. Because the family represses the children from expressing their opinion block child imagination

Appendix I: Summarized Information from Interview With SATI's Partner Schools

Name of school	Number of students in Grade 3-9	Number of teachers	Methods to administer survey
Thammajarik Uppatham 1 School	96	18	Google forms
Baan Tham School	82	12	Google forms
Mae Ab Wittayakom School	288	15	Google forms
Baan Huay Eoun School	96	11	Google forms
Doi Viang Wittaya School	39	8	Google forms
Baan Jong School	155	15	Google forms
Baan Doi Pee Lu School	27	9	Google forms
Baan Koon Sa Nai School	68	11	Google forms
Baan Huay San School	32	9	Google forms
Baan Nong Pam School	41	9	Google forms
Baan Pang Kam Noi School	32	4	Google forms
Baan Pang Kia School	119	10	Google forms

Appendix J: Survey Questions for Students

Students

General Information

1. How old are you?
    a. _____
2. What is your gender?
    a. Male
    b. Female
    c. Prefer Not to Say
    d. Other
3. Which school do you go to? : Name of school
    a. _____
4. Where do you live ? (name of village, subdistricts)
    a. _____
5. Who do you live with? Check all that apply:
    a. Mother
    b. Father
    c. Step-father
    d. Step-mother
    e. Brother
    f. Sister
    g. Grandparents
    h. Other please specify: _____
6. Family status: parents
    a. Live together
    b. Separate/ divorced
    c. Deceased
7. Guardians' occupation check all that apply
    a. Civil servant or government service
    b. State- owned enterprise servant
    c. Freelance
    d. Employee
    e. Businessman
    f. Farmer/ fisherman
    g. Others/ please specify:_____

Resilience Question for risk of drug and substance abuse, physical and mental abuse, runaway, and health issues

Knowledge/ Awareness

Drugs/substance

1. I know about the consequences of drugs.
    a. Yes
    b. Not sure

    c. No
2. I know about the consequences of alcohol.
    a. Yes
    b. Not sure
    c. No
3. I know the consequences of cigarettes
    a. Yes
    b. Not sure
    c. No
4. I always see my guardian drinking alcohol
    a. Yes (almost everyday)
    b. Sometimes
    c. No (never)
5. I always see my guardian smoke cigarettes
    a. Yes (almost everyday)
    b. Sometimes
    c. No (never)
6. If I wish to know more about drugs, I will ask my friends.
    a. Yes
    b. Not sure
    c. No

Health issues

1. I eat 3 meals every day.
    a. Yes (everyday)
    b. Sometimes but not everyday
    c. No (I couldn't have 3 meals a day)
2. I have access to clean water
    a. Yes
    b. Sometimes
    c. No
3. I always brush my teeth after a meal.
    a. Yes
    b. Sometimes
    c. No
4. I often wash my hair.
    a. Yes (more than 3 times a week)
    b. Sometimes (1-2 times a week)
    c. No (less than 1 time a week)
5. When I get sick, my guardian will take me to hospital.
    a. Yes (See doctor every time I get sick)
    b. Sometimes only when it is severe
    c. No (Not at all)
6. I have an annual health check-up.

a. Yes (Annually)
b. Sometimes (Once in many years)
c. No (Never have health check-up)

Physical/mental abuse.

1. Using violence (punching) is considered normal
    a. Yes
    b. Not sure
    c. No
2. Parents or teachers often scold me
    a. Yes even though I haven't done anything wrong
    b. Sometimes when I did something bad
    c. No, even when I did something wrong
3. I think it is okay for people to hit me.
    a. Yes
    b. Not sure
    c. No
4. Everyone can hug me and kiss my cheek.
    a. Yes
    b. Not sure
    c. No

Runaways

1. I often feel stressed and uncomfortable at home
    a. Yes
    b. Sometimes
    c. No
2. I feel like my family does not pay much attention me
    a. Yes
    b. Sometimes
    c. No
3. My house is not a safe place for me.
    a. Yes
    b. Sometimes
    c. No

Family Connection

1. I believe that my parents love me
    a. Yes
    b. Sometimes
    c. No
2. Someone in my family always listen about what I was doing in school
    a. Yes

b. Sometimes
c. No

3. I can talk to my family about my problems.
    a. Yes
    b. Sometimes
    c. No
4. I get along with my family members,
    a. Yes
    b. Sometimes
    c. No
5. My family often spoils me
    a. Yes
    b. Sometimes
    c. No
6. My family is strict with me
    a. Yes
    b. Sometimes
    c. No
7. My family members always yell at me.
    a. Yes
    b. Sometimes
    c. No
8. My family always blames me.
    a. Yes
    b. Sometimes
    c. No
9. My parents fight at home
    a. Yes (always)
    b. Sometimes
    c. No (Never)

Friends Connection

1. I have a lot of friends at school.
    a. Yes
    b. I have a few friends
    c. I don't have any friends.
2. I can talk to my close friends about everything
    a. Yes
    b. I have close friends, but I cannot talk to them about everything.
    c. No, I don't have close friends that I can talk to.
3. There are friends who want me in their group work.
    a. Yes
    b. Sometimes
    c. No

4. If my friends ask me to skip class, I will go with them.
    a. Yes
    b. Not sure
    c. No

Community Connection

1. I enjoy spending time at school
    a. Yes
    b. Sometimes
    c. No
2. I want to go to school
    a. Yes
    b. Sometimes
    c. No
3. The teachers at school are kind to me.
    a. Yes
    b. Sometimes
    c. No
4. The teacher listens to me when I am facing any difficulties.
    a. Yes
    b. Sometimes
    c. No

Self-value

1. I am good looking
    a. Yes
    b. Not sure
    c. No
2. I am cheerful and fun to be around.
    a. Yes
    b. Sometimes
    c. No
3. When my classmates talk behind my back, I can get over it very fast
    a. Yes
    b. Sometimes
    c. No
4. I love myself
    a. Yes
    b. Not sure
    c. No
5. I feel bad when being compared with my friends or siblings.
    a. Yes
    b. Sometimes
    c. No

6. I worry about my weight
    a. Yes
    b. Sometimes
    c. No

Emotions

1. I always feel like crying
    a. Yes
    b. Sometimes
    c. No
2. I often feel tired
    a. Yes
    b. Sometimes
    c. No
3. I often feel down, depressed or hopeless
    a. Yes
    b. Sometimes
    c. No
4. If I was wrongly accused, I will be very angry and never forgive them.
    a. Yes
    b. Sometimes
    c. No
5. If a group of friends went to play a game together without inviting me, I would feel sad.
    a. Yes
    b. Sometimes
    c. No
6. When a teacher praises a classmate, I wish that person was me.
    a. Yes
    b. Sometimes
    c. No
7. I always argue with others.
    a. Yes
    b. Sometimes
    c. No

Skills/Achievements

1. I did well on my exams and got good scores.
    a. Yes
    b. Sometimes
    c. No
2. I can finish the school assignment successfully.
    a. Yes
    b. Sometimes

    c. No
3. I have received compliments from my teachers.
    a. Yes
    b. Sometimes
    c. No
4. If my test score get worse than it used to be, I will feel worried
    a. Yes
    b. Sometimes
    c. No

Ending Questions

How did you find this questionnaire? Check all that apply:

- Boring
- Clear
- Too difficult
- Embarrassing
- Interesting
- Too long
- Please add comments/suggestions here:
    - _____

Appendix K: Survey Questions for Teachers

Teacher Survey

General information

1. Name of the school you are teaching in
    a. _____
2. Address of the school:
    a. Village:____
    b. Subdistrict:____
    c. District:____
    d. Province:____
3. Age
    - less than 25 years
    - 25-34 years
    - 35-44 years
    - 45-54 years
    - more than 55 years
4. Gender
    - Male
    - Female
    - Others
    - Prefer not to say
5. Roles inside the school (check all that applies)
    - Homeroom teacher
    - Teach …(subject)...
    - Principal's Office (including Assistant Principal's, Counselor's, and Registrar's offices)
    - Business offices (Admissions, Finance, Service and Transportation)
6. How many students are in your care ?
    - [filled in the number]
7. How many hours on average do you spend with your students each day?
    - less than 3
    - 3-6
    - more than 6
8. How long have you been working in this school?
    - less than 2 years
    - 2-5 years
    - more than 5 years
9. How long have you lived close to the school community?
    - Since birth
    - less than 1 years
    - 1-5 years
    - more than 5 years

- Never live close to the community

10. Your highest education level
    - High school diploma
    - High Vocational Certificate in Management
    - Diploma Program in Teaching Profession (not undergraduate)
    - Bachelor degree
    - Master degree
    - Doctoral degree
11. How many students graduate from school each year?
    a. filled in the number
12. How many do not graduate or drop out of school?
    a. [filled in the number]
    b. Why they do not graduate/drop out (check all that applies)
        - Move to other schools
        - Not enough money to pay for tuition fee
        - Do not have time to study / have to work instead
        - Family cannot support
        - Sick/ health issues
        - Others, please specify
13. Are there any other problems the school is facing?
    a. _____

Resilience
Community/ School Environment

Based on your opinion, how severe are the following problems in your community

- Extremely high = 5
- High = 4
- Moderate = 3
- Low = 2
- Not at all = 1
- No opinion on this question = 0

	5	4	3	2	1	0
1.Drug/ substance use						
2.Health Issues						
3.Family Related Problem						
4.Verbal abuse						
5.Physical Abuse						

6.Sexual Harassment						
7.Others: _____						

Base on you opinion, rank the accessibility of the people in community towards health care service based on the given choice

People in community …….	5	4	3	2	1	0
8. Have easy to access healthcare service						
9. Often go to see doctors when they are sick						
10. Have no difficulties going to the doctors e.g. do not have to take a day off from work and do not lose income for that day.						
11. Can afford to pay for healthcare service						

12. Are there usage of drugs in the area near the school?
    a. Yes (2)
    b. No (0)
13. Are there any assembly places for unlawful purposes? E.g. gambling, pub, brothel
    a. Yes (2)
    b. No (0)
14. Are there health care facilities close to the school? e.g. hospital, primary care unit
    a. Yes (0)
    b. No (2)
15. If students have been missing from school for more than 3 days without notice, does the school have any measure to follow up on the well being of students?
    a. Yes (0)
    b. No (2)
    c. If yes, please specify how:_____
16. Are there students in the school who are involved with drugs or substance use?
    a. Yes (2)
    b. No (0)
    c. If yes, which one do they use? Check all that apply
        - Cigarettes
        - Alcohol
        - Amphetamine/Methamphetamine /Heroine
        - Cocaine /Opium/Morphine

- Kratom/Marijuana/Psilocybin mushroom
- Others, please specify:_____

Classroom Environment

Please choose the choice that best describes your honest opinion.

- Strongly agree= 5
- Somewhat agree = 4
- Neither agree or disagree = 3
- Somewhat disagree= 2
- Strongly disagree = 1

	5	4	3	2	1
17. Students are happy with classes.					
18. Students are stressed with assignments and exams.					
19. When students become loud during class and are not paying attention, you would yell start yelling to get the students' attention back.					
20. If there is a student who has difficulty doing the test or homework, I will give advice for improvement.					
21. I have compared the students' work who are very good quality and bad quality in front of the class.					
22. If students have no friends, you will try to talk to them and give them advice immediately.					
23. If students could not keep up with the class material, I will help them immediately.					
24. If the students seem to be stressed and in trouble, I will approach them and have a converSATIon with them immediately.					
25. Schools have nutritious food provided for students' lunch.					
26. There is clean drinking water provided for students in school.					

Ending Questions

How did you find this questionnaire? Check all that apply:

- Boring
- Clear
- Too difficult
- Embarrassing
- Interesting
- Too long
- Please add comments/suggestions here:
    - _____

Appendix L: Developers' Guide for Survey Processing Program

Survey Processing Program Developer's Guide

Table of Contents

1. Driver Package

The driver package contains 3 classes, 2 of which determine how the app is run, the Main Class and the App Class, and 1 of which, UserState determines the state of user interaction with the program.

1.1 Main Class

The Main class is the primary launchpoint of the program, and its only function is to launch the App using default parameters.

1.2 App Class

The App Class launches the JavaFX application by creating an FXMLLoader object and loading the MainPage.fxml file where it then creates a Scene using it. The Stage for the

application, the display, is then set to the Scene and is then displayed on screen. The fields for this class are listed below.

.

Field Name	Field Type	Description
primaryStage	Stage	This is where the Scene is held for the Application GUI
scene	Scene	This is what holds the UI look for presentation, it is loaded by the FXMLLoader object

1.3 UserState

The UserState class holds the file paths to the survey mapping file and the survey response file. These are held in SimpleStringProperties for setting by the controller associated with the MainPage.fxml file of the application. This allows a consistent place for other files to pull the file paths needed for operation, notably the Question, Score, and ScoreMap classes, discussed in Sections 4.1, 4.2, and 2.2. The fields are listed below.

Field Name	Field Type	Description
mapFileName	SimpleStringProperty	Stores the String name of the file path of the survey mapping file
surveyFileName	SimpleStringProperty	Stores the String name of the file path of the survey responses file

2. Data Package

The driver package contains 2 classes, Data and ScoreMap. A Data object stores most information produced by interpreting the survey data and a ScoreMap object tells the program how to interpret survey response data.

2.1 Data Class

The Data class is the primary store of information produced by the survey, it contains the following fields.

Field Name	Field Type	Description
initialQuestion	int	This is the initial question that the program should begin interpreting responses at
finalQuestion	int	This is the final program that the program should stop interpreting responses at.
questionText	List<List<String>>	This is the text of the questions asked in the survey.
records	List<List<String>>	This is the text of all responses answered by respondents
score	Score	This is the main storage object for information calculated about student scores by student for their full survey responses
questionData	List<Question>	This is a List of Question objects, which stores information about student responses by question.
ages	List<Integer>	This is a List of Integers containing the ages of all respondents by respondent
schools	List<String>	This is a List of Strings containing the school names for all respondents by respondent
villages	List<String>	This is a List of Strings containing the village names for all respondents by respondents.

The Data constructor simply takes two BufferedReader objects, which point to a survey response file and a survey mapping file. These files must be TSV, tab separated value files, for parsing by the program. The Data constructor calls initializeData() using the two BufferedReader objects and begins to populate all fields of the Data object. The Data object

has two important methods that it can call, ExportData and ExportQuestionData, which creates two new CSV files containing the formatted fields of the data object for post processing in Google Sheets or Excel.

2.2 ScoreMap Class

The ScoreMap Class maps the question responses observed in the survey to an integer value for summation and comparison in the Score and Question classes. The fields are as follows.

Field Name	Field Type	Description
questionMap	HashMap<Integer, HashMap<String, Integer>>	This is a HashMap of HashMaps used to match a Integer question number to a HashMap of Strings to Integers, representing the Integer score for that text for that question number
mapFile	BufferedReader	This is the BufferedReader pointing to the survey mapping file
questions	List<Integer>	This is an optional field stating the question numbers should they not start at 0

The program initializes scores by defaulting to the survey mapping data for the Phase 3 survey iteration, should null be provided as the BufferedReader, or using the provided, non null BufferedReader to iterate over each question of the survey, assigning String, Integer Pairs to a HashMap and assigning it to the questionMap HashMap for that question number. This will allow mapping to be automated on a per question basis, provided a TSV file.

3. Controllers Package

The controllers package contains an FXML file dictating the JavaFX UI for the single page application. It also contains the FXML Controller Class for this file, MainPageController.

3.1 MainPageController

This Class enables UI functionality, and must be expanded upon if new features are to be added. It has the following fields.

Field Name	Field Type	Description
atRiskTable	TableView	A table containing information pertaining to at risk students
scoreTable	TableView	A table containing information about resilience Scores of students
questionTable	TableView	A table containing information about interesting question response scores
mapButton	Button	A button that sets the survey map file path
surveyButton	Button	A button that sets the survey responses file path
processData	Button	A button which creates two BufferedReaders given the map and response file path and creates a Data object
mapPath	TextArea	A TextArea for typing of the survey map file path
surveyPath	TextArea	A TextArea for typing of the survey responses file path.
confidenceColumn	TableColumn	A TableColumn for confidence intervals used in identifying low resilience score students
atRiskColumn	TableColumn	A TableColumn for number of students found to be low resilience score students
scoreMean	TableColumn	A TableColumn for the mean score of student responses in the TSV of student responses
scoreMedian	TableColumn	A TableColumn for the median score of student responses in the TSV of student Responses
scoreStdev	TableColumn	A TableColumn for the

		standard deviation of student response scores in the TSV of student Responses
questionNumber	TableColumn	A TableColumn for the question number of a specific question in the TSV of student Responses
questionMean	TableColumn	A TableColumn for the question mean score of a specific question in the TSV of student Responses
questionStdev	TableColumn	A TableColumn for the question response standard deviation of a specific question in the TSV of student Responses

3.2 MainPage.FXML

This file contains the UI equivalents to the fields in section 3.1.

4. Results Package

The results package contains the formatting for the data produced by the survey processing and an exporter for creating new CSV files using the produced data.

4.1 Score

The Score Class is what parses the student responses and links them to a ScoreMap, where the text responses are converted to an Integer score, tallied, then produces descriptive statistics. These descriptive statistics are the mean, median, mode, confidence intervals, initial question, final question, questionData, and more. All fields are listed below.

Field Name	Field Type	Description
initialQuestion	int	This is the initial question that the program should begin interpreting responses at
finalQuestion	int	This is the final program that

		the program should stop interpreting responses at
zscores	HashMap<Integer, Double>	This maps a Confidence Interval percentage to a Double Standard Deviation threshold for determining significantly low resilience scores in students
scores	ArrayList<Integer>	This collects all student summed response scores
mean	double	The mean response score for the data set
median	double	The median response score for the data set
stdev	double	The standard deviation of response scores for the data set
meanAdjusted	double	The mean response score for the data set, excluding responses over three standard deviations above the mean
stdevAdjusted	double	The standard deviation of response scores for the data set, excluding responses over three standard deviations above the mean
outliers	ArrayList<Integer>	An ArrayList of indexes of outlier responses

The majority of Score Class is composed of getters and setters for the many data fields produced for the data set of survey respondents. The Score Class does create an ArrayList of Question objects which get set to the List of Questions in the Data Class.

4.2 Question

A Question Object contains the mean, standard deviation, and an ArrayList of all question responses. The fields are listed below.

Field Name	Field Type	Description
mean	double	This is the average of all question responses for a specific question
stdev	double	This is the standard deviation for all question responses for a specific question
responses	ArrayList<Integer>	A List of the responses to the question by every respondent, after having been converted to Integer scores.

The Class has export methods which help facilitate export by the CSVExporter class, also contained within the package.

4.3 CSVExporter

The CSVExporter class writes CSV files which contain question and score data produced by the program. The constructor takes in a File object, a List of String headers, and a List of Lists of String for the data to populate the CSV with. The fields for this class are listed below.

Field Name	Field Type	Description
headers	List<String>	This is the list of all headers for the CSV columns
rows	List<List<String>>	This is the data for the rows of the CSV

5. Parsing Package

The Parsing Package only contains one class, the SurveyParser.

5.1 SurveyParser

The SurveyParser class simply takes in a fileDirectory, and prepares a BufferedReader for that file for use by the Data Class. The fields for this class

Field Name	Field Type	Description
fileDirectory	String	This is the string file path for the file the BufferedReader will read from
reader	BufferedReader	This is the BufferedReader created to read the survey data file

Appendix M: Survey Processing Program User Manual

Table of Contents

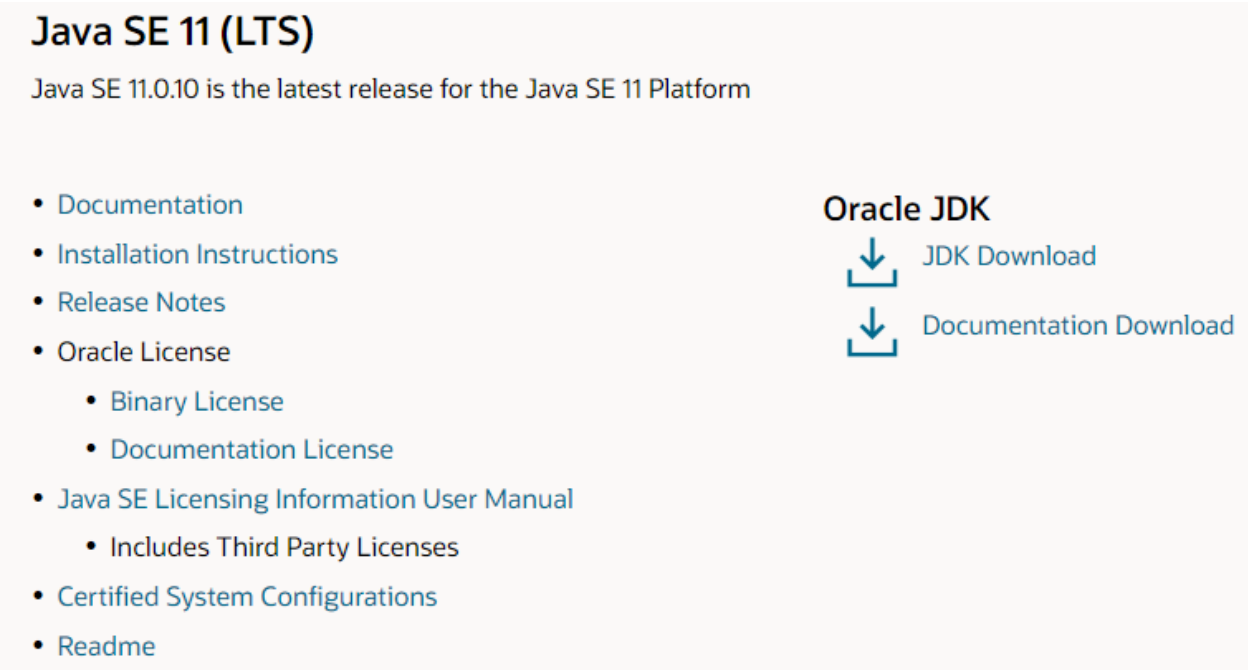
1. Running the Program

1.1 Installing Java

This program is written using Java version 11 for Windows 10. It may work on other platforms, however this has not been tested and the software is provided AS IS. You can download this version of java from the Oracle website at this link

https://www.oracle.com/java/technologies/javase-downloads.html

(current as of 4/9/2021). Select the JDK Download option under the Oracle JDK subsection.



Continue to the next page to select the correct version for your operating system. Select an installer download, not a compressed archive download. A direct link to this page can be found at

Java SE Development Kit 11- - Downloads (oracle.com)

(current as of 4/9/2021).

Product / File Description	File Size	Download
Linux ARM 64 Debian Package	145.64 MB	jdk-11.0.10_linux-aarch64_bin.deb
Linux ARM 64 RPM Package	152.22 MB	jdk-11.0.10_linux-aarch64_bin.rpm
Linux ARM 64 Compressed Archive	169.37 MB	jdk-11.0.10_linux-aarch64_bin.tar.gz
Linux x64Debian Package	149.39 MB	jdk-11.0.10_linux-x64_bin.deb
Linux x64 RPM Package	156.12 MB	jdk-11.0.10_linux-x64_bin.rpm
Linux x64 Compressed Archive	173.31 MB	jdk-11.0.10_linux-x64_bin.tar.gz
macOS Installer	167.51 MB	jdk-11.0.10_osx-x64_bin.dmg
macOS Compressed Archive	167.84 MB	jdk-11.0.10_osx-x64_bin.tar.gz
Solaris SPARC Compressed Archive	184.82 MB	jdk-11.0.10_solaris-sparcv9_bin.tar.gz
Windows x64 Installer	152.32 MB	jdk-11.0.10_windows-x64_bin.exe
Windows x64 Compressed Archive	171.67 MB	jdk-11.0.10_windows-x64_bin.zip

Run the installer file you downloaded. You are now ready to run the program.

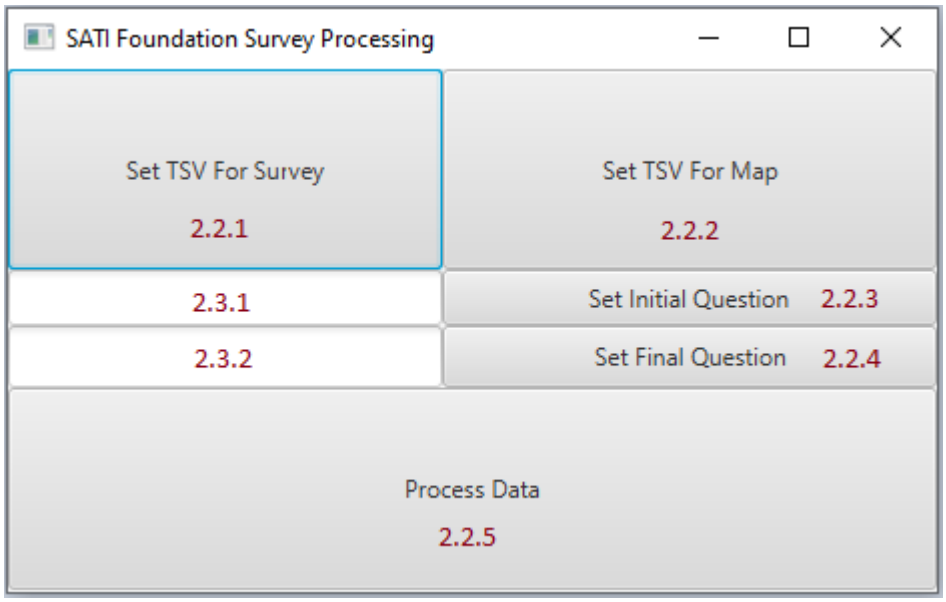
1.2 Running the Program

After installing Java JRE 11 in the previous section, you are prepared to run the program. Open the folder containing the application code, navigate to the bin folder and run the app.bat file.

2. The UI

2.1 The Application

Upon launching the program, you will be greeted by this menu.



The features 5 Buttons and 2 Number Fields which control the program.

2.2 Buttons

2.2.1 Set TSV for Survey

This button will open a file selection menu where you will select a TSV (tab separated values sheet) containing the survey results. Information on survey result format limitations may be found in the **3.1.1** section.

2.2.2 Set TSV for Map

This button will open a file selection menu where you will select a TSV (tab separated values sheet) containing the survey result interpretation map. Information on this file may be found in the Map File section. If no file is selected, this will use the default mapping used for the survey

phase three iteration and the files will be produced as described in section 4, Output. Information on map file format limitations may be found in the **3.2.1** section.

2.2.3 Set Initial Question

This button will take the number typed into field **2.3.1** and set it to the initial question value in the program. This is equivalent to the column number minus one in the Google Sheets document where the questions to be scored begin. For the default mapping, this is set to 11 because the 12th column has the first question.

2.2.4 Set Final Question

This button will take the number typed into field **2.3.2** and set it to the final question value in the program. This is equivalent to the column number after the one you want to calculate up to in the Google Sheets document where the questions to be scored end. For example, the default mapping has 60 columns, since the final column is the "how did you find this survey" question, we do not want to score it, so we enter 60 as the final column since 59 is the column we want. For the default mapping, this is set to 60. If no value is entered, this number will be 60.

2.2.5 Process Data

This button begins processing the survey entered. The only required input is having set the Survey TSV button **2.2.1.** The other sections are optional, and their default values are described in the rest of section **2.2**. After this button has been pressed, the program processes the data and produces output files described in the Output chapter.

2.3 Number Fields

2.3.1 Initial Number Field

This field holds the integer value of the initial column which you then set with button **2.2.3**. If the number is valid, this box will turn light green to indicate the number has been successfully set. If the number is invalid, the box will turn light red, indicating that you need to choose a new number.

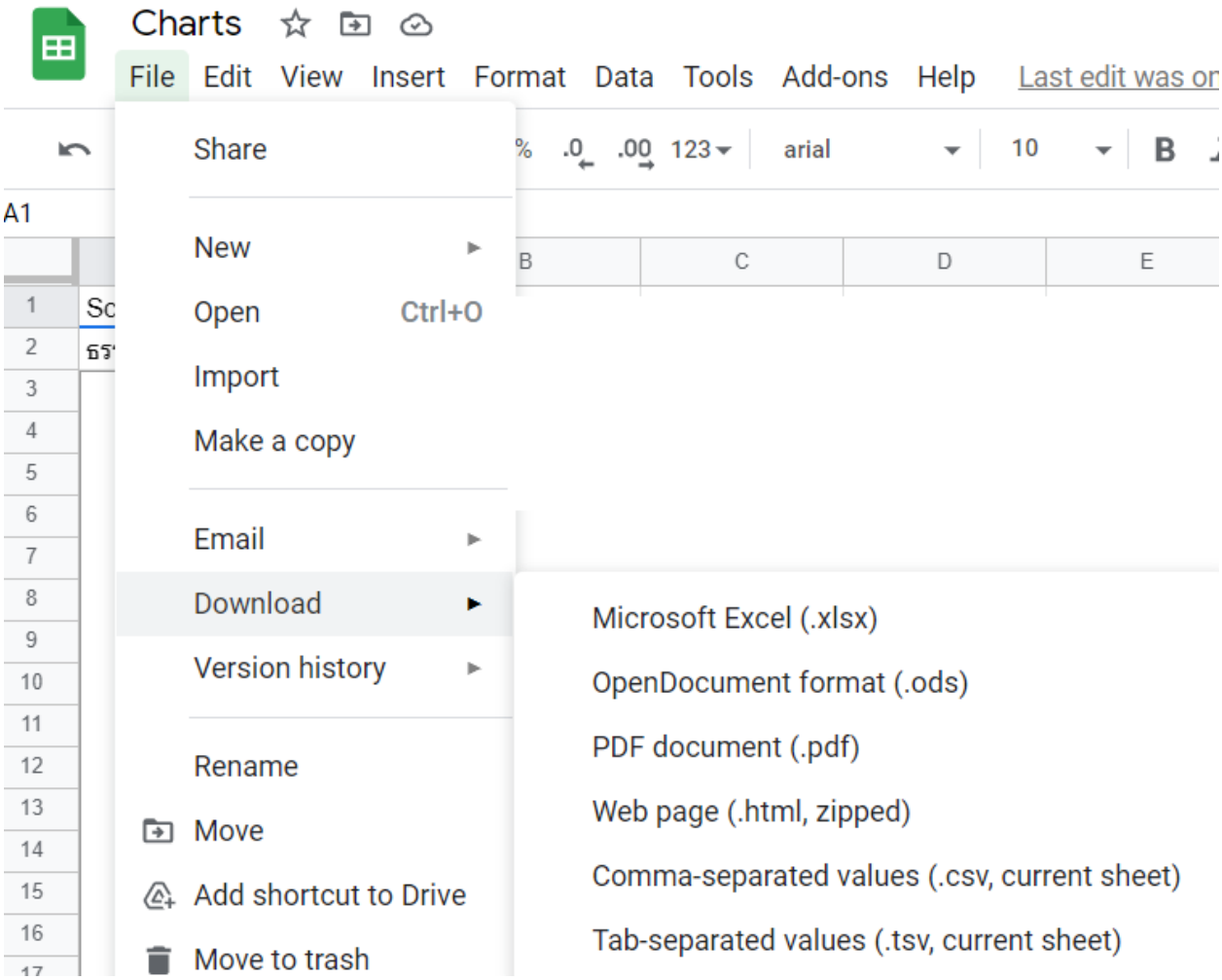
2.3.2 Final Number Field

This field holds the integer value of the final column which you then set with button **2.2.4**. If the number is valid, this box will turn light green to indicate the number has been successfully set. If the number is invalid, the box will turn light red, indicating that you need to choose a new number.

3. Input

3.1 Survey TSV

The survey has been created with Google Forms, and therefore Google Sheets is expected to be the primary method of getting raw survey input data. To export form data as a TSV file, you must click File, Download, then select “Tab-separated values (.tsv, current-sheet)” at the bottom. Example shown below.



3.1.1 Limitations

The program must have the first 11 columns remain the same, do not modify the first 11 columns of the survey. Instead simply add new columns after that chunk and adjust the initial start of the question list.

Survey Questions must have a single character to begin the answers, if using the default mapping, this must be a,b, or c. If using custom mapping, this may work with other characters such as d,e, or f, but this is not tested behavior.

Example of properly formatted questions.

Question 1.

a. Answer 1
b. Answer 2
c. Answer 3

Question 2

a. Answer 1
b. Answer 2
c. Answer 3

3.2 Survey Map

Since the program can handle new iterations of the survey, new surveys must include a map file. This is a tsv file such as in **3.1** but this must be manually created. The formula to create a file like this is by creating a new google sheets file and creating 7 columns, Question, Option, Score, Option, Score, Option, Score. The option is the text character you will map to the score value. The default mapping expects a,b,c and 3 options. A model for the table is included below.

Column	Option	Score	Option	Score	Option	Score
11	a	1	b	0	c	-1
12	a	-1	b	0	c	1

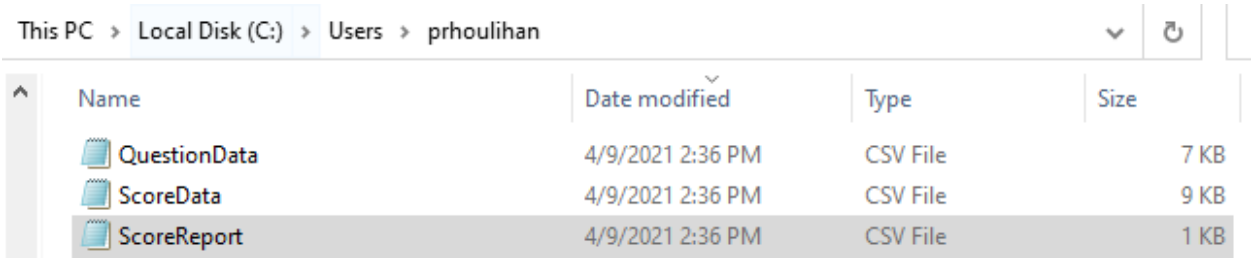
This table means, for Column 11, answering option a is good, and the respondent gets a point on their resilience score. If a student were to answer c for Column 11, they would lose a point. For Column 12, it is the opposite, as a c answer is good and they will receive a resilience score point.
If using the default survey do not supply a Survey Map, the program will use the existing map to do this.

3.2.1 Limitations

Debugging messages are limited when using a custom file, so it is advised to stick to default as much as possible. If moving from default, ensure all values have no spaces and ensure that they are not decimal values.

4. Output

The program produces 3 CSV files as output, which can then be imported into Google Sheets or Excel for post processing and graphing. These files may be found by going to your user directory and sorting by last modified, then selecting the names of files here, ScoreReport.csv, ScoreData.csv, and QuestionData.csv. You can then use those for future data processing or storing them elsewhere. Example included below.



4.1 ScoreReport.csv

This file contains information about the scores for the entire dataset. It contains the following columns.

Score Mean, The mean of the scores for all respondents

Score Median, The median result of the scores for all respondents

Score Standard Deviation, The standard deviation of the scores for all respondents

Students at Risk (80% Confidence), The students at risk with an 80% CI

Students at Risk (85% Confidence), The students at risk with an 85% CI

Students at Risk (90% Confidence), The students at risk with an 90% CI

Students at Risk (95% Confidence), The students at risk with an 95% CI

Students at Risk (99% Confidence), The students at risk with an 99% CI

The students at risk field varies by confidence interval as a lower interval means it is easier for a student to be considered at risk as the threshold is lower. Typically a 95% confidence interval is used to determine statistically significant value, but due to the expected low sample sizes, a looser interval may be used, such as 85% or 90%.

4.2 ScoreData.csv

This file contains the response scores for all students as well as some data that could be paired with it, such as village and school. By importing the score into a Google Sheets file, you can copy the column into the original form data if you would like to access all important fields for data processing. The format is as follows.

School	Village	Ages	Score

Order is maintained by the program, and the data can be reintroduced to the parent sheet produced by the Google Forms.

4.3 QuestionData.csv

This file contains the response averages and standard deviation for all questions as well as the name of the question. This will help in analyzing the survey questions to identify interesting or unexpected responses. See the report for more information on this process.

Question Text	Mean	Standard Deviation

Order is maintained by the program, and the data can be reintroduced to the parent sheet produced by the Google Forms.

Question text may not load Thai characters correctly, as seen in section **5, What to do with Output**.

5. What to do with Output

The output files may be imported into Google Sheets by selecting File, Import, Upload File, then selecting the CSV you want to upload.
Example Uploaded Snippet of QuestionData,csv

Question Text	Mean	Standard Deviation
1. ฉันรู้ว่ายาเสพติดเป็นสิ่งไม่ดี	0.8651685393	0.4019897488
2. เมื่อฉันเห็นผู้ใหญ่ดื่มเหล้า ฉันคิดว่าฉันอยากจะลองสักครั้ง	0.5617977528	0.6172620986
3. ฉันคิดว่าสูบบุหรี่เป็นการสิ้นเปลืองเงิน	0.6292134831	0.587931481
4. ฉันเห็นผู้ปกครองดื่มเหล้าบ่อยครั้ง	0.1348314607	0.6031939565
5. ฉันเห็นผู้ปกครองสูบบุหรี่บ่อยครั้ง	-0.03370786517	0.741232472
6. ถ้าฉันอยากรู้เกี่ยวกับ ยาเสพติด ฉันจะไปถามเพื่อน	0.1011235955	0.7795842139

Due to an issue with displaying Thai characters, part of the questions will not display correctly. The order of the questions is still preserved so the first row of the file will correspond to the first question. To fix this, just replace the text with the correct values from the original form sheet.