THE EFFECT OF A GROWTH MINDSET INTERVENTION ON UNDERPRIVILEGED STUDENTS' ENGLISH INTELLIGENCE MINDSET AND ACADEMIC RESILIENCE WITH PERCEIVED ENGLISH TEACHER SUPPORT AS A MODERATOR

Miss Pimporn Buathong

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Arts in Psychology
Common Course
Faculty of Psychology
Chulalongkorn University
Academic Year 2019

ผลของโปรแกรมพัฒนากรอบคิดเติบโตต่อกรอบคิดด้านความฉลาดทางภาษาอังกฤษและการฟื้นคืนได้ทางการเรียนของนักเรียนด้อยโอกาส โดยมีการรับรู้การสนับสนุนของครูภาษาอังกฤษเป็นตัวแปรกำกับ

น.ส.พิมพ์พร บัวทอง

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาจิตวิทยา ไม่สังกัดภาควิชา/เทียบเท่า
คณะจิตวิทยา จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2562

Thesis Title	THE EFFECT OF A GROWTH MINDSET INTERVENTION ON UNDERPRIVILEGED STUDENTS' ENGLISH INTELLIGENCE MINDSET AND ACADEMIC RESILIENCE WITH PERCEIVED ENGLISH TEACHER SUPPORT AS A MODERATOR
By	Miss Pimporn Buathong
Field of Study	Psychology
Thesis Advisor	Lecturer THIPNAPA HUANSURIYA, Ph.D.

Accepted by the Faculty of Psychology, Chulalongkorn University in Partial Fulfillment of the Requirement for the Master of Arts

..... Dean of the Faculty of Psychology
(Assistant Professor PANRAPEE SUTTIWAN, Ph.D.)

THESIS COMMITTEE

..... Chairman
(Lecturer PRAPIMPA JARUNRATANAKUL, Ph.D.)

..... Thesis Advisor
(Lecturer THIPNAPA HUANSURIYA, Ph.D.)

..... Examiner
(Lecturer Phakkanun Chittham, Ph.D.)

..... External Examiner
(Lecturer Sunthud Pornprasertmanit, Ph.D.)

พิมพ์พร บัวทอง : ผลของโปรแกรมพัฒนากรอบคิดเติบโตต่อกรอบคิดด้านความฉลาดทางภาษาอังกฤษและการฟื้นคืนได้ทางการเรียนของนักเรียนด้อยโอกาส โดยมีการรับรู้การสนับสนุนของครูภาษาอังกฤษเป็นตัวแปรกำกับ. (THE EFFECT OF A GROWTH MINDSET INTERVENTION ON UNDERPRIVILEGED STUDENTS' ENGLISH INTELLIGENCE MINDSET AND ACADEMIC RESILIENCE WITH PERCEIVED ENGLISH TEACHER SUPPORT AS A MODERATOR) อ.ที่ปรึกษาหลัก : อ. ดร.ทิพย์นภา หวนสุริยา

การวิจัยนี้เป็นการวิจัยเชิงทดลองภาคสนาม (Field Experiment) มีวัตถุประสงค์เพื่อศึกษาผลของโปรแกรมพัฒนากรอบคิดเติบโตต่อกรอบคิดเติบโตด้านความฉลาดและการฟื้นคืนได้ทางการเรียนในวิชาภาษาอังกฤษของนักเรียนด้อยโอกาส ทั้งยังเพื่อศึกษาบทบาทการเป็นตัวแปรส่งผ่านของกรอบคิดเติบโตด้านความฉลาดทางภาษาอังกฤษ และบทบาทตัวแปรกำกับของการรับรู้การสนับสนุนของครูภาษาอังกฤษ โดยมีกลุ่มตัวอย่างจำนวน 216 คน ซึ่งเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 2 จาก 2 โรงเรียนทางภาคตะวันออกของไทย โดยโรงเรียนที่ 1 เป็นโรงเรียนหลักและโรงเรียนที่ 2 เป็นโรงเรียนที่ทำการทดลองซ้ำเพื่อยืนยันผลการวิจัยในแต่ละโรงเรียน ผู้วิจัยแบ่งกลุ่มตัวอย่างเข้าเงื่อนไขโดยใช้เลขที่ของนักเรียนซึ่งไม่มีความสัมพันธ์ใด ๆ กับตัวแปรในการวิจัย โดยแบ่งเป็นกลุ่มเลขคู่กับกลุ่มเลขคี่ แล้วสุ่มเงื่อนไขการทดลองให้แต่ละกลุ่ม เงื่อนไขที่ 1 (เงื่อนไขทดลอง) คือ การสอนภาษาอังกฤษควบคู่ไปกับกิจกรรมพัฒนากรอบคิดเติบโต และเงื่อนไขที่ 2 (เงื่อนไขควบคุม) คือ การสอนภาษาอังกฤษแบบเดียวกันควบคู่ไปกับกิจกรรมที่คล้ายกันแต่ไม่เกี่ยวข้องกับการพัฒนากรอบคิดเติบโต ผู้เข้าร่วมการวิจัยตอบแบบวัดกรอบคิดเติบโตด้านความฉลาดทางภาษาอังกฤษและแบบวัดการรับรู้การสนับสนุนของครูภาษาอังกฤษก่อนเริ่มการทดลอง และตอบแบบวัดกรอบคิดเติบโตด้านความฉลาดทางภาษาอังกฤษและแบบวัดการฟื้นคืนได้ทางการเรียนในวิชาภาษาอังกฤษหลังการทดลอง

การวิเคราะห์ทางสถิติพบว่า หลังเข้าร่วมการวิจัย ผู้เข้าร่วมการวิจัยในเงื่อนไขทดลองมีกรอบคิดเติบโตด้านความฉลาดทางภาษาอังกฤษสูงขึ้นอย่างมีนัยสำคัญทางสถิติเมื่อเทียบกับก่อนการเข้าร่วมการวิจัยและเมื่อเทียบกับเงื่อนไขควบคุม อีกทั้งเงื่อนไขทดลองมีการฟื้นคืนได้ทางการเรียนในวิชาภาษาอังกฤษที่สูงกว่าเงื่อนไขควบคุมอย่างมีนัยสำคัญทางสถิติหลังการทดลองอีกด้วย งานวิจัยนี้ยังพบว่ากรอบคิดเติบโตด้านความฉลาดทางภาษาอังกฤษมีอิทธิพลส่งผ่านผลของโปรแกรมพัฒนากรอบคิดเติบโตที่มีต่อการฟื้นคืนได้ทางการเรียนในวิชาภาษาอังกฤษอย่างสมบูรณ์ (full mediation) ทั้งนี้ ไม่พบอิทธิพลกำกับของการรับรู้การสนับสนุนของครูภาษาอังกฤษในโมเดล

สำหรับการประยุกต์เพื่อนำไปใช้ประโยชน์ ผู้วิจัยหวังว่าโปรแกรมพัฒนากรอบคิดเติบโตที่สร้างขึ้นจะสามารถนำไปปรับใช้กับนักเรียนด้อยโอกาสในโรงเรียนอื่น ๆ และหวังว่าโปรแกรมนี้จะเป็นส่วนหนึ่งของจุดเริ่มต้นของความคิด ความเชื่อของนักเรียนที่ว่าความสามารถและระดับสติปัญญาสามารถพัฒนาเปลี่ยนแปลงได้ โดยแม้จะเริ่มต้นจากวิชาภาษาอังกฤษแต่อาจนำไปต่อยอดในวิชาอื่น ๆ รวมไปถึงความรู้ความสามารถในด้านอื่น ๆ ได้ อีกทั้งยังหวังว่ากรอบคิดเติบโตที่เกิดขึ้นจะช่วยให้เกิดการฟื้นคืนได้ทางการเรียนต่อไปเมื่อนักเรียนต้องเจออุปสรรคและความยากลำบากทางการศึกษารวมทั้งในชีวิตประจำวัน

สาขาวิชา	จิตวิทยา	ลายมือชื่อนิสิต .....
ปีการศึกษา	2562	ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

6077617738 : MAJOR PSYCHOLOGY

KEYWORD: Growth mindset intervention; Academic resilience; English intelligence; Underprivileged students

Pimporn Buathong : THE EFFECT OF A GROWTH MINDSET INTERVENTION ON UNDERPRIVILEGED STUDENTS' ENGLISH INTELLIGENCE MINDSET AND ACADEMIC RESILIENCE WITH PERCEIVED ENGLISH TEACHER SUPPORT AS A MODERATOR. Advisor: Lecturer THIPNAPA HUANSURIYA, Ph.D.

The main purposes of this study were to delve into the effects of a growth mindset intervention on underprivileged students' growth mindset in English intelligence and academic resilience in English and into the mediating role of the growth mindset. Also, this research examined the moderating role of perceived English teacher support. Participants were 216 Mattayom 2 students from 2 schools in the Eastern region of Thailand (The second school served as a site for partial replication). Students from each school were systematically assigned into two groups based on their odd or even student identification numbers. The experimental conditions were randomly assigned to the two groups: one receiving brief English sessions and additional growth mindset fostering activities and the other receiving the same English teachings with additional activities of similar format but not related to a growth mindset. Participants responded to self-report measures of growth mindset in English intelligence and perceived English teacher support at pretest and measures of growth mindset in English intelligence and academic resilience in English at posttest.

Statistical analyses revealed that both schools yielded similar results. That is, two-way mixed factorial ANOVA showed that there was a significant increase in the growth mindset in the treatment but not in the control group and independent *t*-test revealed that the treatment group also had significantly higher academic resilience than the other group. Mediation analysis presented that the growth mindset in English intelligence fully mediated the intervention effect on the resilience. However, moderated mediation analysis demonstrated that perceived English teacher support did not moderate the intervention.

For the implications and applications of this present study, it is expected that this program will be applied to deliver to underprivileged students in other schools and contexts. Also, it is anticipated that students will put the ideas gained from the intervention into use and expand the growth mindset enkindled starting with the English subject to other subjects and other domains of intelligence and abilities in their lives, with high hopes that the mindset can in turn help students to academically bounce back from educational as well as personal adversities.

Field of Study: Psychology Student's Signature .....

Academic Year: 2019 Advisor's Signature .....

ACKNOWLEDGEMENTS

I believe that completing a thesis is definitely not a one-man show. I could not have come this far without the help and support, physical and psychological, of the following people.

I would first like to express my sincere gratitude to my advisor, Dr. Thipnapa Huansuriya, who was my educational sanctuary and my major source of encouragements in helping me navigate my way throughout the process. I was inspired by her growth mindset as well as her resilience. The support I perceived and received from her was priceless.

I would like to thank the thesis committee including Dr. Prapimpa Jarunratanakul, Dr. Phakkanun Chittham, and Dr. Sunthud Pornprasertmanit, whose expertise and guidance made this thesis much better than it could have been.

I also wish to express my profound thanks to the Institutional Review Board for the thorough revision and useful recommendations to fill the gaps in this thesis.

Many thanks should be given to the EdWINGS Education team for the generosity and valuable suggestions since the outset of the study.

Next, I would like to thank the school principals for giving the green light to conduct the experiment and the English teachers as well as school personnel involved in this research for the aid and convenience provided. I would also like to thank the participants as this research could not have materialized without the enthusiastic spirit of each and every one of them.

Besides, many thanks must be given to the research team especially my research assistant, Miss Lapadrada Pinyo, who has stood by my side through thick and thin during all my ups and downs doing this thesis.

No words could describe how much my family has meant to me. Their love, understanding, and faith in me are the fuels that have kept me going.

My time at Faculty of Psychology, Chulalongkorn University had been beyond amazing. I would like to thank my friends, other students, instructors, and staff with whom I crossed paths. I was one of the luckiest people to have experienced and to have been in such a warm-heartedly supportive environment.

Pimporn Buathong

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER I

INTRODUCTION

Background and Statement of the Problem

Nowadays, a number of Thailand's students in poverty have gradually been rocketing, reaching approximately 1,690,000 for poor and 600,000 for extremely poor students, according to the 2018 survey by the Equitable Education Fund (EEF) and Office of the Basic Education Commission (OBEC) (Thaipublica, 2018). While normal middle class or wealthy students may spend 45 THB (about 1.36 USD) or more on a palatably good bowl of hot noodles for lunch, the aforementioned poor students receive only 42.7 THB (1.29 USD) daily per person. Thus, they are categorized as underprivileged (Thumthong, Sirasoondhorn, Buason, & Siripornpaiboon, 2013) and are considered being in urgent need of help. To elaborate, the underprivileged students are those under the age of 18 who, according to UNICEF (2007), suffer hardships, have much less opportunities than normal students, and are at risk from learning deprivations due to being disabled, coming from poor families, or coming from remote or slum areas, etc. Even though these poor students are supported by the OBEC with 5 THB a day for each primary school student and 15 THB a day for each junior high school student, the amount of money is not enough compared to these days' cost of living such as expenditures for traveling to and from school, for food, and for uniforms, etc. (Equitable Education Fund, 2018; Thaipublica, 2018). A lot of students are, therefore, at risk of dropping out owing to poverty, which is associated with the restriction of resources to support their learning (Nicaise, Tonguthai, & Fripont, 2000).

Nonetheless, despite the adversity of poverty the students are facing, many amongst those manage to do very well at school and even excel at an international level. For instance, it was revealed in a press conference by the EEF and World Bank that some of Thai poor students showed their aptitude in the exam from the Program for International Student Assessment (PISA), ranking in the world's highest 25% scores. They are, hence, called the "Academically Resilient Students" or the

“White Elephants” (Thaipublica, 2017). In other words, they have a satisfactory academic achievement and are educationally successful in spite of their socioeconomically disadvantaged backgrounds, which typically predict poorer academic outcomes. Moreover, they even surpassed the “Unicorns” or students who are the wealthiest 25% of the country (Thaipublica, 2017).

The exam result from PISA mentioned earlier is one of many indicators of Thai students’ educational aptitude and it mainly focuses on the assessments of mathematics, science, and reading (Organization for Economic Co-operation and Development, 2018). This study, however, highlighted more on learning English. It is not that those three and other subjects are of less importance but in this era of the Fourth Industrial Revolution, globalization, and competitions, it is undeniable that English is one of the significant tools each Thai student should be readily equipped with in order to progress and prosper in their future diverse career paths. The language also helps pave a way for new opportunities whether within the country, within the ASEAN community following the 2015 ASEAN Roadmap promoting the importance of English and encouraging people to use it as a common language, (Sanonguthai, 2014) or within the global communities afterwards.

Notwithstanding, albeit Thai students have started learning English very early and have studied the subject for almost a dozen of years since primary school or even since kindergarten, their English performance and proficiency have been doubtful (Ministry of Education Thailand, 2017; Noom-ura, 2013). Besides, the performance and competence have been considered notably low judging from the assessment results of O-NET from the National Institute of Educational Testing Service or NIETS, with English score ranking among the lowest of all the subjects tested (Bangkok Post, 2018; Ministry of Education Thailand, 2016b). However, although the students with the highest average scores are often from major cities including Bangkok, some of those in the rural areas or those who are not economically wealthy scored considerably high as well (Matichon, 2018; National Institute of Educational Testing Service, 2018; Thairath Online, 2018). Therefore, it is of many researchers’ interest, ours included, of what are the underlying factors

relating to and resulting in the students' academic resilience or how to produce more of such white elephants, specifically the ones who excel at English.

Some researchers studied academic resilience and its association with several other variables such as self-esteem (Connell, Spencer, & Aber, 1994), parent involvement (Huang & Waxman, 1996), self-efficacy (Raskauskas, Rubiano, Offen, & Wayland, 2015), and so on. Interestingly, a lot of studies focused on the relationship between academic resilience and a growth mindset; the belief that intelligence and ability can change and develop (Dweck, 1999; Dweck & Leggett, 1988). However, in some aspect, the term growth mindset alone might be too broad as it contains the belief about general intelligence and abilities. Some studies, thus, focused specifically on a certain domain of intelligence such as a growth mindset in math intelligence (e.g., Luo, Lee, Ong, Wong, & Foo, 2014; Mills & Mills, 2018; Rattan, Good, & Dweck, 2012) and a growth mindset in language learning (Mercer & Ryan, 2009). Similarly, this present study aimed to focus specifically on a growth mindset in English intelligence.

Moreover, many researchers would like to test the causal relationship between a growth mindset and academic resilience. Of note, it was found in a myriad of studies that the mindset has a promising effect on academic resilience (e.g., Yeager & Dweck, 2012). Furthermore, to promote a growth mindset to see its influence on the resilience, researchers came up with mindset interventions (e.g., Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003) and they found that the interventions delivered successfully led to students' changed mindset, inclining to growth to be exact. The shifted mindset in turn led to students' academic resilience.

Besides, the equation of becoming an academically resilient student might be much more complicated than many people think. It concerns not only the internal resources such as a mindset of learning but also the interpersonal factors, perceived teacher support, for instance. A number of studies have evidenced that perceptions of supportive relations with teachers have greatly been associated with students' educational achievements (Ghaith, 2002; Metheny, McWhirter, & O'Neil, 2008). The support consists of four subtypes: emotional, instrumental, informational, and

appraisal (House, 1981). In addition, other than socializing with family members at home and peers at school, teachers play a role of great importance in influencing students' mindset as well as achievement through the teacher-student interactions (Rattan et al., 2012). However, as mentioned earlier that this study focused on English subject-related variables (i.e. growth mindset in English intelligence and academic resilience in English), the perceived teacher support was adapted to the perceived English teacher support, which is defined as how students view and evaluate the overall quality of support from their English teacher(s). All in all, this present research was interested to study whether the growth mindset intervention we designed would promote underprivileged students' growth mindset in English intelligence, which in turn would enhance their academic resilience in English as well. Also, we would like to test whether perceived English teacher support would moderate the effect of the intervention on the academic resilience.

Literature Review

The content of the literature review includes the related concepts, theories, and studies which were developed into the present research hypotheses. It is divided into the four sections as follows:

1. Academic resilience
2. Growth mindset
3. Growth mindset promoting intervention
4. Perceived teacher support

Academic resilience.

According to Rutter (1985), if an individual has the ability to rebound or bounce back and cope successfully despite being exposed to substantial adversity, it means the individual has resilience. Similarly, Bartley, Schoon, Mitchell, and Blane (2009) have it that resilience is "the ability to react and adapt positively when things go wrong." However, across the literature over the past 20 years, people have proposed various definitions of resilience with remarkable discrepancies (Sarkar & Fletcher, 2013). Despite such discrepancies, two core concepts stand out in most

definitions: adversity and positive adaptation (Windle, Bennett, & Noyes, 2011). The former concept, adversity, refers, according to Garmezy and Masten (1986), to social or personal factors related to a higher tendency to have poor development outcomes or the risks, hardships, or difficulties encountered by individuals which very likely link with negative consequences. Examples of adversities are low socioeconomic status (Abel, 2013), perceived ethnic discrimination (Alfaro, Umana-Taylor, Gonzales-Backen, Bamaca, & Zeiders, 2009), and stereotype threats (Good et al., 2003). For the latter concept, positive adaptation, it is defined as a successful achievement relative to the adversity an individual faces (Luthar, Cicchetti, & Becker, 2000) or the "positive outcomes in stressful situations" (Leary & DeRosier, 2012). Examples of positive adaptations are the post traumatic growth or abilities to have reasonable life functions despite facing traumatic events (Schetter & Dolbier, 2011) or pleasant educational results despite coming from a poor family (Claro, Paunesku, & Dweck, 2016).

As the resilience field has progressed, a number of researchers have tried to pinpoint individuals' assets that moderate their ability to tackle with and decrease the impacts of adversities they are facing and promote a positive adaptation. The assets have usually been referred to as 'protective factors', which are effects that "modify, ameliorate, or alter a person's response to some environmental hazard" (Rutter, 1985). Hence, adversity, positive adaptation, and protective factors are widely accepted to be the three defining components when measuring resilience (Sarkar & Fletcher, 2013).

Upon examining the measurement of resilience, there have been conceptual issues of whether resilience is conceptualized as a trait or process (Windle et al., 2011). On the one hand, some researchers conceptualize it as a trait, something quite stable and hard to be changed, with the emphasis on the positive role of individual characteristics enhancing the positive response to buffer adversity (Rutter, 1987). Self-esteem, optimism, and self-efficacy are examples of individual protective factors (Rutter, 1985). On the other hand, some researchers posit that resilience is more likely a dynamic process. The level of resilience differs over time and across contexts depending on the interaction between individuals and their environmental

factors (Luthar et al., 2000). Other than individual characteristics mentioned, this latter view of resilience as a process also consists of protective factors of social environments such as parental and peer support (Masten, 2001). In essence, the concept of resilience as a process varying across time and contexts has gained more popularity and has inspired researchers to dig into for more understanding of resilience in specific contexts, specifically in the educational context, for instance.

Resilience brought into the educational context has been called academic resilience. It is defined, according to Wang, Haertel, and Walberg (1997), as "the heightened likelihood of success in school and other life accomplishments despite environmental adversities brought about by early traits, conditions, and experiences." They also define academically resilient students as "those who achieve success in school despite experiencing stressful events that place them at risk of performing poorly" (Wang et al., 1997). Within this context, researchers have made a great attempt to identify the underlying factors empowering especially the underprivileged, at-risk, or disadvantaged students to overcome the odds and thrive for academic success. Similar to the general resilience, the three components: the adversity or risk, positive adaptations, and protective factors are included when measuring academic resilience.

Nonetheless, when researchers seek to measure academic resilience, they have to bear in mind not to be confused as the resilience appears to have a very close kin: the academic buoyancy. To some extent, the two concepts resemble but in fact they are quite distinct. Our variable of interest, the academic resilience, generally refers to how particular groups of at-risk or underprivileged students successfully and positively respond to extreme adversities such as poverty, racial or ethnic discrimination, stereotype threats, and chronic underachievement (Tudor & Spray, 2017). On the contrary, academic buoyancy is associated with a lighter degree of adversity extremity. It refers to how the majority of students are able to succeed in dealing with their typical school-based challenges and setbacks in the ordinary course of school life. The students' daily stressors or everyday hassles at school are assignment deadlines, exam preparations, and pressure for poor performance for in-class competitions, so on and so forth (Martin & Marsh, 2008). Thus, the buoyancy

mirrors everyday resilience at school. Talking about another aspect of difference, academic resilience may be relevant to harsher negative academic outcomes such as self-handicapping, school disengagement, severe emotional responses, and school dropout (Tudor & Spray, 2017). In contrast, academic buoyancy is more relevant to notably less negative outcomes such as diminished motivation and engagement in classes (Martin & Marsh, 2008).

After being able to tell apart the variable of interest, the academic resilience, from the academic buoyancy, researchers' another concern is how to measure the former as presently there is no gold standard of academic resilience measurement (Tudor & Spray, 2017). Consequently, some came up with measurement scales such as Academic Resilience Scale by Marsh and Martin (2006), Academic Risk and Resilience Scale (ARRS) by Martin (2013). Some, however, measured the variable using other indicators such as grade point average (GPA) (e.g., Abel, 2013; Raskauskas et al., 2015), attendance (e.g., Connell et al., 1994; Crosnoe & Elder, 2004), and academic test score (e.g., Irvin, 2012; Sharkey, You, & Schnoebelen, 2008). For the present study, we used the scale called the Academic Resilience in English, which was adapted from Cassidy's (2016) Academic Resilience Scale (ARS-30). One of the reasons of opting to use the scale instead of GPA is because we measured our participants' academic resilience immediately after the intervention ended.

Next, as mentioned earlier, academic resilience comprises three components. First, it is the extreme adversities students encounter, which differ from everyday hassles and stressors. Second, it is the positive adaptations referred to as academic achievements assessed by the indicators given above such as GPA, scores from academic tests, and scores reflected through academic resilience scales. Lastly and seemingly the most important, it is the protective factors aiding students to alter their responses to the environmental hardships or hazards. A good number of researchers have been keen to study particularly the last component to investigate what factors, whether personal or environmental, are associated with the academic resilience or what underprivileged or at-risk students have, to buffer the hardships leading to their academic success. The factors that have attracted many researchers' attention are various such as self-esteem (e.g., Connell et al., 1994; Finn & Rock,

1997; Raskauskas et al., 2015), motivation (e.g.,Hampton, 2016; Waxman, Huang, & Padron, 1997), and relationships with peers (e.g., Coohey, Renner, Hua, Zhang, & Whitney, 2011; LaForett, Watt, Diaz, McCullough, & Barrueco, 2000). Nonetheless, the factor that captivated us most was a growth mindset from implicit theories of intelligence (Dweck & Leggett, 1988). There are a lot of evidence over the past three decades that the growth mindset is positively associated with students' academic achievements (e.g., Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013; Romero, Master, Paunesku, Dweck, & Gross, 2014). Even though the very recent meta-analyses by Sisk, Burgoyne, Sun, Butler, and Macnamara (2018) argued that the average correlation found between a growth mindset and educational achievements was very weak with $\bar{r}$ = .10, there is some hopeful light when it comes to the sake of academically high-risk or economically disadvantaged students. That was discussed later on.

Growth mindset.

Researchers have defined the implicit theories of intelligence as pivotal assumptions about the changeability or malleability of personal qualities or characteristics (Dweck, Chiu, & Hong, 1995; Dweck & Leggett, 1988; Molden & Dweck, 2006). In an academic context, students possess different implicit theories, ranging from an entity theory or a more fixed mindset of intelligence to an incremental theory or a more growth mindset.

The two mindsets aforementioned differ substantially. Students who are entity theorists or those who hold a fixed mindset deem that their intelligence or ability is simply an innately static trait to a certain degree and that cannot be changed or developed (Dweck, 2006). They focus on not making mistakes or facing failures, are worried about looking smart, and think that putting an effort to learn something means their own intellectual ability is inadequate, leading to the feeling of discouragement. In addition, all the setbacks they face are seen as the limitations of their intelligence. They are accordingly inclined to adopt performance goals concentrating on demonstrating their abilities and attaining positive evaluations from others (Dweck, 1999). They also tend to attribute poor performance to a lack of

ability, leading to the adoption of helpless strategies (Robins & Pals, 2002). Some students may even consider cheating on the next test after receiving a poor grade on the first one (Dweck, 2010).

In contrast, students with a growth mindset or incremental theorists believe their intelligence is like a sprout, which can grow over time and can be developed by various means (Dweck, 2006). They are likely to focus on hard work in the service of learning, altogether with putting effort to master something. Also, they view failures as platforms to learn and develop. Thus, these latter group of students tend to adopt learning goals and utilize mastery-oriented response (Dweck & Leggett, 1988). Additionally, due to the value of effort and the belief that their intelligence is flexible, growth mindset students tend to put more effort in challenging situations to conquer difficulties, which will aid them to improve and strengthen their existing skills or even lead to the attainment of new skills and abilities (Hong, Chiu, Dweck, Lin, & Wan, 1999). Rather than viewing their poor performance as a lack of ability, students with a growth mindset attribute it to a lack of effort, leading to the employment of adaptive strategies to increase their own effort and learning proficiency such as practice and help-seeking behaviors (Dweck, 1999).

Recently, research has showed that the mindsets, either fixed or growth, have been associated with students' academic achievement (Burnette et al., 2013). To elaborate, the meta-analysis of 46 studies with totally over 400,000 students (Costa & Faria, 2018) has demonstrated that growth mindset students are more likely to have higher achievements. They tended to earn higher grades in specific subjects and also in overall academic achievement. Students' fixed mindset beliefs are positively linked with students' achievement in specific subjects as well but at a lower magnitude. However, there is a discrepancy of findings in different cultures possibly in the aspect of collectivism versus individualism. Whereas there was a positive link between a growth mindset and academic success reported by Asian students or those from Oceania, there was a positive relation between a fixed mindset and the success as reported by European students. A negative association between a fixed mindset and the success was found among students from North America (Costa & Faria, 2018).

Therefore, researchers should bear in mind that culture matters when studying implicit theories of intelligence and academic achievements. Nonetheless, a lot of researchers, especially those who have Asian students as samples, tend to specifically focus more on measuring and finding the relationships between a growth mindset and educational success as it stresses on a more positive side of the implicit theories of intelligence (e.g., Lim, Plucker, & Im, 2002; Luo, Lee, Ng, & Ong, 2014).

Another aspect that should be put into consideration is that students' mindsets are associated with family income (Claro et al., 2016). It was stated that "students from the lowest-income families were twice as likely to endorse a fixed mindset as students from the top-income families and schools." It might be partly because being economically disadvantaged may prompt students to think that they do not have sufficient resources to help them grow their intellectual ability, which in turn possibly links with poorer academic outcomes. However, the power of a growth mindset has come into play. Not only is it related to the normal or the majority of students' educational outcomes, the mindset is linked with specific groups of students' achievements as well. Growth mindset students, especially those who face extreme adversities such as poverty, racial discriminations, or tension from a difficult adolescent transition tend to be resilient (Good et al., 2003). They can still thrive academically despite all the hardships they confront. In other words, their growth mindset can temper the effects of poverty. Poor students with a growth mindset even displayed comparable test scores with students with a fixed mindset from families that earned 13 times more (Claro et al., 2016).

Furthermore, whereas some researchers measured students' growth mindset in a general domain to see its relationship with overall achievement, judging from their GPA or final exam scores (Kornilova, Kornilov, & Chumakova, 2009; Magno, 2012), some measured the growth mindset in a specific domain. For example, some researchers studied a growth mindset in mathematics, reading, language, and literacy, using grades from the courses as indicators of students' specific subject achievement (W. Luo et al., 2014; Tarbetsky, Collie, & Martin, 2016). Most of these research studies found significant positive relationships between the growth mindset in a specific domain and a specific subject performance. For example, Tarbetsky et al. (2016)

found a significant positive association between a growth mindset in mathematics and mathematics achievement with $r = .250$ ($p < .01$). For this present study, a growth mindset in English intelligence was researched.

Apart from studying the correlation between a growth mindset and academic success, recent research has tried to examine their causal relations to demonstrate that students' growth mindset has a direct impact on their grades and academic outcomes (Claro et al., 2016; Dweck, 2010). Many researchers created growth mindset promoting interventions aiming to test their effects on various academic outcomes and to help students in need (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Good et al., 2003).

Growth mindset promoting interventions.

Researchers have come up with interventions aiming to promote a growth mindset and they have demonstrated that changes in the implicit theories of intelligence, from a fixed to a growth mindset, actually influence students' academic behaviors and achievements (Aronson et al., 2002; Blackwell et al., 2007).

There are various interventions but the ones that seem to gain most popularity are those teaching students the concept of neuroplasticity (Sarrasin et al., 2018). Neuroplasticity is the brain capacity to alter and grow its neural connections through learning (Kania, Wronska, & Zieba, 2017). According to neuroscience evidence, when an individual is learning, new interneural synapses can be produced, existing synapses can be adjusted, rearranged or repositioned, and the disused or damaged synapses can be exterminated (Kania et al., 2017). From the concept presented, neuroplasticity mechanisms seem to be closely related to an individual's ability to develop knowledge, intelligence, and abilities which reflects the core concept of a growth mindset. Moreover, the interventions appear to be especially helpful for the disadvantaged or at-risk students to improve their learning motivation and academic achievements (Sarrasin et al., 2018)

Aronson and colleagues (2002) were among the first researchers who developed and delivered a growth mindset intervention using the neuroplasticity concept specifically to at-risk students. The researchers intended to change 18-22-

year-old African American college students' theories of intelligence. They were considered facing adversity of stereotype threat. The students were divided into three groups. The first group, known as the non-pen pal group, was the straight control group that was taught nothing as they were naturally monitored. The other two groups were called the pen pal conditions. These two groups were instructed to mentor younger students with educational difficulties through writing them letters. One group was another control group. They were taught that it is normal for different people to have different intellectual ability strengths and hence they do not have to worry if they cannot do well in any given subject or domain. Then they were told to discuss this information in the letter they wrote to encourage their younger pen pals. The last group was the growth mindset condition. Participants were presented with scientific information about the brain's functioning and its potential flexibility. They were taught how the brain develops to be stronger and smarter by producing new neural connections while learning. Then they wrote a letter concerning this information to their younger pen pals. The results were as anticipated. The students who received a growth mindset treatment displayed a significant increase in overall GPA, reflecting the general achievement (Aronson et al., 2002).

Good and colleagues (2003) were the next group of researchers who delivered a growth mindset intervention with the concept of neuroplasticity to at-risk 12-13-year-old female students at a rural school district in Texas. They were facing difficult circumstances due to the adolescent transition and due to being female, minority, and low-income adolescents. The intervention took over a year with the treatment-group students receiving weekly e-mails expounding information about a growth mindset and neuroplasticity. The researchers intended to see whether the students, supposedly had learned enough about the incremental theory, would perform better at the end of the academic year. Again, as expected, students who received the growth mindset intervention attained significantly higher math and reading scores on their statewide achievement tests (Yeager & Dweck, 2012).

Next, Blackwell and colleagues (2007, Study 2) also delivered their interventions to the low achieving and economically disadvantaged participants who were 12-13 years old. They were randomly assigned to two different conditions. The

first one was a control condition. Participants received an instruction on how to improve study skills without any emphasis on the potential for the intelligence development. The other one was a treatment condition. Participants received a growth mindset intervention accompanied by study skills. Both conditions comprised of eight sessions. Results revealed that students who were in the growth mindset treatment condition showed significantly higher improvement in math grades whereas those in the control group continued to have declining grades (Yeager & Dweck, 2012). Of note, learning only the academic skills may not be enough. To be able to put the study skills into practice, students needed a growth mindset as well.

Besides interventions teaching neuroplasticity, researchers creatively came up with alternative ideas. For instance, Harada (2011) taught the growth mindset concept through the popular movie and book called *Harry Potter*. The researcher chose the *Half Blood Prince* episode, which portrays how the leading character Harry obtains the liquid luck called Felix Felicis. The potion is special as it keeps a person lucky for a whole day long. The part was selected to teach students about luck and effort. The results showed that some students mentioned the importance of effort instead of luck. Harada (2011) reported a student saying that "I suppose making efforts leads to luck...There is no easy way to progress. If I drank Felix Felicis, I would succeed only once. But luck can't continue. Efforts is essential to my life to succeed in everything."

Moreover, Dweck (2008) recommended some other promising growth mindset interventions such as teaching students about the studies about people who make great and creative contributions (Ericsson, Charness, Feltovich, & Hoffman, 2006), giving process praise and feedback about adaptive strategies, perseverance, challenge-seeking, effort, and progress instead of focusing only on the end results (e.g., Cimpian, Arce, Markman, & Dweck, 2007; Kamins & Dweck, 1999). Research showed that the recommended interventions worked quite well. For example, Cimpian et al. (2007) found that before experiencing any mistakes, children who received generic praise implying a stable ability (i.e. You are a good drawer) and who received nongeneric praise (i.e. You did a good job drawing) did not exhibit a significant difference in behaviors. However, after they experienced some mistakes, those who

received generic praise expressed significantly more helpless behavior when compared to those who received nongeneric praise.

Evidently, researchers have extensively used growth mindset promoting interventions to change students' implicit theories of intelligence and found the impacts of the changed mindset on academic achievements. There are a number of studies reporting that the growth mindset interventions were proved to be beneficial to both the normal majority of students and those specific groups who face adversities. It should be noted that such interventions were especially effective and helpful for the academically high-risk or economically disadvantaged students (Sisk et al., 2018). In essence, it is worth a try to examine the effect of a growth mindset intervention on underprivileged students' mindset and how the enhanced growth mindset may in turn lead to academic resilience. For this reason, we hypothesized that the effect of the growth mindset promoting intervention on the academic resilience in English would be mediated by the growth mindset in English intelligence.

However, the magnitude of the intervention effects on the growth mindset and academic resilience might also depend on some other factors such as students' motivation, aspiration, socioeconomic status, or perceived teacher support. For this present research, the last factor, perceived teacher support, was of our interest.

Perceived teacher support.

Being a student, since childhood through adolescence, one has spent a great deal of time at school. Generally speaking, other than peers, teachers are potentially the persons students feel the closest with, both physically and psychologically and they seem to be a core source of influence and support (Metheny et al., 2008). Additionally, the relationships between teachers and students have been represented in a variety of conceptualizations including (1) teachers' perceptions of students, (2) students' perceptions of teachers, (3) social interactions between the two parties that can be observed (Mercer, Nellis, Martínez, & Kirk, 2011). However, in each study researchers normally choose to measure only one component among the three aforementioned (Mercer et al., 2011).

Across studies in educational fields, researchers found positive relationships between teacher support and student outcomes. Apart from that, a number of researchers emphasized students' perceptions of support from teachers. According to Ryan and Patrick (2001), perceived teacher support refers to "the extent to which students believe teachers value and establish personal relationships with them." It is reflected through the meaningful connections teachers try to build with students and thus creating the sense and feelings of "caring, friendliness, understanding, dedication, and dependability" that students acknowledge and perceive. Some researchers argued that the perception is a better predictor of students' outcomes in terms of psychological adjustment and resilience than actual support (e.g., Murray, Murray, & Waas, 2008). Also, students' perceived teacher support is associated with various other crucial outcomes such as academic achievements (Goodenow, 1993), academic self-concept (Dudovitz, Chung, & Wong, 2017), educational efforts (Wentzel, 1997), psychological adjustment (Cheung, 1995), and more positive peer relations (e.g., Skinner, Furrer, Marchand, & Kindermann, 2008).

According to House (1981), there are four subtypes of broad social support. Firstly, emotional support refers to feelings of empathy, care, concern, and trust. Secondly, instrumental support comprises of direct intervention by spending some time with someone to grant assistance, materials, and equipment. Next, informational support includes giving someone verbal directions, counsels, suggestions, or guidance. Finally, appraisal support includes giving someone affirmation and evaluation feedbacks. Researchers have extensively utilized House's (1981) support conceptualization in their studies of perceived teacher support (e.g., Malecki & Demaray, 2003).

Moving forward, a variety of studies found that even though perceived teacher support seems to be advantageous for a majority of students in terms of academic performance and achievement, some researchers suggested that the perceptions of support may be even more beneficial to the students who are at risk for educational failures (Mercer et al., 2011). For example, Malecki and Demaray (2006) found that there was a stronger association between perceived teacher

support and academic achievement of the low socioeconomic status (SES) students than that of the higher SES students.

In addition, qualitative studies also showed how students' reported support from teachers reflected their potential to improve and prosper in their academic areas. For instance, Morales (2014) studied the African American and Hispanic students who are considered academically resilient and found that feedback, as appraisal support, helped students learn what they should adjust and do next after they made some mistakes. Morales (2014) reported a student named Lucy saying "The detailed feedback was like a map, it kept me on track and let me know that I was making progress, like that what I was doing was working, or that I needed to change, that's valuable information. In some of my other classes, I had like no clue where I was, I was kind of lost, and it made me not want to work as hard."

Further, it seems that perceived teacher support is associated not only with students' academic achievement but also their mindsets as Flannery (2016) found that teacher support perceived by students also has a linkage with students' growth mindset. The researcher had visited secondary schools around Australia including the schools that already had focused on a growth mindset. From an interview with students who evidently held a growth mindset, it was revealed that the atmosphere full of teacher support genuinely helped them develop their mindset. Flannery (2016) also reported one student saying, "The way they (teachers) are interacting with students to help them learn and keep improving is encouraging. Also, we are not just learning for the standard but learning for knowledge and capability." Another student mentioned, "We know when the teacher cares about us and knows us as a learner." Therefore, it should be emphasized that the teacher support perceived by students plays a role of great importance in boosting students' achievement and growth mindset.

Aside from that, as it was less likely for low SES or poor students to have a growth mindset (Claro et al., 2016), they may need more of an intervention to boost a growth mindset or educational achievements than higher SES or affluent students. Logically speaking, students with different levels of perceived teacher support likely follow the same pattern. That is to say, the intervention might work better or might

be more effective for those with low perceived teacher support. Quite the contrary, students who initially have high perceived support, and presumably already have a growth mindset and high academic success, might not benefit from the intervention as much. The fact that the magnitude of the perceived support can moderate both the relationships between the growth mindset intervention and a growth mindset and the growth mindset intervention and the academic resilience led us to one of our hypotheses. We thus hypothesized that the perceived English teacher support would moderate the effects of the growth mindset promoting intervention on academic resilience in English and on the growth mindset in English intelligence.

All in all, from the literature review, we have found that, to our knowledge, research studies on academic resilience usually measure a general academic achievement but not an achievement in a specific domain. On top of that, studies on a growth mindset focusing on the specific domain of the English language are scarce, looking at an international level, let alone in Thailand. We think it is important to study a growth mindset in English intelligence in Thai underprivileged students as English is one of the pivotal personal tools in the globalized world and most of the students still view their abilities including English as a fixed trait. Thus, we were interested in doing a research study on the topic. Now, we have adequate evidence leading to the setting of our research hypotheses.

Purposes of the Study

The objectives of this present research study were to investigate whether a growth mindset promoting intervention would have an impact on underprivileged students' growth mindset in English intelligence and whether the growth mindset would in turn lead to academic resilience in English. Also, we would like to examine whether perceived English teacher support would moderate the magnitude of the growth mindset intervention effects on English intelligence growth mindset and on academic resilience in English.

The **conceptual and operational definitions** of the research variables are as follows:

The **independent variable** is the Growth Mindset Intervention, which is a program developed and designed to promote participants' growth mindset. It is divided into 2 levels (receiving and not receiving the intervention). The group that received English teachings and growth mindset inducing activities is called the intervention group. In contrast, the group that received English teachings and activities *not* related to a growth mindset is called the control group;

The **mediating variable** is the Growth Mindset in English Intelligence, which is an individual's belief about the malleability of his/her own English intelligence. This variable was measured by the Growth Mindset in English Intelligence Scale;

The **dependent variable** is the Academic Resilience in English, which is an individual's likelihood of academic achievement in the English subject despite facing adversities or hardships. This variable was measured by the Academic Resilience in English Scale and;

The **moderating variable** is the Perceived English Teacher Support, which is how students perceive and evaluate the support they get from their English teacher. This variable was measured by the Perceived English Teacher Support Scale.

The conceptual research model showing the relationships of the variables is presented in Figure 1.

Research Hypotheses

The growth mindset promoting intervention tended to increase a person's growth mindset, potentially both in a general and in a specific domain including English, and the mindset would likely lead to the person's academic resilience accordingly. We, therefore, set our hypotheses as follows:

Hypothesis 1: Participants in the growth mindset promoting condition would have a greater increase in the growth mindset in English intelligence from pretest to posttest and there would be a significant difference in the growth mindset and academic resilience between the treatment and control conditions at posttest.

Hypothesis 2: The mediation effect.

The effect of the growth mindset intervention on the academic resilience in English would be mediated by the growth mindset in English intelligence.

Specifically, we expected that the growth mindset intervention would have a positive effect on the academic resilience in English. The growth mindset intervention would have a positive effect on the growth mindset in English intelligence, which would in turn have a positive effect on the academic resilience in English. Also, there should be a significant indirect effect of the growth mindset intervention on the academic resilience through the growth mindset in English intelligence.

Hypothesis 3: The moderated mediation effect.

The perceived English teacher support would moderate the effects of the growth mindset intervention on the academic resilience in English and the effect of the intervention on the growth mindset in English intelligence.

Specifically, when perceived English teacher support was high, the direct effect of the growth mindset intervention on the academic resilience in English and its indirect effect through the growth mindset in English intelligence would be weaker than when perceived English teacher support was low. It was possibly because there was less room for the intervention effects for students who felt highly supported as they might already have a higher growth mindset and might already be academically resilient, compared to those feeling less supported.

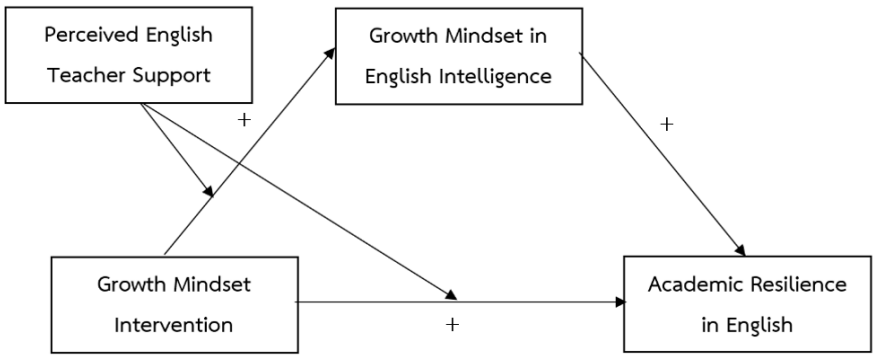


Figure 1. Conceptual research model

CHAPTER II

METHODOLOGY

This present study was a field experiment conducted in participants' natural setting: their schools. Participants were split into two groups based on their odd or even student identification numbers. Then, the experimental conditions, control or intervention, were randomly assigned to each group. We used self-report scales to measure the variables of interest. The details are as follows:

Participants

Underprivileged students aged 13-15 were our target population. According to UNICEF (2007), underprivileged students are those under 18 years of age who face adversities and hardships and have considerably less opportunities when compared to normal students because underprivileged students tend to be those who are disabled and/or who come from poor or low socioeconomic status families and/or who live in remote or slum communities and/or who have parents working as migrant workers. As for this research, we focused on students in poverty and consider them as underprivileged. In order to be classified as poor, students must come from families with the average household income not more than 3,000 THB per month per family member (Equitable Education Fund, 2018).

We used G*Power program to calculate a required sample size for our experiment. The main comparison we wanted to make was between the academic resilience score of the control and experimental groups after the intervention. Published studies that made a similar comparison found that students who received a growth mindset intervention significantly differed from those who did not, in terms of academic achievements, resilience, motivation, and the like. We also found that the range of their effect size (Cohen's *d*) is quite wide, from up to 0.80 (e.g., Aronson et al., 2002) to 0.10 (e.g., Yeager et al., 2016). However, two studies that focused on variables that are closely similar to ours have the effect size of approximately 0.50. Specifically, the research by Good and colleagues (2003) has an effect size of 0.52

and Blackwell and colleagues' work (2007) has an effect size of 0.47. As a result, we decided to use the effect size of 0.50.

From the sample size calculation using the G*Power program (*t*-tests, Means: Difference between two independent means (two groups), one tailed, effect size *d* = 0.50, α = 0.05 and power = 0.80), the total sample size should be 102 students (51 per condition).

For the first phase of our research, we then contacted the first school, which is called School 1, with 150 Mattayom two students. Thus, the actual number of students exceeded the calculated sample size, which was considered acceptable. The students were later divided into 2 conditions, with 75 students in each.

Moreover, in the same study, we wanted to replicate the findings in another school, therefore, we contacted the second school, which is called School 2, with approximately 110 Mattayom two students. The students from this school were divided into 2 conditions as well.

Hence, with about 150 from the first school and about 110 from the second, we expected to have the total participants of 260.

As School 1 was contacted first, it was the main school for this research and School 2 was the site for replication.

The **procedure and criteria for selecting participants** to be included in the research are as follows: first, we proposed our research ideas to EdWINGS Education, the social enterprise company that travels Thailand, visiting and surveying hundreds of schools (mostly in rural areas) to see how they can provide help to improve the overall schools' quality. Since our research main objective appears to fit their company's vision, which is making an effort to see Thai students improve their learning performance, proficiency, and well-being, they agreed and provided us with a list of potential schools. They helped us choose schools based on our three criteria as follows: 1) The schools must have more than 100 Mattayom two students 2) Students in those schools must be considered underprivileged or poor with each student coming from a family with the average income of less than 3,000 THB per month per family member (Equitable Education Fund, 2018) 3) Those students had

poor English performance (e.g., ONET scores lower than the average score of around 30 out of 100).

The reasons behind targeting Mattayom two students were that they are in the middle of the junior high school level. Since our research aimed to deliver the intervention right after the new academic semester started, contacting Mattayom one students (who would have just finished Prathom 6 from multiple different schools) to give them information prior to the intervention delivery might be quite difficult. They must be quite occupied at the time as well because they would be joining in the school's welcoming and orientation activities, getting to know the school and each other better. We also chose not to include Mattayom three students because they might be too busy preparing for the upcoming tests for their senior high school or vocational college. Consequently, Mattayom two students seemed to be the most appropriate choice for our research.

Second, we had quite a long list of schools that fitted our criteria. The company kindly gave us the school contacts. We specifically chose to contact School 1 and School 2 because they are both in Chonburi Province (with about an hour drive from one school to the other), which is not quite far from Bangkok.

Third, we called the selected schools' principals. The call to each principal lasted about 20-30 minutes. We started the phone conversations by introducing ourselves and mentioning how we attained his/her contacts. Next, we asked his/her permission to talk about aspects of each school such as the school atmosphere, the performance and proficiency of students in many subjects, English included and what help students need to improve their performance. Both schools' principals told us that the poor English proficiency was one of their concerns because their students did not seem to do well in the subject. We then also introduced our research project aiming to tackle with the belief that students can develop and improve their English intelligence and ability through effort exertion, practice, and beating challenges or the "growth mindset in English intelligence," in the hopes of helping the students to have a better overall performance in English. We further asked whether the principals were interested in letting their students join in our research project. Both showed high interest and accepted to join in. Before each conversation ended, we

asked for a school visit to further discuss our research and to see the actual students' learning atmosphere. Again, both principals kindly granted an approval to our wish.

Fourth, we electronically sent a letter to each school principal prior to our school visit and waited for their green light. We, the principals, the researcher, and the research advisor agreed to have a school survey on the first week of students' beginning of the second school semester.

Next, we went to School 1 first, met with the principal, Mattayom two English teacher, and the head of the school English department. We discussed our research ideas and the rough period of when the intervention would be delivered. We had a school tour and observed the English teaching atmosphere in class. Before we left for the second school, School 2, the Mattayom two English teacher gave us her contact information. We then headed to the second school and what happened there appeared to be similar to the previous school. We also ended up having the Mattayom two English teacher's contact information.

After that, we had been electronically keeping in touch with the English teachers and constantly asking about information useful for our research activities such as whether these English topics (e.g., directions and occupations) were appropriate for their students or were there any rooms large enough for four dozens of students to do activities together, etc.

As for the **criteria for ruling out participants** from further data analyses, Mattayom two students from both schools who voluntarily signed up by giving us their assent together with a consent from their legal guardian were primarily considered our research participants. They were required to respond to our research measures twice, before and after the research as well. Over and above that, they must show up to participate in every research activity administered. They were considered our participants if they followed all the requirements aforementioned. Should any participants missed a requirement (e.g., not providing an assent and/or not responding to the measures twice and/or not participating in an activity), the data obtained from them would be omitted from our data analysis.

However, even though some of the requirements were not met for some students, that is, some might join the activities late under whatever circumstances, leading to not being able to fill out the measures and/or some might be absent on the first day of the intervention, they were still wholly welcome to join in when they could (and if they wanted to) to do activities with their friends at any time until the intervention ended. They would not be rejected to join in. To put it simply, only their data would be omitted but the students themselves would not be excluded from participating in our research activities.

Moving ahead, as for the **participant approach and contact**, we had preliminarily contacted them through their principals and English teachers. We revisited each school for a full and updated student name list, student identification numbers, and contact information. The list and the numbers were later used to systematically assign students into each condition.

Each school divides students into classrooms (i.e. Mattayom 2/1, 2/2, 2/3, or 2/4) in accordance with their academic performance (e.g., school admission test scores and GPAX from Mattayom one) ranging from 2/1 for the highest performance to 2/4 for the lowest. However, for each class, the name list is in an alphabetical order. The order does not signify or relate to any academic performance or intelligence level of students within the class. As for the **systematic assignment**, School 1's students with odd classroom identification numbers were grouped together and were then assigned to the control condition and their counterparts with even numbers were in the experimental group. The two groups were randomly assigned to either the control or experimental condition based on drawing lots. The same system was applied to the replication school, with students having even numbers in the control group and those with odd numbers in the experimental condition.

After the assignment, as a reminder, each student was given with a half-A4 size paper telling information about the research such as the date and time, what students would get from the participation and the contact information of the main researcher responsible for this study. The leaflet each student got was properly decorated with colors and some cute cartoon characters to attract students' interest.

Additionally, about a week prior to the actual delivery of the intervention, we sent participants the reminder messages (through their teachers) of the date and time of our research activities accordingly with their condition.

Protection of Human Rights

Since this present study included Mattayom two students as participants, it was vital to the utmost that we strictly followed our protocol to protect their rights, security, and sanity. The efforts taken to protect the human subjects were as follows:

1. Primarily, our study must be approved by the Institutional Review Board (IRB). The board's approval was the very first important step for the subject protection.

2. As our participants were under the age of 18, they all were considered minors. By being considered so, it was completely necessary that before the participation, their parents or legal guardians must be provided with an informed consent and the subjects themselves also needed to be provided with an assent. At the same time, they must be given with a document of research information including, for example, the research objectives, procedure, potential harms or risks, benefits and the right of withdrawal. Of note, they must acknowledge enough general necessary research information and sign up for our study.

3. We assured our participants that the participation was entirely voluntary and they could, by their own will, choose to quit or withdraw from the study at any time without any consequences or penalties that would follow.

4. It was certified that any information or data obtained from each and every of the participant would be kept safely and confidentially. Only the researchers have the access to the data. Also, the data analyzed as the study results were reported as an overall image or trend. For some time after the study ended, all the participants' information and data would continue to be confidentially kept for further academic use and/or research as we had the approval, granted by the participants and their legal guardians.

5. We ensured that no harms or threats would occur to the participants, whether physically or psychologically and either before, during or at the end of the

study. However, since we mainly directed our attention to the subjects' mindset, feelings of discomfort might slightly and inevitably pose a threat to some participants' psychological sanity due to their previous mindset that might go against the one our intervention intended to foster. We ensured that if it happened so, we would alleviate the discomfort by individually talking each of them through our intention of this study that never meant them harm, reassuring the pluses of the mindset intended to be ignited, and giving the detailed contact information of the Chula Wellness Center in case they were in need of it, with all expenses paid. We also reassured that they could quit if the discomfort still persisted.

6. After the intervention ended, all the participants were debriefed by researchers telling them the true purposes of the study. They were also told that should any participants had any further problems as a result of or related to the present study, researchers would try every possible proper way or do everything in our ethical power to help mitigate the problems caused.

Measures and Materials

The present study consists of three measures. The details of each measure are as follows:

Growth mindset in English intelligence scale.

Growth Mindset in English Intelligence Scale was adapted from Personal Implicit Theories of Intelligence Scale (Huansuriya & Ariyabuddhiphongs, 2018), which is already in Thai and was already tested for reliability and validity. The scale quality is considered good. Huansuriya and Ariyabuddhiphongs (2018) translated and developed the scale from General Implicit Theories of Intelligence Scale (Dweck, 2000). However, the present study scale was developed to focus not on an individual's general intelligence or ability but specifically on the English intelligence. Also, the language used was adjusted to the degree that the 14-year-old Mattayom two students could easily understand, with the 5-point Likert-type scale. Respondents selected a number ranging from 1 to 5 reflecting the degree of their agreement upon each scale item, with 1 equals strongly disagree to 5 equals strongly agree. Examples of items are "I can always substantially change how intelligent I am

in the English subject." and "I can learn new things, but I can't really change my basic English intelligence." (reversed score). We reduced the scale range of originally from 1-7 to 1-5 so that the Mattayom two respondents could easily answer and to make the scale range go along with the other two measures.

This newly developed scale was considered of good quality. The global scale had the Cronbach's alpha of .836. Also, it significantly correlated with another construct, grit, as it should ($r(482) = .346$, $p < .001$), which reflected the construct validity.

This scale served as a measure for the research mediator; the growth mindset in English intelligence. The full measure and the measure development procedure are in Appendix A.

Academic resilience in English scale.

Academic Resilience in English Scale was adapted from Cassidy (2016). Cassidy's original scale, the Academic Resilience Scale (ARS-30), measures behavioral and cognitive-affective responses to hardships and adversities in an academic setting. It comprises of a short scenario or a vignette for participants to imagine themselves as the student portrayed in it. The scenario depicts how a student faces adversity which represents a great academic challenge, struggle, and strain the student has to go through. Following the scenario reading, there are 30 scale items that participants are asked to answer, with responses of a 5-point Likert-type scale where 1 equals "likely" to 5 equals "unlikely." For the new scale that was developed, a scenario was also included but some details differed from Cassidy's. Moreover, Cassidy's 30 items were translated into Thai and adjusted to focus on a specific target group which was Mattayom two students and a specific domain of academic intelligence which was English. Also, the item response choices were changed to 1 equals "very unlikely" to 5 equals "very likely" and the number of items, after the scale development, was 16. Examples of items are "I would seek encouragement from my family and friends.", "I would see the situation as temporary." and "I would try different ways to study."

The scale development analysis indicated that this developed scale was also of good quality. The full scale had the Cronbach's alpha of .841. The construct

validity was reflected through the significant correlation of this scale and the short Grit scale (Duckworth & Quinn, 2009) with $r(482) = .449$, $p < .001$.

This scale served as a measure for the research dependent variable; the academic resilience in English. The scenario, all the scale items, and the scale development procedure are in Appendix B.

Perceived English teacher support scale.

Perceived English Teacher Support Scale was translated and adapted from the Teacher Support Scale (TSS) (McWhirter, 1996) and the revised Teacher Support Scale (Metheny et al., 2008). The original scales include the opening first half statement, "Most teachers in my high school..." Respondents are asked to rate items as the second half to conclude each statement with the 5-point Likert-type scale by selecting a number ranging from 1 to 5 reflecting the degree of their agreement upon each scale item, with 1 equals strongly disagree to 5 equals strongly agree. This present study developed the scale to be more specific for Mattayom two students and their perception of support from their English teacher(s) from last semester (Mattayom 1) at school. The reason we measured the perceived teacher support from last semester (Mattayom 1) because the students had almost zero knowledge about their current English teacher(s) (Mattayom 2) as the new academic semester only freshly started when we delivered our intervention. Hence, the opening first half of the sentence was adjusted to "My English teacher(s) from last semester..." Examples of the second half statements are "...try to answer my questions," "...encourage me to learn English" and "...will listen if I want to talk about a problem." Also, some items were added to cover all the aspects of House's support (1981).

The Cronbach's alpha of the full scale of .890 evidenced its acceptable reliability. In addition, the significant correlation of this developed scale and the items reflecting students' enjoyment and zeal in learning English indicated its convergent validity ($r(529) = .473$, $p < .001$).

This scale served as a measure for the research moderator; Perceived English Teacher Support. All the scale items and the scale development procedure are in Appendix C.

Brain brochures.

The brain brochures given to students served as a material for the first session of each condition. There were two versions of the brochures, both printed in black and white. The first version was given to students in the intervention group. It displays the information about neuroplasticity, which is how the brain cells grow and build connections among each other. An analogy between brain growth and muscle strength as a result of regular workouts is also provided. The emphasis on effort exertion as a part of learning and as a part of making the brain develop is constant throughout the brochure. Moreover, a comparison between the brain of animals living alone in a cage and those living with friends and having toys to play is depicted on the brochure. Likewise, there is a comparison between the brain of newborn children and 6-year-old children. All the information on the brochure was translated from English to Thai and adapted from Mindset Works Inc. (2002). The original English information has regularly been used for growth mindset inducing activities and interventions. Some illustrations that go along with the brochure content were added to attract readers' interest and to give more understanding about the information.

The second version of the brochure was for the students in the control condition. It displays the information about the anatomy of the human brain, which describes its different components and functions. Again, there are illustrations that go along with the content. Any information related to a growth mindset such as the development of brain cell connections or brain growth as a result of learning was excluded. The information for this brochure was adapted from Harris, Hartley, Sexton, Symons, and Williams (2010) and from a Thai illustrated encyclopedia by Poomkokruk (2016). At the end of the intervention for each school, every student regardless of the condition, received both brochures. The illustrated brochures that were used in this research are in Appendix E.

Procedure

Before carrying out the experiment, we submitted our research proposal to the Institutional Review Board (IRB). After the proposal was approved of by the board, we then proceeded further, starting with distributing an informed consent to

each student to pass on to their parent and an assent for the participants themselves. The course of action afterwards up to the end when the data were collected, analyzed, and reported was summarized and shown in Figure 2, which is followed by the details of each step.

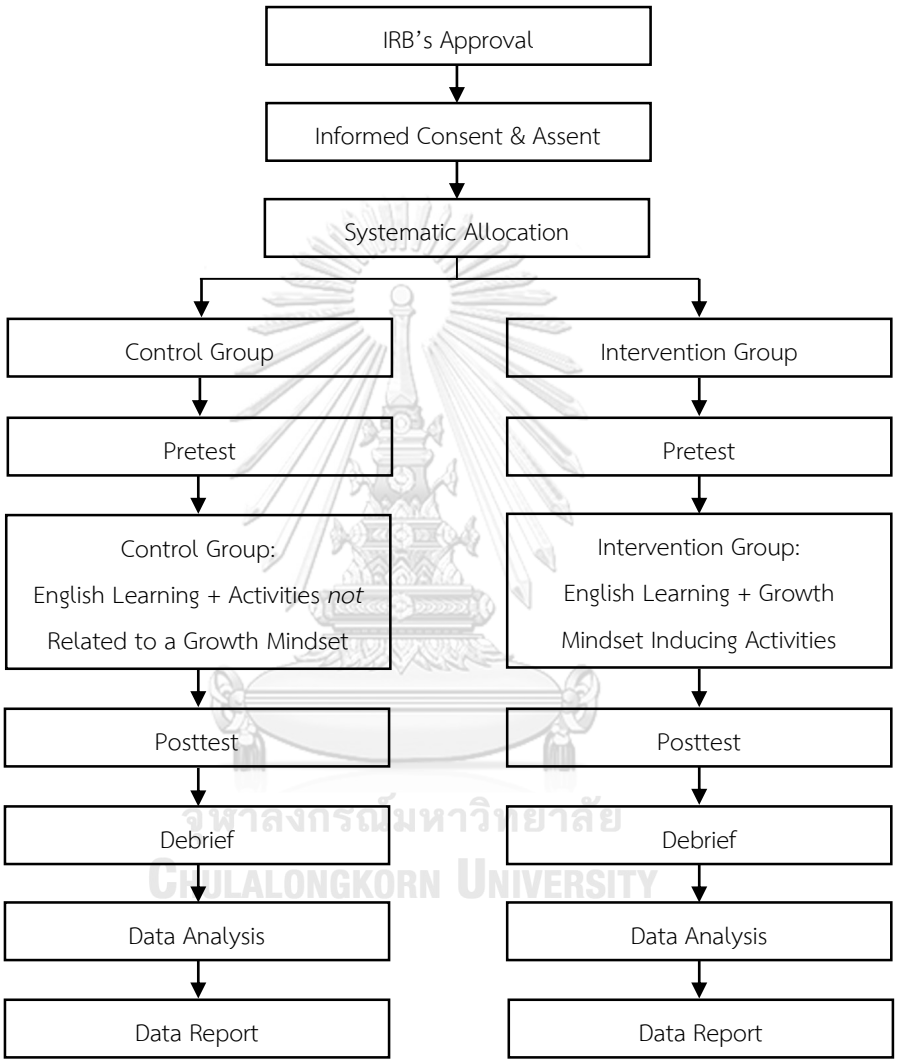


Figure 2. Research procedure.

The details of the procedure are as follows:

1. After the IRB granted an approval to conduct the study, we administered the informed consent to participants' parent or legal guardian as the participants are categorized as special populations (minors who are under 18 years old). The participants themselves also needed to be provided with an assent as a requirement prior to participating in the study. Also, both parties, the students and their legal guardians, at the same time received documents of research information (e.g., research purposes, procedure, participation voluntariness, potential risks) so that they had adequate knowledge about the present study before making their decision to participate or to allow the students under their protection to join the research. The participants then returned the documents with their signature as well as their parent's.

2. Students were preliminarily informed by their schools (their principals and English teachers) that this present study served as a short two-day English orientation course for them to be prepared for the new academic semester that started around the middle of May, 2019. We visited the first school in the week after the semester started and planned to spend 4 days there with 2 days for each condition, starting with the control, from around 9 a.m. to 3 p.m. We continued with the second school about 1 week after that and had previously planned to spend the same number of days at the school as this second school was our intention to be the school for the exact replication.

Beforehand, the dates and time of the intervention for both schools were approved of and agreed upon by the school principals, heads of the English department, and the research team.

It should be noted that, as planned, all the 4 English sessions and additional activities from the intervention protocol in Table 1 were successfully delivered to participants from School 1 for 2 days for each condition, which were totally 4 days for the school.

Unfortunately, however, at School 2, there was a reduction of the research duration and the number of research activities. It was because there was a school meeting after the new academic semester of the school started. We were informed

by the school principal that there was a change of the school's activity plan for the semester. Since the teachers from several subjects other than English also aimed to deliver special and additional activities outside the classroom and since there would be many official holidays throughout the semester, we were asked to cut down the number of days of our research from 4 days in total (2 days for each condition) to 2 days in total (a day for each condition). That resulted in the number of the English sessions and additional activities for School 2 being down to only 2, with the retention of the first 2 sessions and additional activities and the deletion of the last 2.

For that, School 2 no longer served as the exact replication of School 1 for this current work but as the partial replication because the essence of the growth mindset still remained but there were differences in the research duration and the number of research activities among the two schools.

3. Before responding to the survey including two measures (see Appendix D): Growth Mindset in English Intelligence Scale as a pretest and Perceived English Teacher Support Scale (perception of support from their actual English teacher from last semester at school), students from each school were systematically assigned into either the control or the intervention conditions using the student name list and identification numbers provided by the schools.

For the **control group**, we gave students the English lessons on the topics such as myself, occupations, and so on. There were totally 4 English sessions, with 2 on each day for the main school of the research. For the replication school, there were totally 2 English sessions taught in one day. In addition to the teachings, participants in the main school joined in 4 activities (2 activities for the replication school) *not* related to a growth mindset (see Table 1). All the teaching lessons and activities were accompanied with some teaching materials, visual aids, exercises, and relating games (see an example in Figure 3).

As we commenced with the control group of each school, while the participants in the group were participating in the research activities, the participants assigned to the intervention group were having their regular classes and vice versa.

The control group type for this study was an active control, meaning students in this group joined in similar activities as the other group and were engaged in similar amounts of contacts with activity administrators except they did not receive the content of a hypothesized effective treatment.

Figure 3. Participants playing a word building game in an English session.

For the **intervention group**, we gave the same English lessons with the same topics and contents as the control group. Also, the same teaching materials, visual aids, and exercises were utilized. For the main school of the research, there were totally 4 sessions of English teachings, with 2 on each day as well (and totally 2 English sessions taught in one day for the replication school). The important additions this group of students had were the elements of the growth mindset attributes delivered in 4 additional activities for the main school (and 2 additional activities for the replication school), which were subtly supplementary to the teachings (see Table 1). That is, the normal English teachings were seamlessly linked with the intervention activities. For example, we were teaching them about sports and pointing out that in every kind of sports players need practice and effort exertion and they oftentimes fail or lose. Failures and losses were emphasized as normality, as part of learning and not giving up.

For the additional activities the control and intervention groups received, students from each group spent the same amount of time doing each activity. The only difference was that the intervention group received activities related to a growth

mindset whereas the control group received activities of similar format but *not* related to a growth mindset (see Figure 4).

Additionally, the growth mindset terms and language were normalized and interspersed in the atmosphere of the treatment condition. For instance, students were encouraged with “It’s okay to make mistakes,” “Go, go, keep going, try harder,” “I admire your process,” and “Beat the struggle!” The intervention descriptions are in Appendix E.

For this present study’s intervention type, it can be seen as a combination type with the coalition of passive type (students listened to the neuroplasticity and mindset information), feedback type (students were given with growth mindset feedbacks), and interactive type (students and activity administrators interacted and socialized within the growth mindset atmosphere such as both parties joining in a discussion or playing games).

As for the intervention mode, our study obviously did not provide a computerized mindset training but an in-person training, with members of the research team as the growth mindset activity administrators.

Figure 4. Participants in the control group summarizing brain anatomy information in their own words.

Table 1

Summary Chart: Intervention Protocol

Day	English session topics (60 minutes)	Additional activities		
		Control group (45 minutes)	Intervention group (45 minutes)	Intervention activity objectives
1	1. Myself & My Body	1. Brain anatomy discussion: General scientific information about parts & functions of human brain	1. Neuroplasticity discussion & related examples	To introduce the belief about the plasticity of abilities & intelligence
	2. Sports & Hobbies	2. Discussion: My favorite hobbies	2. Discussion: Past experiences of mistakes/failures in the English subject & how we can learn from them	To normalize mistakes & failures & point out that they are in fact part of learning
2	3. Direction & Time	3. Writing: A letter to my future self in the next 10 years – *without* any emphasis on effort exertion	3. Writing: Notes to self & to significant others, "How to be good at English & how will it benefit me & my significant others?"	To give importance to effort exertion in being good at something including English
	4. Occupations	4. Video & Discussion: Future famous occupations – *without* any emphasis on English learning effort	4. Video & Discussion: English learning tips by famous Thai people	To emphasize that efforts & not giving up are vital to career & life success

Next, there were 7 people in our **research team** with 4 as teachers and activity administrators from outside the schools, 1 as a research assistant, I myself as a researcher, a facilitator, and an observer, and my research advisor.

In the **English teaching and activity administrating team**, there was 1 head English teacher/activity administrator and 3 people as his teaching and activity administrating assistants. They were the ones in charge of running the English teaching and the additional activities for both conditions in both schools, with the head teacher leading all the teachings and activities. They prepared proper teaching and activity materials such as visual aids, exercises, and quizzes as a means to assess whether the teaching objectives have been accomplished. They also distributed research measures to students before and after the activities and the head teacher gave instructions of the measures and gave a certificate, after the final activity on the final day of each condition, to each student who participated in our research activities.

For their **qualifications**, the head teacher is the owner and the founder of 2 private educational institutes. The first institute provides mainly English, mathematics, and science teachings to secondary school and junior high school students. The second institute has organized academic camps concerning various subjects especially English, mathematics, science, and youth leadership for over 6 years and for more than 50 schools and colleges countrywide. The experienced head teacher himself teaches English and has excellent overall English skills together with communication proficiency and appropriate sense of humor necessary to help him run activities smoothly. He is greatly interested in psychology as he took psychology courses during his university time. Moreover, he has known about the growth mindset matter quite in depth even since before being contacted to be in our research team. Besides, when I first met with him in person and explained to him the research details, he seemed to understand this study right away and for some parts he did not come to full understandings, he did not hesitate to ask for more information and clearer explanations. The three people in the activity administrating team are his co-workers and employees who have helped him teach English to students in the institute and organize several educational camps, English included. They have at least 5 years of experiences for organizing English camps. They know quite well how to interact with students. One of them was graduated from the faculty of psychology and thus she has the image of the growth mindset matter in her mind and was willing to share what she knows about the topic to her team members in order for them to be prepared to help execute the research activities. Overall, with their experiences of English teachings, organizing camps, and their psychological knowledge about a growth mindset, they appeared to be qualified to join our research team and to run the activities.

There was one **research assistant**. She is an industrial engineering graduate who has background knowledge in statistics with the proficiency in statistical programs for data analysis and she is also interested in the positivity of a growth mindset. She has been helping me with this research since day one. She went with me and my advisor to discuss my research at EdWINGS company. Additionally, she went for school visits with us. She helped me search for the suitable English teachers

and activity administrators to join our research team. She has helped me take notes about things essential to the contribution of the research progress. Basically, she has almost equal knowledge about this research as I do. During the activity administration at the 2 schools, she had similar roles to mine which were to observe the overall atmosphere, to help tackle with the problems or hiccups that inevitably occurred, to help prepare food, snacks, and gifts for students and the team. However, all the decisions made and/or responsibilities taken due to problems that took place came directly to me as a researcher. Likewise, if and when students had questions about the research measures or any other aspects about the research that the teaching team could not answer with certainty, my research assistant was not responsible for it but I was.

For **my roles (main researcher)**, before the actual research intervention at schools, I was a researcher who discussed my research with EdWINGS company for the list of potential schools, contacted school principals, had school visits and exchanged information with the principals and English teachers. I had constantly been keeping in touch with Mattayom 2 English teachers of both schools to ask for advice about the appropriateness of the English contents that were taught in the research sessions. Also, I had continually been discussing my research progress with my advisor. We had met weekly and she had given me good advice. After my research proposal exam, I contacted the team that would help me run the activities and met with the head of the team in person. I told him about my research and he attentively listened to what was being proposed. We exchanged ideas of what to be done after he agreed to be in my research team. I gave him all the details and information needed for this research such as the scripts and research materials. He was told to contact me at any time he had questions about any aspects of the research. After he discussed with his team, we met again and had teaching as well as activity rehearsals.

In addition to being a researcher, during the intervention, I was an observer and a facilitator who made sure that everything ran smoothly as anticipated. I prepared food, snacks, and gifts for the participants and for the team members. I was prepared to answer all the questions concerning this present study and to handle

the problems that happened. I was also prepared to make decisions or to find proper solutions if any one of my participants felt uneasy about the questions in the research measures and/or about other angles of the research activities. The steps of action that would be taken to alleviate the discomfort were given to each student in the Participant Information Sheet before he/she signed up for participation.

Moving forward, the English teaching and activity administrating team (research experimenters) were the same team for both conditions and for both schools because we would like to keep constant the experimenters' characters, abilities, and personalities across conditions and across schools. In other words, having different teams for different conditions might contaminate the research results as it would be doubtful whether the results are the fruits of the different conditions or of the difference between teaching teams, possibly due to their different personalities, appearances and/or experiences etc.

To **prevent and reduce a possible experimenter bias**, prior to delivering the intervention, the experimenters were given with a guideline script of what to be taught to participants (see Appendix E). It was also one of our attempts to control for the differences that might have occurred if the teachers had taught freely. Likewise, there were teaching rehearsals. The teachers took time practicing the teachings to make sure that everything went well as planned.

During the intervention period, there were short video recordings of some parts of the activities being administered from both conditions and in both schools, focusing merely on the head teacher leading the activities. There were 4 recordings, one from each condition of each school. Later, independent judges who have zero prior knowledge about our research watched all the recordings and rated whether the teacher executed the activities differently across conditions. The judges were 12 Chulalongkorn's non-psychology master students who were blind to our research hypotheses. This was to make sure that the teacher did not show any preferences on one condition over the other. The rating criteria included facial expressions, voice, and gestures. A set of rating for each criterion was created, resulting in totally 6 items, with numbers ranging from 1 – 5 representing the level of each expression (1 equals very mildly to 5 equals very strongly). For instance, in the facial expression

criterion, “smiling” and “relaxed” were included in the set of rating. The rating table is in Appendix F. These were our endeavors to reduce and prevent the experimenter bias that might otherwise occur.

4. Later, after all the teachings and intervention sessions were finished, participants were asked to respond to the other survey including two measures (see Appendix G): Growth Mindset in English Intelligence as a posttest and Academic Resilience in English and there were six additional items concerning the participants’ feedbacks and opinions about the activities administered (see Figure 5). Next, they were debriefed. Those who were in the control group finally received the growth mindset information and were debriefed as well.

Figure 5. Participants responding to posttest measures.

5. We used two-way mixed factorial ANOVA, mediation analysis model 4, and moderated mediation analysis model 8 with PROCESS in SPSS to analyze the data attained. Then we interpreted and reported the data respectively.

In case some participants did not complete the measures, if the number of the unanswered items exceeded 5% of the total items, we did not consider analyzing the data set from that particular respondents. However, if the number of the unanswered items did not exceed 5%, a statistical step of replacing the missing data with mean would be executed. It has been asserted by Schafer (1999) that the rate of missing data of 5% or less is trivial.

CHAPTER III

RESULTS

This current work was an experimental study with the 2 (pretest versus posttest) x 2 (control versus intervention) mixed factorial design. At pretest, participants responded to the Growth Mindset in English Intelligence Scale and the Perceived English Teacher Support Scale. After participating in all the research activities, they then responded to the Academic Resilience in English Scale and the Growth Mindset in English Intelligence Scale once again at posttest.

Subsequent to the process of intervention delivery and data collection, the research data attained were analyzed using statistical techniques in Statistical Package for the Social Sciences (SPSS). We first ran a test to examine if the intervention was delivered properly without any experimenter bias. Then, we did the data screening and assumption testing before we conducted the hypothesis testing respectively. For all statistical tests, an alpha level of .050 was used as our significance criterion. The details of the analyses are as follows:

Video Rating by Independent Judges

One of our attempts to examine as well as to reduce the experimenter (the head teacher or activity administrator) bias was to ask 12 independent judges to rate the 4 short video recordings of the teacher during the teaching. It was to assess whether the teacher behaved differently across conditions and schools. The details of the rating process as well as the rating form are in Appendix F.

Repeated measures ANOVA was used to analyze the data. Table 2 shows descriptive statistics of the 12 judges' video ratings. The means of the 4 video rating scores ranged from 4.153 to 4.250. Next, Mauchly's Test of Sphericity suggests that the variances and covariances across the four ratings did not significantly differ (Mauchly's W = .723, χ^2 = 3.159, *df* = 5, *p* = .677). Therefore, there was no basis for rejecting the sphericity hypothesis.

Table 2

Descriptive Statistics for Video Rating on Teacher's Behaviors

VDO	*Mean*	*SD*	*N*
School 1 - control	4.250	.151	12
School 1 - intervention	4.153	.270	12
School 2 - control	4.194	.244	12
School 2 - Intervention	4.208	.237	12

Looking at the result of repeated measures ANOVA in Table 3, the analysis of variances for repeated measures shows a non-significant difference between videos ($F(3, 33) = .450$, $p = .719$, $\eta_p^2 = .039$). It signifies that regardless of condition or school he was teaching, the teacher managed to execute the lesson taught without showing any significant differences of behaviors in terms of facial expressions, voice, and gestures. From that, we then proceeded further with the data screening and hypothesis testing respectively.

Table 3

Repeated Measures ANOVA Result for Video Rating on Teacher's Behaviors

Source of variance	*SS*	*df*	*MS*	*F*	*p*	η_p^2
VDO	.058	3	.019	.450	.719	.039
Error	1.414	33	.043			

Sample Data and Data Screening

As mentioned in Chapter two in the Participant section that by using the G*Power program, the calculated sample size for each school was 102 students in total (51 students/condition). Originally when we first contacted the schools, there were approximately 150 Mattayom two students in School 1, the main school of the study and around 110 for School 2, the school for replication. Obviously, the original number of students from both schools exceeded the calculated sample size.

Unfortunately, however, the original number did not match with the actual number of students who showed up during our activities. It was due to several reasons. First, some students were dropouts before the semester started. Second,

some were absent while the research was conducted. Third, some did not meet the research requirements. For example, a few students did not return the parental consent and/or their personal assent. Some failed to respond to the pretest measures prior to the research participation. Some did not have the posttest response and some did not respond to both. Also, some students did not attend the whole research activities from the beginning to the end.

As a consequence, for the main school, 16 students in the control and 13 students in the intervention groups were cut off from data analysis. For the replication school, 4 students in the control and 6 students in the intervention groups were also cut off.

Moreover, after the data input into the SPSS, we proceeded with the outlier detection analysis. For the univariate outlier detection, we used the *z* score to determine who possessed the extreme score on each of the four variables. Those with the *z* score(s) higher than 3 or lower than -3 were regarded as outliers. For that, 4 students from School 1 were considered outliers whereas none from School 2 was considered so.

Next, to detect multivariate outliers, we used the Mahalanobis distance (MD). Through combining scores of two or more variables, MD was used to identify which particular cases within our sample were outliers. The values of MD are distributed as chi-square. Based on the critical chi-square value for *df* = 4 (the number of variables) at the critical level of .001, the cut-off point was 18.467. Therefore, those with the MD larger than 18.467 were considered outliers. For that, a student at School 1 was considered an outlier whereas there was none, again, at School 2.

After the univariate and multivariate outliers were detected, they were removed from further analyses as they could otherwise bias or contaminate the results. For this reason, totally 5 students (2 in the control and 3 in the intervention groups) from the main school were cut off as they were considered outliers. However, none from the replication school was detected having the outlier scores.

Additionally, to make a double check, we conducted the normality testing for skewness and kurtosis. None showed values greater than 1 or less than -1, which means the data were normally distributed (see Table 4). Also, we ran scatterplots to

see if each pair of variables had a linear relation. The plots seemed to be linear, which were considered acceptable.

Under the circumstances, only the data from 116 students (57 in the control group and 59 in the intervention group) were used in the further analysis processes for School 1. Still, the number exceeded the sample size calculated. For, School 2, there were 100 participants (51 in the control and 49 in the intervention groups) who provided the data applicable for analysis. For the latter school, the actual number of students was slightly less than the sample size needed. All in all, 216 students from both schools were considered our research participants who provided us data appropriate for hypothesis testing and additional analyses.

Table 4

Correlation Matrix and Descriptive Statistics for Variables in the Model

							School 2			
		Group	GMS Pretest	GMS Posttest	ACAD RSL	PTS	*M*	*SD*	Skewness	Kurtosis
	Group	-	-.027	.294**	.224*	-.027				
	GMS Pretest	- .007	-	.642***	.484***	.527***	3.472	.681	-.081	-.648
	GMS Posttest	.356***	.808***	-	.531***	.397***	3.783	.652	-.181	-.438
	ACAD RSL	.285**	.430***	.570***	-	.520***	3.882	.451	-.342	.231
School	PTS	-.126	.546***	.457***	.338***	-	3.482	.568	-.627	.110
1	*M*		3.411	3.712	3.811	3.278				
	SD		.528	.618	.430	.449				
	Skewness		-.184	-.111	-.223	-.042				
	Kurtosis		-.486	-.363	.096	-.539				

Note. Group refers to Growth Mindset Intervention, GMS to Growth Mindset in English Intelligence, ACAD RSL to Academic Resilience in English, and PTS to Perceived English Teacher Support; * $p < .05$., ** $p < .01$., *** $p < .001$.

Hypothesis Testing

This present research has three main hypotheses pertaining to the effects of the growth mindset intervention, a mediation effect, and a moderated mediation effect. For this section, each hypothesis was tested respectively. The details of the hypothesis testing are as follows:

Effects of the growth mindset intervention.

This section concerns the first hypothesis: *Participants in the growth mindset promoting condition would have a greater increase in the growth mindset in English intelligence from pretest to posttest and there would be a significant difference in the growth mindset and academic resilience between the treatment and control conditions at posttest.*

We separately analyzed the data of each school using two-way mixed factorial ANOVA to compare the effects of the growth mindset intervention, with Time (pretest versus posttest) as a within-subject variable and Group (control versus intervention) as a between-subject variable.

We started with the main school to examine whether participants in the growth mindset promoting condition would have a greater increase in the growth mindset in English intelligence from pretest to posttest than the control condition. Additionally, we wanted to explore whether there would be a significant difference between the treatment and control conditions at posttest for the growth mindset and academic resilience. Thereafter, we proceeded with the replication school and finally we conducted a comparison of the effects between the two schools.

Intervention effects at School 1.

We separately analyzed the intervention effect on growth mindset in English intelligence and the effect on academic resilience in English.

The intervention effect on growth mindset in English intelligence.

Table 5 shows the average (mean) growth mindset scores at pretest and posttest. The total growth mindset posttest score was greater than the total pretest score (M = 3.712, SD = .618 and M = 3.411, SD = .528 respectively).

However, the breakdown of conditions shows that for pretest, participants from both groups had similar growth mindset scores (M = 3.414, SD = .563 for control and M = 3.407, SD = .497 for intervention) but for posttest, the growth mindset score of participants in the intervention group (M = 3.928, SD = .535) exceeded that of the control group (M = 3.489, SD = .623).

Table 5

Descriptive Statistics of GMS (School 1, N = 116)

Group	*n*	Time			
		GMS Pretest		GMS Posttest	
		M	*SD*	*M*	*SD*
Control	57	3.414	.563	3.489	.623
Intervention	59	3.407	.497	3.928	.535
Total	116	3.411	.528	3.712	.618

Table 6 shows the result of the Time x Group mixed factorial ANOVA. Overall, there was a main effect of Time (pretest and posttest). The growth mindset scores from pretest to posttest increased significantly ($F(1, 114) = 122.662$, $p < .001$, $\eta_p^2 = .518$). Also, there was a significant interaction effect of Time (pretest and posttest) x Group (control and intervention). It means that the increase of a growth mindset from pretest to posttest differed significantly between groups ($F(1, 114) = 68.940$, $p < .001$, $\eta_p^2 = .377$).

Table 6

Mixed Factorial ANOVA Result with GMS as a Dependent Variable (School 1, N = 116)

Source of variance	*SS*	*df*	*MS*	*F*	*p*	η_p^2
Time	5.145	1	5.145	122.662	< .001	.518
Time * Group	2.892	1	2.892	68.940	< .001	.377
Error(Time)	4.781	114	.042			

A simple main effect of Group on the growth mindset in English intelligence is presented in Table 7. The growth mindset scores of the control and intervention groups showed no significant difference at pretest (mean difference = .008, *SE* = .099, $p = .938$, 95% CI [-.187, .203]). This in some ways supports the randomization potency. However, at posttest, there was a statistically significant difference between the two groups (mean difference = -.439, *SE* = .108, $p < .001$, 95% CI [-.652, -.225]).

Table 7

Simple Main Effect of Group on GMS at Pretest and Posttest (School 1, N = 116)

Time	Mean Difference (Intervention - Control)	*SE*	*p*	95% CI	
				Lower Bound	Upper Bound
Pretest	.008	.099	.938	-.187	.203
Posttest	-.439	.108	< .001	-.652	-.225

Table 8 shows the simple main effect of Time on the growth mindset. For the control group, the increase of the growth mindset score from pretest to posttest was not statistically significant (mean difference = .075, *SE* = .038, *p* = .054, 95% CI [-.001, .151]). Moving on to the intervention group, there was a significant increase of the growth mindset score from pretest to posttest (mean difference = .521, *SE* = .038, *p* < .001, 95% CI [.446, .596]).

Table 8

Simple Main Effect of Time on GMS for Each Group (School 1, N = 116)

Group	Mean Difference (Posttest - Pretest)	*SE*	*p*	95% CI	
				Lower Bound	Upper Bound
Control	.075	.038	.054	-.001	.151
Intervention	.521	.038	< .001	.446	.596

Figure 6 visualizes the nature of the interaction effect. It confirms that School 1's Mattayom two students had similar growth mindset pretest scores. After the research participation, those in the control group had a non-significant increase in the growth mindset score at posttest. On the other hand, the increase in the growth mindset in the intervention group was greatly higher.

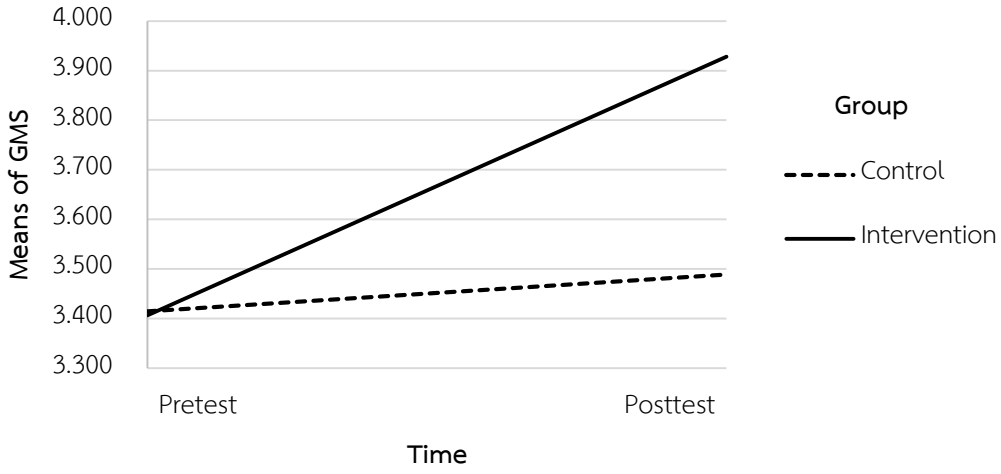


Figure 6. Interaction effect of group and time for GMS (School 1).

The presence of the significant interaction effect of Time and Group and the test of simple main effects clearly showed that there was a significant increase in the growth mindset in the intervention group but not in the control group. However, we decided to take further action to confirm that the magnitude of the increase in the growth mindset in the two groups was indeed significantly different.

To test whether the students in the intervention group had a significantly greater increase in the growth mindset in English intelligence from pretest to posttest than those in the control group, we calculated the growth mindset posttest – pretest difference score for each participant and used the independent *t*-test to compare the mean difference score of the two groups.

The result in Table 9 confirms that students in the treatment group had a significantly greater increase (M = .521, SD = .376) in the growth mindset in English intelligence than the control group (M = .075, SD = .156) with $t(78.071) = 8.405$, $p < .001$, $d = 1.549$).

Table 9

Independent t-test for the GMS Posttest – Pretest Difference Score (School 1, N = 116)

Group	*n*	*M*	*SD*	Mean Difference (Intervention - Control)	*t*	*df*	*p*	*d*
Control	57	.075	.156	.446	8.405	78.071	< .001	1.549
Intervention	59	.521	.376					

The intervention effect on academic resilience in English.

Moving along to the academic resilience in English as another dependent variable, we used the independent *t*-test to compare the means of the academic resilience score of the two conditions. Table 10 shows that students in the treatment group (*M* = 3.931, *SD* = .423) and those in the control group (*M* = 3.688, *SD* = .404) significantly differed in the academic resilience in English at posttest (*t*(114) = 3.170, *p* = .002, *d* = .588).

Table 10

Independent t-test for ACAD RSL (School 1, N = 116)

Group	*n*	*M*	*SD*	Mean Difference (Intervention - Control)	*t*	*df*	*p*	*d*
Control	57	3.688	.404	.243	3.170	114	.002	.588
Intervention	59	3.931	.423					

From the data analysis, it was found that the participants in the growth mindset promoting intervention group had indeed a significantly greater increase in the growth mindset in English intelligence from pretest to posttest than did the control group. Also, the intervention group significantly trumped the other group at posttest, with the former group having significantly higher growth mindset in English intelligence and academic resilience in English. Therefore, **the first hypothesis is supported**.

Partial replication of the intervention effects at School 2.

At School 2, which served as a site for partial replication, we delivered a shorter intervention to participants. Again, we separately analyzed the intervention effects, starting with the effect on the growth mindset which was followed by the effect on the academic resilience respectively.

The intervention effect on growth mindset in English intelligence.

Table 11 displays the average (mean) growth mindset scores of the pretest and posttest of each condition. On average, the overall posttest score of growth mindset was higher than the overall pretest score (*M* = 3.783, *SD* = .652 and *M* = 3.472, *SD* = .681 respectively).

However, by breaking down into conditions, it shows that at pretest, participants from the two groups had similar growth mindset scores (*M* = 3.490, *SD* = .689 for control and *M* = 3.454, *SD* = .680 for intervention) but at posttest, the score of participants in the control group (*M* = 3.596, *SD* = .664) was topped by that of the participants in the intervention group (*M* = 3.977, *SD* = .585).

Table 11

Descriptive Statistics of GMS (School 2, N = 100)

Group	*n*	Time			
		GMS Pretest		GMS Posttest	
		M	*SD*	*M*	*SD*
Control	51	3.490	.689	3.596	.664
Intervention	49	3.454	.680	3.977	.585
Total	100	3.472	.681	3.783	.652

The result of the Time x Group mixed factorial ANOVA is shown in Table 12. There was a main effect of Time. Overall, the growth mindset scores from pretest to posttest increased significantly ($F(1, 98) = 35.564$, $p < .001$, $\eta_p^2 = .266$). In addition, there was a significant interaction effect of Time x Group, which means the increase from pretest to posttest of both groups was significantly different ($F(1, 98) = 15.706$, $p < .001$, $\eta_p^2 = .138$).

Table 12

Mixed Factorial ANOVA Result with GMS as a Dependent Variable (School 2, N = 100)

Source of variance	*SS*	*df*	*MS*	*F*	*p*	η_p^2
Time	4.933	1	4.933	35.564	< .001	.266
Time * Group	2.179	1	2.179	15.706	< .001	.138
Error(Time)	13.594	98	.139			

A simple main effect of Group on the growth mindset in English intelligence is shown in Table 13. At pretest, there was no significant difference in the growth mindset score for the control and intervention groups (mean difference = -.036, *SE* = .137, *p* = .793, 95% CI [-.308, .236]). Nonetheless, there was a statistically significant difference in the growth mindset between the two groups at posttest (mean difference = .381, *SE* = .125, *p* = .003, 95% CI [.133, .630]).

Table 13

Simple Main Effect of Group on GMS at Pretest and Posttest (School 2, N = 100)

Time	Mean Difference (Intervention - Control)	*SE*	*p*	95% CI	
				Lower Bound	Upper Bound
Pretest	-.036	.137	.793	-.308	.236
Posttest	.381	.125	.003	.133	.630

The focus is now shifted to the simple main effect of Time on the growth mindset, which is displayed in Table 14 below. For the control group, the increase of the growth mindset score from pretest to posttest showed no statistical significance (mean difference = .106, *SE* = .074, *p* = .156, 95% CI [-.041, .252]). In contrast, for the intervention group, the growth mindset score increased significantly from pretest to posttest (mean difference = .523, *SE* = .075, *p* < .001, 95% CI [.374, .672]).

Table 14

Simple Main Effect of Time on GMS for Each Group (School 2, N = 100)

Group	Mean Difference (Posttest - Pretest)	*SE*	*p*	95% CI	
				Lower Bound	Upper Bound
Control	.106	.074	.156	-.041	.252
Intervention	.523	.075	< .001	.374	.672

Figure 7 shows a graph that again visualizes the interaction effect of the variables. It confirms that School 2's Mattayom two students had quite similar growth mindset scores at pretest. After participating in our research, students in the control group actually had a larger growth mindset score at posttest by comparison with their own pretest, yet it was not a significant augmentation. On the contrary, the increase of the growth mindset scores from pretest to posttest for the treatment group was greatly and significantly higher.

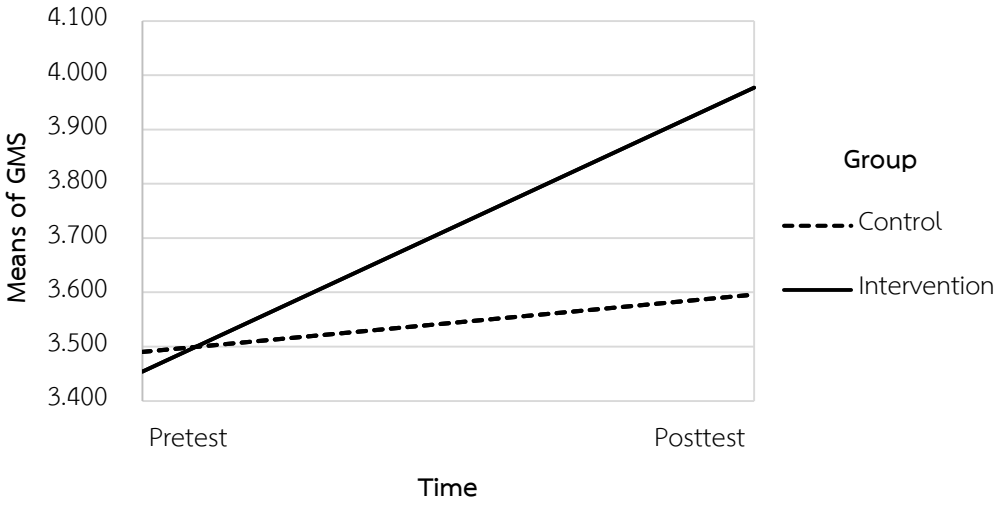


Figure 7. Interaction effect of group and time for GMS (School 2).

Apart from looking at the significant interaction effect and at the simple main effects of Group and Time, we tested whether the students in the intervention group had a significantly greater increase in the growth mindset than the students in the control group by using another means. The posttest - pretest difference score of each student in each condition was calculated. Then, we compared the mean

difference score of the two groups using the independent *t*-test. Table 15 proves that students in the intervention group (*M* = .523, *SD* = .654) had a significantly greater increase in the growth mindset in English intelligence from pretest to posttest than did the control group (*M* = .105, *SD* = .365) with *t*(74.646) = 3.921, *p* < .001, *d* = .789).

Table 15

Independent t-test for the GMS Posttest – Pretest Difference Score (School 2, N = 100)

Group	*n*	*M*	*SD*	Mean Difference (Intervention - Control)	*t*	*df*	*p*	*d*
Control	51	.105	.365	.418	3.921	74.646	< .001	.789
Intervention	49	.523	.654					

The intervention effect on academic resilience in English.

Moving on to another effect of our growth mindset intervention, the academic resilience in English, we used the independent *t*-test to compare the means of the academic resilience score of the two conditions. Table 16 indicates that the treatment (*M* = 3.985, *SD* = .429) and the control conditions (*M* = 3.783, *SD* = .454) had a statistically significant difference in the resilience (*t*(98) = 2.280, *p* = .025, *d* = .457), with the former group scoring significantly higher.

Table 16

Independent t-test for ACAD RSL (School 2, N = 100)

Group	*n*	*M*	*SD*	Mean Difference (Intervention - Control)	*t*	*df*	*p*	*d*
Control	51	3.783	.454	.202	2.280	98	.025	.457
Intervention	49	3.985	.429					

From the data analysis conducted, it was found that, from pretest to posttest, students in the growth mindset intervention group had a significantly greater increase in the growth mindset in English intelligence than the other group. Also, at posttest, the intervention group had significantly higher growth mindset in English intelligence

and academic resilience in English than the control group. Hence, for School 2, the school for partial replication, **the first hypothesis is also supported**.

The comparison of intervention effects between schools.

The comparison was done in order to see whether the research's main school yielded similar results as the school for partial replication. Since we spent two days per condition at the former and one day per condition at the latter, we also wanted to test whether the longer duration of our intervention (and thus more growth mindset fostering activities) would give us significantly stronger effects on the growth mindset and academic resilience in English.

To answer this question, we ran a 2 Times (pretest versus posttest) x 2 Groups (control versus intervention) x 2 Schools (School 1 versus School 2) three-way mixed factorial ANOVA with growth mindset in English intelligence as a dependent variable and 2 Groups (control versus intervention) x 2 Schools (School 1 versus School 2) two-way ANOVA with academic resilience as a dependent variable respectively.

Table 17 shows descriptive statistics of the average growth mindset scores at pretest and posttest of each condition in each school. From observing the data, we can see that at each school, both conditions started off similarly at pretest, with *M* = 3.414, *SD* = .563 for the control and *M* = 3.407, *SD* = .497 for the intervention at School 1 and *M* = 3.490, *SD* = .689 for the control and *M* = 3.454, *SD* = .680 for the intervention at School 2. For posttest, both schools had a similar tendency. That is, the posttest growth mindset score of the intervention group (*M* = 3.928, *SD* = .535) topped that of the control group (*M* = 3.489, *SD* = .623) at School 1 and *M* = 3.977, *SD* = .585 for the intervention and *M* = 3.596, *SD* = .664 for the control at School 2.

Table 17

Descriptive Statistics of GMS for School Comparison

School	Group	*n*	Time			
			GMS Pretest		GMS Posttest	
			M	*SD*	*M*	*SD*
1	Control	57	3.414	.563	3.489	.623
	Intervention	59	3.407	.497	3.928	.535
	Total	116	3.411	.528	3.712	.618
2	Control	51	3.490	.689	3.596	.664
	Intervention	49	3.454	.680	3.977	.585
	Total	100	3.472	.681	3.783	.652

The result in Table 18 shows that the pattern of the main effect of Time and the Time x Group interaction effect remained the same as when we ran the analysis for each school separately. To elaborate, there was a main effect of Time, which means the pretest score was significantly different from the posttest score ($F(1, 212) = 116.006$, $p < .001$, $\eta_p^2 = .354$). Also, there was a significant interaction effect of Time x Group. It means the increase of score from pretest to posttest differed significantly between the control and intervention groups ($F(1, 212) = 57.819$, $p < .001$, $\eta_p^2 = .214$).

School, however, did not have any interaction effect with any other independent variables. The interaction effect of Time x School turned out to be non-significant. It conveys that on average the increase of the growth mindset score from pretest to posttest of the two schools did not significantly differ ($F(1, 212) = .082$, $p = .774$, $\eta_p^2 < .001$).

The Time x Group x School interaction effect was non-significant either ($F(1, 212) = .065$, $p = .798$, $\eta_p^2 < .001$). It can be interpreted that the Time x Group interaction effects were the same in both schools. Those in the control group did not show a significant increase in growth mindset in English intelligence from pretest to posttest while there was a significant increase in the growth mindset in the intervention group. This pattern is the same in both schools.

Table 18

Time x Group x School Mixed Factorial ANOVA Result with GMS as a Dependent Variable

Source of variance	*SS*	*df*	*MS*	*F*	*p*	η_p^2
Time	10.055	1	10.055	116.006	< .001	.354
Time * Group	5.012	1	5.012	57.819	< .001	.214
Time * School	.007	1	.007	.082	.774	< .001
Time * Group * School	.006	1	.006	.065	.798	< .001
Error(Time)	18.376	212	.087			

Moving forward, the focus is now on academic resilience in English. Table 19 demonstrates the Group x School factorial ANOVA result. Overall, there was a significant main effect of Group (control versus intervention). That is, the academic resilience score of participants in the intervention group was significantly different from that of the control group ($F(1, 212) = 14.587$, $p < .001$, $\eta_p^2 = .064$). However, the interaction effect of Group x School was non-significant ($F(1, 212) = .130$, $p = .719$, $\eta_p^2 = .001$). It denotes that the pattern of the intervention group having a significantly higher academic resilience score than the control group is again the same in both schools.

Table 19

Group x School Factorial ANOVA Result with ACAD RSL as a Dependent Variable

Source of variance	*SS*	*df*	*MS*	*F*	*p*	η_p^2
Group	2.661	1	2.661	14.587	< .001	.064
Group* School	.024	1	.024	.130	.719	.001
Error	38.669	212	.182			

In conclusion, the comparison of the effects of the growth mindset intervention was conducted to assess whether the main school and the replication school yielded results in the similar direction. The data analyses revealed that they indeed did.

Regarding the growth mindset in English intelligence, the increase from pretest to posttest scores was significantly greater in the treatment group than in the control group. This propensity occurred in both schools.

With reference to the academic resilience in English at posttest, the intervention group scored significantly higher than did the control group. Again, this happened in both schools.

All in all, looking at the effects of the two variables combined, it can be concluded that the growth mindset intervention bore the same fruit in both schools. It seems to convey that whether the students spent 2 days or just a day doing our research activities, the results did not vary. The students in the intervention groups always scored higher than those in the control groups and that was, au fond, what happened in both schools.

The mediation effect.

This section concerns the second hypothesis: *The effect of the growth mindset intervention on the academic resilience in English would be mediated by the growth mindset in English intelligence.* The breakdown of this hypothesis gives us the four following sub-hypotheses:

1) The growth mindset intervention would have a positive effect on the academic resilience in English.

2) The growth mindset intervention would have a positive effect on the growth mindset in English intelligence.

3) The growth mindset in English intelligence would have a positive effect on the academic resilience in English.

4) The growth mindset intervention would have a positive effect on the academic resilience in English through the growth mindset in English intelligence.

We separately analyzed the data of each school using the mediation analysis Model 4 in PROCESS version 3.4 for SPSS to test the effects of the research variables. It was to examine whether the variable Growth Mindset in English Intelligence mediated the effect of the Growth Mindset Promoting Intervention on the Academic

Resilience in English. Furthermore, we wanted to test whether it was a full or a partial mediation.

Again, we started with the analysis of the data from the main school. Afterwards, we proceeded with the replication school.

The mediation effect at School 1.

After running the mediation analysis, it should be remarked that there are five paths of the model (see Figure 8):

1) Path *a* is for the effect of Growth Mindset Intervention on Growth Mindset in English Intelligence;

2) Path *b* is for the effect of Growth Mindset in English Intelligence on Academic Resilience in English;

3) Path *c* is for the effect of Growth Mindset Intervention on Academic Resilience in English before the addition of the mediator;

4) Path *ab* is for the indirect effect of Growth Mindset Intervention on Academic Resilience in English through Growth Mindset in English Intelligence and;

5) Path *c'* is for the effect of Growth Mindset Intervention on Academic Resilience in English after the addition of the mediator.

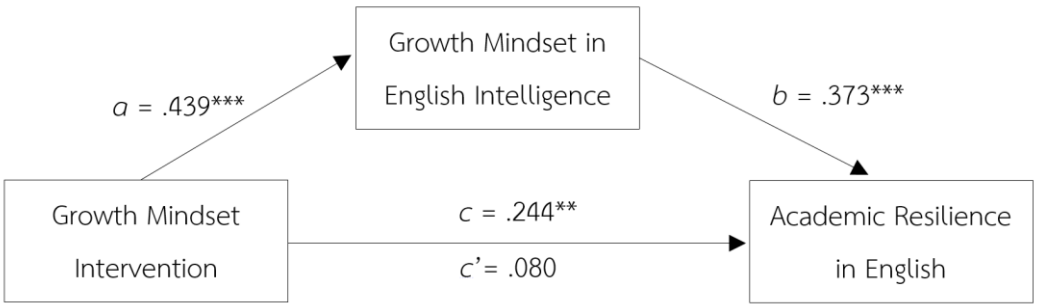


Figure 8. Mediation effect at School 1.

(* $p < .05$, ** $p < .01$, *** $p < .001$)

Primarily before the Growth Mindset in English Intelligence was added as the mediator, **path *c*** as the direct effect was significant ($c = .244$, $SE = .077$, $t = 3.170$, $p = .002$, $R^2 = .081$). It means the growth mindset intervention significantly affected students' academic resilience in English.

However, when we later added the mediator into the analysis, the R^2 became .332 with ΔR^2 of .251 (see Table 20). The addition of the mediator led to the presence of the following paths:

For **path *a*** alone, the effect was significant (*a* = .439, *SE* = .108, *t* = 4.073, *p* < .001, R^2 = .127). This signifies that the growth mindset intervention had a significant positive effect on students' growth mindset in English intelligence.

The effect of **path *b*** was also significant (*b* = .373, *SE* = .057, *t* = 6.517, *p* < .001), which can be interpreted that the growth mindset in English intelligence the students had significantly affected their academic resilience in English.

Focusing on the indirect effect of the intervention on the resilience, the effect ran from path *a* through path *b* or it can be called **path *ab***. The coefficient value of the effect was .164 (Boot *SE* = .052, Boot 95% CI = [.076, .277]). As the 95% CI of the indirect effect did not contain zero, it means the indirect effect was significant.

With the presence of the indirect effect, the magnitude of the direct effect of **path *c'*** was reduced and became non-significant (*c'* = .080, *SE* = .070, *t* = 1.136, *p* = .258). It conveys that the direct effect of the intervention on the resilience was no longer powerful as the mediating effect became dominant. Therefore, with the mediator added, the previous effect of .244 was down to only .080. It can be concluded that Growth Mindset in English Intelligence fully mediated the effect of the growth mindset intervention on the academic resilience.

In essence, participating in the growth mindset intervention had a significant positive effect on the academic resilience in English through a growth mindset in English intelligence, which gave us a full mediation effect. In other words, students had to join in the growth mindset intervention first and the intervention had to subsequently cultivate the growth mindset in the students, and then the academic resilience would follow as a result of having the mindset. Thus, **the second hypothesis is supported** by the data from the main school.

Table 20

Summary Table for Mediation Effect Analysis (School 1, N = 116)

Criterions	Predictors	*b*	*SE*	*t*	*p*	95% CI	R^2	ΔR^2
GMS	Constant	3.050***	.171	17.807	< .001	[2.711, 3.389]	.127***	
	Group	.439***	.108	4.073	< .001	[.225, .652]		
ACAD RSL	Step 1							
	Constant	3.444***	.122	28.195	< .001	[3.202, 3.686]	.081**	
	Group	.244**	.077	3.170	.002	[.091, .396]		
	Step 2							
	Constant	2.307***	.203	11.343	< .001	[1.904, 2.710]	.332***	.251***
	Group	.080	.070	1.136	.258	[-.059, .220]		
	GMS	.373***	.057	6.517	< .001	[.259, .486]		

Note. GMS refers to Growth Mindset in English Intelligence, Group to Growth Mindset Intervention, and ACAD RSL to Academic Resilience in English; * $p < .05$, ** $p < .01$, *** $p < .001$.

The replication of the mediation effect at School 2.

The result of the mediation analysis revealed the paths of the model both before and after the addition of the mediator (see Figure 9).

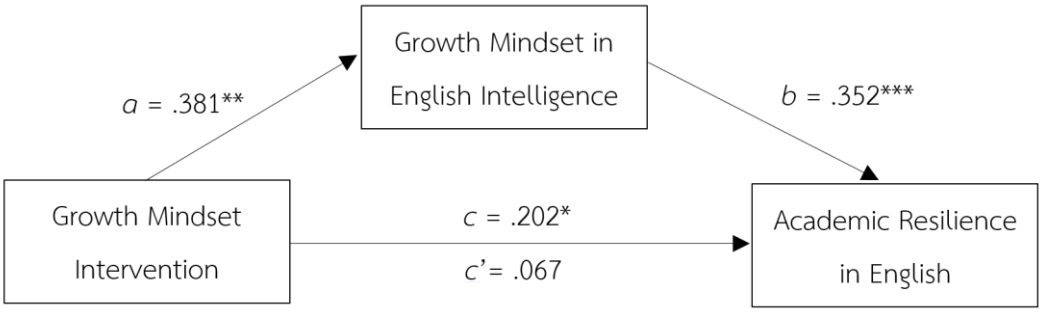


Figure 9. Mediation effect at School 2.

(* $p < .05$, ** $p < .01$, *** $p < .001$)

Initially before adding the Growth Mindset in English Intelligence as the mediator, **path *c*** as the direct effect was significant ($c = .202$, $SE = .088$, $t = 2.280$, $p = .025$, $R^2 = .050$).

When the mediator was added into the model, the R^2 was .287 with the ΔR^2 of .237 (see Table 21). The four following paths were present as a result of the addition of the mediator.

Focusing on **path *a***, the effect of the intervention on the growth mindset was significant (*a* = .381, *SE* = .125, *t* = 3.043, *p* = .003, R^2 = .086). For the effect of **path *b***, it was also significant (*b* = .352, *SE* = .062, *t* = 5.673, *p* < .001).

Concentrating on the indirect effect of the intervention on the resilience or **path *ab***, the coefficient value of the effect was .134 (Boot *SE* = .052, Boot 95% CI = [.043, .244]). The 95% CI did not contain zero, which means the indirect effect was significant.

Finally, with the indirect effect being significant, **path *c'*** became non-significant (*c'* = .067, *SE* = .081, *t* = .835, *p* = .406). The previous significant direct effect of .202 was reduced to only .067 after the addition of the mediator. Again, it can be interpreted that Growth Mindset in English Intelligence fully mediated the growth mindset intervention effect on the academic resilience.

To conclude, the participation in the growth mindset intervention significantly led to participants having a growth mindset in English intelligence and having the mindset also significantly and positively affected students' academic resilience in English. To put it another way, Growth Mindset in English Intelligence gave us a complete mediation effect. Hence, for the replication school, **hypothesis two is also supported.**

Table 21

Summary Table for Mediation Effect Analysis (School 2, N = 100)

Criterions	Predictors	*b*	*SE*	*t*	*p*	95% CI	R^2	ΔR^2
GMS	Constant	3.214***	.197	16.316	< .001	[2.823, 3.605]	.086**	
	Group	.381**	.125	3.043	.003	[.133, .630]		
ACAD	Step 1							
RSL	Constant	3.581***	.139	25.772	< .001	[3.306, 3.857]	.050*	
	Group	.202*	.088	2.280	.025	[.026, .377]		
	Step 2							
	Constant	2.450***	.233	10.499	< .001	[1.987, 2.913]	.287***	.237***
	Group	.067	.081	.835	.406	[-.093, .227]		
	GMS	.352***	.062	5.673	< .001	[.229, .475]		

Note. GMS refers to Growth Mindset in English Intelligence, Group to Growth Mindset Intervention, and ACAD RSL to Academic Resilience in English; * *p* < .05, ** *p* < .01, *** *p* < .001.

The moderated mediation effect.

This section focuses on the third hypothesis: *The perceived English teacher support would moderate the direct effect of the growth mindset intervention on the academic resilience in English and its indirect effect through the growth mindset in English intelligence.* The breakdown of the hypothesis gives us the three following sub-hypotheses:

1) The direct effect of the growth mindset intervention on the growth mindset in English intelligence would be moderated by the perceived English teacher support.

2) The direct effect of the growth mindset intervention on the academic resilience in English would be moderated by the perceived English teacher support.

3) The indirect effect of the growth mindset intervention on the academic resilience in English through the growth mindset in English intelligence would be moderated by the perceived English teacher support.

We analyzed the data using PROCESS macro, model 8, version 3.4 for SPSS to delve into the role of the variable Perceived English Teacher Support as a moderator of the effects. The data were separately analyzed, starting with those from the main school. Subsequently, we proceeded with the replication school.

The moderated mediation effect at School 1.

First of all, for the clarification, the research model in Figure 1 in Chapter I is our conceptual model. Figure 10, in contrast, is our model for statistical data analysis. To analyze the moderated mediation effect, we used the add-in PROCESS macro, model 8, for SPSS.

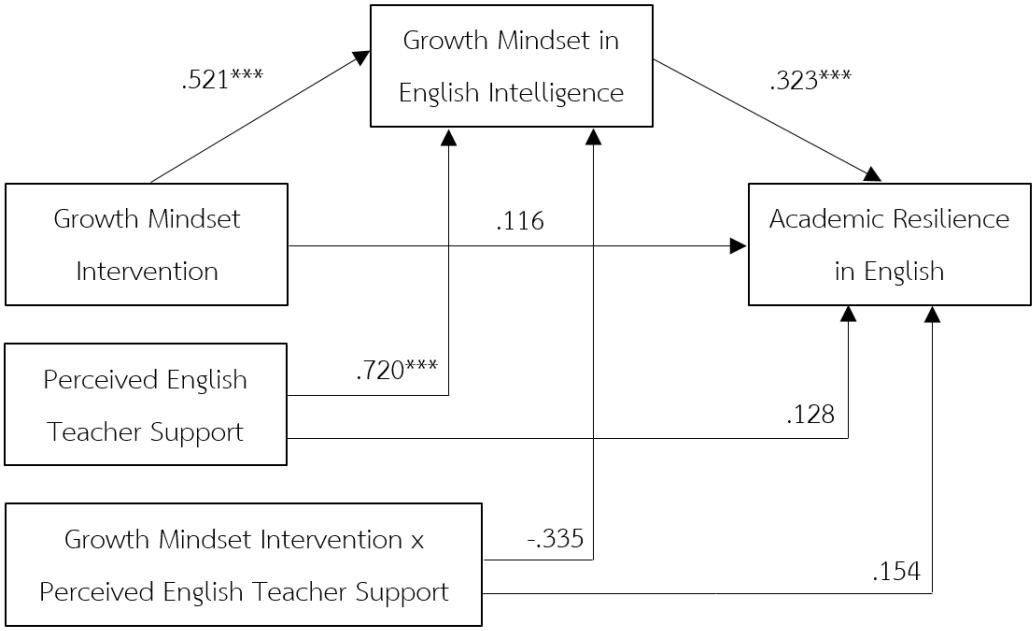


Figure 10. Moderated mediation effect at School 1.
(* $p < .05$, ** $p < .01$, *** $p < .001$)

Looking at the model, it can be seen that the mediation pattern resembles that of hypothesis two. That is, Growth Mindset in English Intelligence still fully mediated the effect of the intervention on the academic resilience. By breaking the pattern into separate paths, Growth Mindset Intervention had a significant positive effect on Growth Mindset in English Intelligence ($b = .521$, $SE = .091$, $t = 5.721$, $p < .001$) and the growth mindset had a significant positive effect on Academic Resilience in English ($b = .323$, $SE = .068$, $t = 4.732$, $p < .001$). However, Growth Mindset Intervention did not have a significant effect on Academic Resilience in English ($b = .116$, $SE = .075$, $t = 1.549$, $p = .124$).

In this present model, the potential moderator Perceived English Teacher Support together with its interaction term as the product between the intervention and the perceived support were added. In advance, an independent *t*-test was separately used to analyze the means of the perceived support between groups. It turned out that there was no statistically significant difference between the control ($M = 3.336$, $SD = .424$) and intervention conditions ($M = 3.223$, $SD = .469$) of School 1, with $t(114) = 1.361$, $p = .176$.

The addition of the moderator into the model resulted in the four following paths (see also Table 22).

1) Perceived English Teacher Support had a significant positive effect on Growth Mindset in English Intelligence (b = .720, SE = .102, t = 7.035, p < .001);

2) Perceived English Teacher Support did not have a significant effect on Academic Resilience in English (b = .128, SE = .089, t = 1.445, p = .151);

3) The interaction effect of Perceived English Teacher Support and Growth Mindset Intervention on Growth Mindset in English Intelligence was not significant (b = -.335, SE = .205, t = -1.634, p = .105) and;

4) The interaction effect of Perceived English Teacher Support and Growth Mindset Intervention on Academic Resilience in English was not significant either (b = .154, SE = .150, t = 1.025, p = .308).

Table 22

Summary Table for Moderated Mediation Effect Analysis (School 1, N = 116)

Criterions	Predictors	*b*	*SE*	*t*	*p*	95% CI	R^2
GMS	Constant	3.703***	.046	81.340	< .001	[3.613, 3.793]	.398***
	Group	.521***	.091	5.721	< .001	[.341, .701]	
	PTS	.720***	.102	7.035	< .001	[.517, .923]	
	Group x PTS	-.335	.205	-1.634	.105	[-.741, .071]	
ACAD RSL	Constant	2.615***	.255	10.252	< .001	[2.110, 3.121]	.354***
	Group	.116	.075	1.549	.124	[-.032, .264]	
	GMS	.323***	.068	4.732	< .001	[.188, .459]	
	PTS	.128	.089	1.445	.151	[-.048, .304]	
	Group x PTS	.154	.150	1.025	.308	[-.144, .451]	

Note. GMS refers to Growth Mindset in English Intelligence, Group to Growth Mindset Intervention, ACAD RSL to Academic Resilience in English, PTS to Perceived English Teacher Support, and Group x PTS to the interaction of Growth Mindset Intervention and Perceived English Teacher Support.; * p < .05, ** p < .01, *** p < .001.

Nevertheless, we further probed the conditional direct and indirect effects of the growth mindset intervention on the academic resilience as we hypothesized that the effect of the growth mindset intervention on the academic resilience would be smaller if the perceived support was high than when it was low and vice versa. The

conditional direct effect tends to give us results quite opposite to our third hypothesis. With a simple slope analysis, when the perceived teacher support is low (with the score lower than the mean by 1 *SD*), the intervention obviously does not have a significant effect on the resilience (*b* = .047, *SE* = .105, *t* = .447, *p* = .656). When the perceived support equals mean, the intervention effect on the academic resilience is still not significant (*b* = .116, *SE* = .075, *t* = 1.549, *p* = .124). Quite the contrary to the two previous results, when the perceived support is high (with the score higher than the mean by 1 *SD*), the intervention effect on the resilience turned out to be almost significant, yet not (*b* = .185, *SE* = .096, *t* = 1.922, *p* = .057).

Shifting to the conditional indirect effect, it was found that the pattern of the indirect effects at different levels of the perceived support corresponded to the third hypothesis. Specifically, the effect was the highest when the perceived support was low and was the lowest when the perceived support was high. However, the effects were significant with similar magnitudes across all levels of the perceived support. It appears that if students have low (-1 *SD*) perceived English teacher support, the indirect effect (*b* = .217, Boot *SE* = .064, Boot 95% CI = [.106, .358]) only slightly trumps those with a moderate (*b* = .168, Boot *SE* = .049, Boot 95% CI = [.085, .277]) or high level (+ 1 *SD*) of the support (*b* = .120, Boot *SE* = .049, Boot 95% CI = [.040, .231]). The 95% CI of all of the indirect effects significantly differed from zero. The index of moderated mediation was also non-significant with an estimated effect of -.108 with Boot 95% CI = [-.245, .014], confirming that the perceived English teacher support did not moderate the mediation effect of the growth mindset in English intelligence.

On the whole after conducting the moderated mediation analysis, the results showed that Perceived English Teacher Support by itself in fact had a significant direct positive effect on the growth mindset. However, the non-significant interaction effects of the perceived support and the growth mindset intervention revealed that the perceived support was not a moderator. The perceived English teacher support did not moderate either the effect of the growth mindset intervention on the growth mindset in English intelligence or the effect of the intervention on the academic resilience. In addition, it did not moderate the indirect effect of the intervention on

the academic resilience through the growth mindset in English intelligence. The indirect effect did not significantly vary at different levels of the perceived English teacher support. Therefore, for this school, **the third hypothesis is not supported**.

The replication of the moderated mediation effect at School 2.

Similarly with School 1, earlier on, we compared the means of the potential moderator Perceived English Teacher Support using an independent *t*-test. The result revealed that the control group (M= 3.497, SD = .551) did not significantly differ from the treatment group (M = 3.467, SD = .590), with $t(98) = .264$, $p = .793$. We then analyzed School 2's moderated mediation effect using the add-in PROCESS for SPSS model 8. The statistical data analysis model for School 2 is shown in Figure 11.

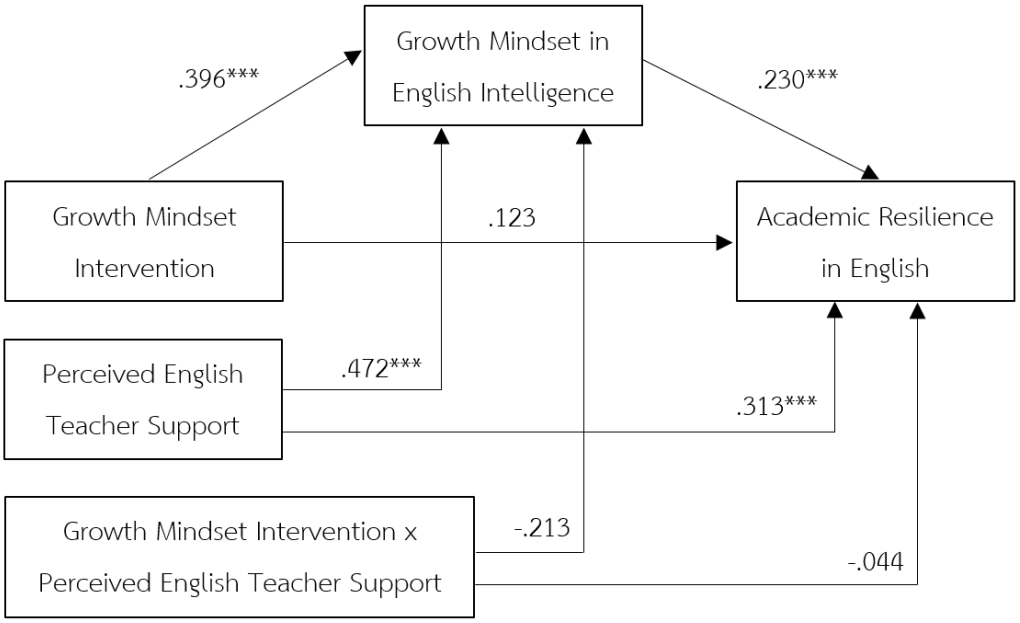


Figure 11. Moderated mediation effect at School 2.

(* $p < .05$, ** $p < .01$, *** $p < .001$)

By recalling the mediation paths in hypothesis two, the paths in this present model appear to resemble them. Still, Growth Mindset in English Intelligence fully mediated the effect of Growth Mindset Intervention on Academic Resilience in English. To elaborate, Growth Mindset Intervention had a significant positive effect on Growth Mindset in English Intelligence (b = .396, SE = .114, t = 3.466, $p < .001$) and

the growth mindset had a significant positive effect on Academic Resilience in English (*b* = .230, *SE* = .063, *t* = 3.643, *p* < .001). Nonetheless, Growth Mindset Intervention did not have a significant effect on Academic Resilience in English (*b* = .123, *SE* = .075, *t* = 1.643, *p* = .104).

The occurrence of the direct effects of Perceived English Teacher Support and the interaction effect of the perceived support and the Growth Mindset Intervention was witnessed as a result of the addition of the moderator into the analysis model. That being the case, four paths were present (see also Table 23).

1) Perceived English Teacher Support had a significant positive effect on Growth Mindset in English Intelligence (*b* = .472, *SE* = .101, *t* = 4.666, *p* < .001);

2) Perceived English Teacher Support had a significant positive effect on Academic Resilience in English (*b* = .313, *SE* = .069, *t* = 4.505, *p* < .001);

3) The interaction effect of Perceived English Teacher Support and Growth Mindset Intervention on Growth Mindset in English Intelligence was not significant (*b* = -.213, *SE* = .202, *t* = -1.051, *p* = .296) and;

4) The interaction effect of Perceived English Teacher Support and Growth Mindset Intervention on Academic Resilience in English was not significant either (*b* = -.044, *SE* = .126, *t* = -.348, *p* = .729).

By focusing specifically on the four paths with Perceived English Teacher Support explicitly involved, it can be seen that the perceived support had a significant direct positive effect on both the growth mindset and the resilience. Looking at the interaction effect of the perceived teacher support and the growth mindset intervention, however, it led neither to a significant effect on the growth mindset nor on the resilience. Again, for this school, the variable does not appear to be the moderator.

Table 23

Summary Table for Moderated Mediation Effect Analysis (School 2, N = 100)

Criterion Variables	Predictor Variables	*b*	*SE*	*t*	*p*	95% CI	R^2
GMS	Constant	3.781***	.057	66.276	< .001	[3.668, 3.894]	.259***
	Group	.396***	.114	3.466	< .001	[.169, .622]	
	PTS	.472***	.101	4.666	< .001	[.271, .673]	
	Group x PTS	-.213	.202	-1.051	.296	[-.614, .189]	
ACAD RSL	Constant	3.011***	.242	12.465	< .001	[2.531, 3.490]	.413***
	Group	.123	.075	1.643	.104	[-.026, .272]	
	GMS	.230***	.063	3.643	< .001	[.105, .356]	
	PTS	.313***	.069	4.505	< .001	[.175, .451]	
	Group x PTS	-.044	.126	-.348	.729	[-.294, .206]	

Note. GMS refers to Growth Mindset in English Intelligence, Group to Growth Mindset Intervention, ACAD RSL to Academic Resilience in English, PTS to Perceived English Teacher Support, and Group x PTS to the interaction of Growth Mindset Intervention and Perceived English Teacher Support; * $p < .05$, ** $p < .01$, *** $p < .001$.

As for the conditional direct effect of the intervention on the academic resilience, it was found that when the perceived support is either low (with 1 *SD* below mean), moderate (on average), or high (with 1 *SD* above mean), the intervention does not at all lead closely to a significant effect on the resilience (*b* = .148, *SE* = .105, *t* = 1.404, *p* = .164; *b* = .123, *SE* = .075, *t* = 1.643, *p* = .104; and *b* = .098, *SE* = .102, *t* = .967, *p* = .336 respectively).

The results seem to mostly go in accordance with the third hypothesis. That is, if the perceived support is low, the intervention effect on the resilience will be larger than when the perceived support is higher. Even so, clearly none reaches or almost reaches the significance level.

Moving forth, the conditional indirect effect is of our next interest. It was found that the effects were again fairly resemblant across all levels of the perceived support. If students perceive low (-1 *SD*) support, the indirect effect (*b* = .119, Boot *SE* = .046, Boot 95% CI = [.036, .214]) trivially outdoes those who perceive medium (*b* = .091, Boot *SE* = .034, Boot 95% CI = [.031, .163]) or high (+1 *SD*) support (*b* = .063, Boot *SE* = .041, Boot 95% CI = [-.010, .153]) respectively. The 95% CI of all the

indirect effects significantly differed from zero except that of the high support. Although the propensity again goes in accordance with the third hypothesis, the index of moderated mediation of -.049 with Boot 95% CI = [-.149, .045] implies that our variable Perceived English Teacher Support did not play the moderating role as the 95% CI did contain zero.

At this point of culmination, the results of the moderated mediation analysis evidenced that in truth Perceived English Teacher Support itself had a significant direct positive effect on the growth mindset as well as on the academic resilience. In spite of that, it did not moderate either the direct or indirect effects of the intervention. On that account, for this replication school, **the third hypothesis is not supported**.

Additional Analyses

Besides testing the main hypotheses of the present research, additional analyses were conducted to see the participants and the intervention effects from different angles, based on a few questions other than those in the research measures. Moreover, several messages written by the participants themselves were included and were regarded as another positive indicator of a growth mindset possession.

Similarly, this section mostly focuses on the analyses of each school separately, starting with the main school and the replication school respectively.

Students' English studying attitude.

In the pretest, two additional statements were embedded in the Growth Mindset in English Intelligence Scale: 1) I am happy while studying English and 2) I pay attention to studying English (see Appendix D, Section 1). It was because we would like to know whether students in both the intervention and control groups initially had a similar English studying attitude in terms of happiness and attention paid. Respondents rated the two statements on a Likert-type scale, with 1 = strongly disagree to 5 = strongly agree. We then used the independent *t*-test to compare the means between groups of each statement separately.

Moreover, in the posttest, we also asked one additional statement, "Joining in the research activities makes me want to pay more attention to studying English." to measure students' intention to pay more attention to studying English in the future (see Appendix G, Section 3, Statement number 27). We also used the independent *t*-test to compare the means of this statement between groups in each school.

School 1 students' English studying attitude.

Table 24 shows group statistics and the independent *t*-test which indicates that students in both conditions started off similarly. Before the research participation, students in the control group (M = 3.368, SD = .858) and those who received the treatment (M = 3.288, SD = .872) did not have a significantly different level of happiness while studying English ($t(114) = -.500$, p = .618, d = .092). Regarding the attention paid to studying the subject, the control (M = 3.316, SD = .869) did not significantly differ from the intervention group either (M = 3.153, SD = .925) with $t(114) = -.979$, p = .330, d = .182.

However, after the research participation, students in the treatment group (M = 4.254, SD = .659) significantly wanted to pay more attention to English studying in the future than those in the control group (M = 3.877, SD = .734), $t(114) = 2.914$, p = .004, d = .540.

Table 24

Independent t-test for Students' English Studying Attitude (School 1, N = 116)

	Group	*n*	*M*	*SD*	Mean Difference (Intervention - Control)	*t*	*df*	*p*	*d*
Happiness (Pretest)	Control	57	3.368	.858	-.080	-.500	114	.618	.092
	Intervention	59	3.288	.872					
Attention Paying (Pretest)	Control	57	3.316	.869	-.163	-.979	114	.330	.182
	Intervention	59	3.153	.925					
Attention Paying (Posttest)	Control	57	3.877	.734	.377	2.914	114	.004	.540
	Intervention	59	4.254	.659					

School 2 students' English studying attitude.

Descriptive statistics and the independent *t*-test results are shown in Table 25. Quite analogous to the results of the main school, this table tells us that prior to participating in our research, students in the treatment (M = 3.449, SD = 1.062) and control groups (M = 3.314, SD = 1.140) did not significantly differ with regard to happiness while studying English, with $t(98) = .613$, $p = .541$, $d = .123$). In terms of attention paid to studying the subject, those in the control (M = 3.333, SD = .816) were not different from those in the intervention group either (M = 3.367, SD = .951), with $t(98) = .192$, $p = .848$, $d = .038$.

Nonetheless, similarly to the other school, after participating in the research, those in the intervention group (M = 4.306, SD = .742) significantly aspired to pay more attention to studying the subject in the future than those in the other group (M = 3.922, SD = .891) with $t(98) = 2.341$, $p = .021$, $d = .468$.

Table 25

Independent t-test for Students' English Studying Attitude (School 2, N = 100)

	Group	*n*	*M*	*SD*	Mean Difference (Intervention – Control)	*t*	*df*	*p*	*d*
Happiness (Pretest)	Control	51	3.314	1.140	.135	.613	98	.541	.123
	Intervention	49	3.449	1.062					
Attention Paying (Pretest)	Control	51	3.333	.816	.034	.192	98	.848	.038
	Intervention	49	3.367	.951					
Attention Paying (Posttest)	Control	51	3.922	.891	.384	2.341	98	.021	.468
	Intervention	49	4.306	.742					

Students' post activity reflections.

In the posttest, we asked participants to reflect on joining in the research activities (see Appendix G, Section 3) by responding to two statements: 1) Joining in the research activities enables me to know that I can change my own English intelligence level and 2) Joining in the research activities encourages me to face more of the obstacles in studying English. Participants rated each of the items on a Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree.

Quite straightforwardly, statement 1 aforementioned mirrors the growth mindset concept while statement 2 reflects the idea of academic resilience.

We calculated correlations between statement 1 and the mean from the posttest Growth Mindset in English Intelligence Scale and between statement 2 and the average of the Academic Resilience in English Scale measured at posttest as well.

We found that at School 1, the single growth mindset statement (M = 3.966, SD = .854) significantly correlated with the score from the growth mindset scale ($r(114) = .564$, $p < .001$). The single academic resilience statement (M = 3.940, SD = .897), likewise, significantly correlated with the full academic resilience scale ($r(114) = .471$, $p < .001$).

Similar results were obtained at School 2, with significant correlations between the single growth mindset statement (M = 4.040, SD = .777) and the growth mindset scale ($r(98) = .378$, $p < .001$) and between the single academic resilience item (M = 4.060, SD = .862) and the full academic resilience scale ($r(98) = .409$, $p < .001$).

In sum, the scores from the whole scales seem to correlate significantly with their corresponding single statements. It means no matter the students were asked to respond to a set of statements or to only one separate statement elsewhere in the questionnaire, their responses about the particular matters appear to be quite constant. Moreover, it can also be implied that if a whole scale is sometimes too long for respondents, especially for those at a young age, a single statement can alternatively be an adequate indicator of what we want to know.

Qualitative data.

At the end of the posttest (see Appendix G, Part 3), participants were asked to freely write down their opinions or reflections about their research participation. The two open-ended questions were "☺ Regarding the research activities, the things that impressed me were... ☺" and "😐 Regarding the research activities, what I would like to be improved were... 😐."

Mostly, students in the control condition from both schools tend to mention about the acquirement of new knowledge in the English subject and enjoyment as

their impressions (see Appendix H). For instance, a student wrote, “I learned new words. I never wanted to study English before but these activities make me want to learn English more (1).” Another student put down, “It was fun and there were a lot of games. I want more of activities like these (2).” It was also written that “We learned a lot of new English words and we were taught to work harmoniously (3).” Also, another student chalked up, “I learned new things that I’ve never known before (4).” Besides, it was marked down, “I now have an extensive English vocabulary list. It was well worth it (I want you all to come here again) (5).”

As for those students in the growth mindset treatment group of both schools, they also tend to mention the attainment of the new English knowledge, the gaiety as well as the delight of learning as their impressions. For example, a boy wrote, “It was fun and I got new knowledge. All the staff were admirable. Thank you for making me happy (6).” Another girl wrote down, “These activities are really impressive. I’m more extroverted and more self-confident. I noted down the words I’ve never known before (7).” Additionally, another student jotted down, “The teacher taught the lessons well. He motivated me to learn English and provided me with some basic English knowledge. The teaching was fun with the cordial atmosphere. I like the way each staff member told their stories. At first I thought English was hard but now I feel like I want to study it more (8).”

In addition to that, they also mentioned about the development of their abilities and intelligence as well as other growth mindset related attributes. For example, it was written, “I know I can still extensively develop my English intelligence (9).” Another student wrote, “I was impressed by all the staff members. They gave me good pieces of advice and they made me become more confident. Also, they made me realize my own abilities (10).” It was also put down by another student, “The most impressive thing is that I was taught to change my negative thoughts to more positive ones (11).” Furthermore, it was noted down, “Our brain can substantially be developed. If we close ourselves off to new opportunities, we’ll never experience new things in diverse aspects (12).” Several other messages were, “I learned that English is not hard but we have to try to speak and to study (13),” “It makes me realize that English is not as difficult as I first thought. We only

need the open-mindedness and constant practice (14)," and "There is no such thing as being born stupid. It's only that we haven't learned new things yet (15)."

The fact that the theme on the flexibility of abilities and intelligence emerged through the reflections only by participants in the experimental group but not by those in the control group helps to confirm the effectiveness of our intervention, in addition to the interpretation of the statistical results. To put it simply, the qualitative data supported the quantitative data.

As for the question asking about what to be improved, most students from both groups of the two schools similarly wrote, "None." However, some students suggested that we should bring them outside more often and we should teach easier words. A few wrote, "I want more activities and more time" and it was also humorously written, "I want more snacks."

CHAPTER IV
DISCUSSION

The main purposes of this field experiment were to examine the effects of the multifaceted growth mindset boosting intervention on underprivileged students' academic resilience in the English subject. The mediating role of the English intelligence growth mindset was also investigated alongside the moderating role of the perceived English teacher support. As for the research results, overall, the data analyses indicated that the results of the main school went in the same direction as those of the school for partial replication. That is, the students in the treatment group later had a significantly higher growth mindset in comparison with the control group and with themselves at pretest. They also had significantly greater academic resilience in the subject compared with the control group as well. Moreover, the Growth Mindset in English Intelligence fully mediated the effect of the intervention on the academic resilience. Howbeit, there was no evidence of the perceived teacher support functioning as the moderator of the intervention effects as awaited. The discussion in this chapter will be divided into four sections as follows:

Effects of Growth Mindset Intervention on Growth Mindset in English Intelligence

According to our findings, the significant effect of our growth mindset promoting intervention on the growth mindset in English intelligence was found. It means that our intervention intended to cultivate the "Growth Mindset Seed" was apt to make the seed germinate within the students in the intervention group. That is to say, they tended to see their intelligence, chiefly English, more as elastic compared to those in the control condition and compared to themselves before the intervention outset. This occurred to parallelly happen in both schools of our research.

The significant effect found, therefore, corroborated our first hypothesis. It was also consistent with the findings by Burnette, Russell, Hoyt, Orvidas, and Widman (2018). Even though there were differences such as the intervention duration and the

delivery method of employing online modules versus the face-to-face method used in our research, most of the intervention contents were similar. That is, the typical neuroplasticity-focused message ‘You Can Grow Your Intelligence’ was administered as well as the analogy of brain versus muscle growth and the growth mindset related research as examples of the message. Having a role model to deliver the tips for success was also common, only with a slight difference that an undergraduate student from a top-level university was incorporated versus several celebrities delivering the tips in our work. The ‘Saying is Believing’ task was also seen in both studies. In addition, the samples were quite similar, in terms of age and economic status. Tenth grade female adolescents from rural low-income schools were recruited versus the ninth graders from low-income families as our participants. All things considered, Burnette and colleagues (2018) found that the girls in the intervention group significantly reported higher growth mindset than those who did not receive the treatment, with an approximately 12% increase from pretest for the former as distinguished from a 2.5 % increase for the latter.

Moreover, our growth mindset intervention also yielded similar results to the one-shot growth mindset intervention by DeBacker et al. (2018), which was delivered to students entering the ninth- and ten-grades. Again, the message ‘You Can Grow Your Intelligence’ used resembled that in our work. The main delivery steps were also similar, only different in some details. We started off somewhat alike by giving a lesson about neuroplasticity, with each student having the printed information to read along quietly on their own. Next, it was the understanding check phase which was finally followed by the self-convincing task in accordance with the message. In essence, those in the intervention group significantly differed from its comparison group regarding the growth mindset scores.

Interestingly, we should remark that the message ‘You Can Grow Your Intelligence’ seems to be typically and widely used in most of the growth mindset interventions, including ours and the two studies aforementioned (i.e. Burnette et al., 2018; DeBacker et al., 2018). In some research, it is usually employed as a part of an intervention that includes other means and materials to build the growth mindset. However, in other research, the message alone oftentimes captures the whole

intervention, which in turn yields a significant increase in the mindset (e.g., DeBacker et al., 2018). It could signify that the message together with understanding it play a role of great importance in making an individual realize and believe that the brain cell connections as well as personal abilities or intelligence can change, develop, and grow stronger. In other words, the 'You Can Grow Your Intelligence' message may be one of the effective tools, if not the most, when it comes to interventions to promote a growth mindset.

Perhaps, our findings can partly justify that. To elaborate, for the research main school, School 1, there were four growth mindset sessions (see Table 1) while time permitted for only two sessions at the school for partial replication. The two sessions included teaching the 'You Can Grow Your Intelligence' message to introduce the mindset idea and the discussion about failures as part of learning. By conducting statistical analyses to compare results between schools, it was revealed that the intervention effect on the growth mindset at School 1 was stronger than at School 2, judging from the effect size (Cohen's *d*), with 1.549 for the former versus .789 for the latter. In fact, it is more likely that the longer the intervention, the better for students. It would even be ideal if their teachers did this every day. Even so, it turned out that, on average, the increase of the growth mindset score of the two schools was in the same pattern. To put it simply, four or two growth mindset promoting sessions provided quite the parallel results, with students in the intervention group having a significantly greater increase in the growth mindset and also a significantly higher level of the mindset at posttest than those in the control group. As a consequence, for schools with limited resources such as the ones in our research, two sessions might be a more cost-effective and a sufficiently better choice in terms of time spent, materials utilized as well as overall expenses paid. Looking exclusively at the two sessions, in a way, it was likely that each of them individually contributed to the significant results. Yet, possibly and quite convincingly, the message might play a role of greater importance.

Altogether, it was found that our intervention remarkably led to students having a stronger growth mindset. Here, the growth mindset functions as our outcome variable. Still, whether it is also our mediating variable acting as the bypass

of the intervention effect onto the other variable, that is what we already investigated and what we will be discussing next.

Growth Mindset in English Intelligence as the Mediator

Another main objective of this current work was to probe the intervention effect on the academic resilience in English. Primarily with only the data of the two variables being analyzed, it was revealed that the growth mindset intervention significantly led to students in the intervention group having higher resilience scores compared to those in the control condition. Presumably, it denotes that the intervention attempting to promote the idea of the changeability of intelligence through effort exertion, practice, and overcoming failures positively influenced the students to academically bounce back or to still do well in class in the face of failing or hardships, especially in the English subject.

However, it might be too fast to jump to conclusions that only participating or being present in the intervention activities is ample to make the effect happen. Logically speaking, the growth mindset promoting intervention should “promote” the mindset within the participants first before it successively fosters the resilience. The underlying role of the mediator should be closely inspected.

We, ergo, measured students’ growth mindset score and added it as our mediator in the statistical data analysis. It turned out that, the magnitude of the previously significant direct effect was reduced to be non-significant. The indirect effect, instead, became significant and thus evidenced the complete mediation. The occurrence was alike for both schools. This supported our second hypothesis.

Our mediation analysis, however, seems to contradict the mediation results of the resounding research by Aronson et al. (2002). The research was similar to our current work in connection with delivering a growing mindset intervention to participants at risk of educational achievement failures. Participants in the research were African American students experiencing a stereotype threat. Even though it was not straightforwardly stated, to a great extent, academic resilience also seems to be what they tackled as they investigated whether the intervention helped the at-risk students to have more satisfactory GPA. To simply put, they wanted to see whether

the students could academically bounce back in defiance of the stereotype threat influence that is inclined to push them down.

The intervention was called the ‘malleability training’ with SAT score as a covariate, long-term malleability beliefs as the mediator and GPA as the outcome variable. Without the mediator introduced, the training had a significant direct effect on GPA. This path resembles that in our research. However, after the mediator was present, instead of the direct effect being weakened as anticipated, it was in truth heightened. This is where the contradiction stands.

There were possible explanations delineated by the researchers for the mediation analysis results which went against what they had expected. To give an instance, the problem may partially rest upon the restricted range of the scale to measure the malleability belief (Aronson et al., 2002). They highlighted that the means of the rating for participants in the intervention group reached the maximum possible point of 6. It fairly reflected the ceiling effect prompted by the research manipulation which could undermine the mediational effect. This problem, to our relief, did not occur in our research, either with or without the outliers included in the analysis.

Moving forth to the research by Burnette et al. (2018), with the mediation analysis that went in line with that of our research. Overall, our independent and the mediator variables resembled except the dependent variables which looked similar but quite divergent (i.e. academic attitudes namely learning motivation, learning efficacy, and school belonging versus academic resilience).

According to the analysis by Burnette and colleagues (2018), a significant direct effect of the intervention on the attitudes was not found, which was said to be “contrary to much of existing literature” (Burnette et al., 2018) as well as to our current research. Nonetheless, what seems to be parallel to our results is that when the mediator ‘growth mindset’ was added, the indirect effect turned out to be significant for learning motivation, learning efficacy but not school belonging. In brief, the mediating role of the mindset was manifestly substantiated. It signifies that the intervention had to first drive the participants in the treatment group to have the mindset shift, toward growth to be exact, and the shift in turn led to the students

feeling more motivated to learn and believing more in their own capacity to learn. For the aspect of school belonging, however, a closer look and a more intricate explanation might be needed.

Last but not least, we have so far investigated and discussed the effects of the intervention in conjunction with the mediating role of the growth mindset. Hitherto, the first two hypotheses have been materially underpinned. Yet, whether the intervention effects can be strengthened or hindered, the role of the research variable 'Perceived English Teacher Support' is the last in line to be canvassed.

Perceived English Teacher Support as the Moderator

From now, the Perceived English Teacher Support will be spotlighted on the discussion stage. By playing its given role, we expected to see smaller intervention effects if the perceived support was high rather than low and vice versa. The moderation analysis results, however, indicated otherwise. It means that Hypothesis 3 is not supported. It is what happened in both schools even though the details of the analyses were, in a fashion, dissimilar.

For School 1, before adding the perceived support as the moderator, there was a significant indirect effect of the intervention on the academic resilience through the growth mindset. After the presence of the support, notwithstanding, the indirect effect was still significant and the perceived support itself had a significant direct positive effect on the mediator but not on the dependent variable.

Intriguingly, by inspecting the conditional direct effect on the academic resilience, we noticed the reversal of what we anticipated. That is, when the perceived teacher support was low (-1 *SD*), the intervention effect went low with it, with b = .047 and the apparently non-significant p-value of approximately .700. It was in stark contrast with when the perceived support was high (+1 *SD*). For this time, the effect also went high with it, almost reaching the significance level, with b = .185 and the p-value was exactly .057.

The trend may imply that if students perceive that their English teacher does not give them enough support in the first place, the growth mindset intervention, unfortunately, is likely of no use. Seemingly, we cannot shift their mindset or uplift

their academic resilience unless the teacher can make them feel embraced first. The perceived support, under this circumstance, is like their personal asset and what they are equipped with before joining the intervention. On the other hand, if students originally perceive that they themselves receive sufficient or high support from the teacher, the intervention seems to be promising.

Talking specifically about what different levels of support perception could do, it helps to shed light upon what to be tackled in order to aid students to have the can-do mindset and to be academically resilient in the English subject. Perhaps, we should start with a support intervention that could work hand in hand with the current growth mindset intervention.

There can be at least two possible problematic situations. First, the teacher literally provides no or little support; too little to be felt by students. In this case, the solution is to deal with the potential source of support, the teacher. It could start with the teacher trying to get to know more about and to see each student as an individual with distinct needs. For that, she/he would know what each student wants and thus could provide appropriate support accordingly, both in quality and quantity. Second, the teacher appropriately provides support but it can hardly be felt. For this case, the solution might be to mainly work with students, to guide them how to perceive and accept the support when the teacher reaches out to them or how to call for help if they need more help or some other specific types of help, namely appraisal, instrumental, informational, and emotional (House, 1981).

Next, by focusing on the conditional indirect effect of the intervention on the academic resilience through the growth mindset, the results demonstrated that regardless of the level of the perceived teacher support, the effects were significant with comparable magnitudes across all the perceived teacher support levels. This, together with the non-significant index of moderated mediation, again, help to confirm that the variable may not be an apposite moderator.

Moving on to School 2, basically what happened in the analysis results resembled those of School 1. That is, either before or after the addition of the moderator, the significant indirect effect remained. A slight difference was that the

perceived support by itself had a significant direct positive effect not only on the growth mindset but also on the academic resilience.

However, the reversal found in School 1 did not transpire in this school for replication. The conditional direct effect unfolded that when the perceived support was low (-1 *SD*), the intervention effect was the highest, compared to when it was moderate and high (+1 *SD*). Yet, this was a mere tendency that went in accordance with the third hypothesis. None, at all, reached the significance level.

As for the conditional indirect effect, there was a similar inclination. That is to say, when students perceived low support (-1 *SD*), the effect was again the highest, but only faintly surpassing the ones who perceived average or high support (+1 *SD*) respectively. Across all levels of the perceived support, the indirect effects did not seem to be sharply distinct. Additionally, the index of moderated mediation was not significant either. A larger sample size might be needed in order to increase the power to make the propensity stronger or solid enough to reach the statistical significance level.

In short, the overall moderation analyses suggest that 'Perceived English Teacher Support' did not moderate the intervention effects — to wit, the effect magnitude did not appear to depend on the level of the perceived teacher support. However, even though it failed as a moderator, the perceived support might has other values in itself since we discerned its significant direct positive effects on the mindset and on the resilience. Bearing this in mind, we should still see it as a precious variable that can feasibly help to build a growth mindset and to elevate students when they encounter difficulties, predominantly in the academic arena.

Strengths and Limitations

This present study revealed findings consistent with previous similar studies. Under our consideration, this might be due to its pronounced strengths. To begin with, it is our research design, which was a field experiment with both the control and intervention conditions being from the same schools. We tried to make the two conditions initially equivalent as much as we could even though the allocation of

participants into conditions was not exactly from a full randomization. At first, we grouped students using their odd or even student identification numbers, which did not have any meaningful relations with any variables in the study. Then the experimental conditions, control or intervention, were randomly assigned to the groups. The statistical result that odd and even numbered groups had a comparably equal level of the variables measured at pretest helped to prove that this method could create equivalent groups. By contrast, having the control condition from one school and the experimental condition from the other school would otherwise make our design a quasi-experiment, which would possibly be more open to the influences of unknown confounding variables we could not control. That being the case, it would be close to impossible to have the equivalent conditions, which would lead to the research results rather being inconclusive.

Also, delivering the intervention at one school already gave us results reflecting the light of its effectiveness — students seemed to have the shift in their mindset and to have more immunity against academic challenges, making them academically resilient. Looking for a confirmation, the parallel results at the replication school even added more hope to its potency. This was partially, yet greatly, owing to countless hours we spent digging into the promising literature, especially overseas, and deliberating over the aspects or methods to be applied into the Thai English learning context for Thai junior high school students, exclusively the underprivileged.

Next, most of our growth mindset activities were discussion-based. It means the students were not only the information recipients but also active information senders. During these activities, we created an amiable atmosphere intended to encourage students to express their opinions. They had an opportunity to dispatch their personal thoughts together with what they had learned to at least three parties; themselves, their peers, and the activity administrators in the research team. Discussing and sending the growth mindset related messages is possibly one of the major keys to the students' belief in the messages as saying usually leads to believing (Burnette & Finkel, 2012; Burnette et al., 2018). Additionally, one growth mindset activity involved students writing a 'note to self' and a 'note to

significant others' on the topic 'How to put effort into learning English and how to develop personal English skills' and 'How can trying to learn English benefit me and the ones I love?' This may also contribute to the writers having a growth mindset as writing may actually lead to believing as well.

Furthermore, the growth mindset activities appeared to be well-facilitated by our intervention materials. To illustrate, when teaching about the malleability of intelligence based on the 'You Can Grow Your Intelligence' message, only giving them spoken information might not work as efficiently as giving each of them a printed piece of paper as a summary to what they were being taught. We named it 'The Growth Mindset Brochure.' Keeping the paper handy, they could read along quietly while listening to the lesson. Besides, even beyond the intervention period, they can read and re-read the paper at any place or at any time they want to. By doing so, it might be more easily for them to let the message 'sink in.' To our surprise, a group of students approached us waving the brochure softly while saying, "In the future, if anyone calls us 'stupid,' we will read this to them and to ourselves as reassurance that WE ARE NOT! (They stressed.) We only need to learn more."

For another activity — watching a short video about tips of success in learning English from Thai celebrities, it occurred to be facilitated by the video itself. It might be because the duration (3.5 minutes) was suitable to attract students' attention and the content was easily digested. After it was played twice during the activity, we received several unanimous requests with enthusiastic voices, "Please replay the video. We want to listen to our favorite singers and football players again and again." Unfortunately, the video was set to be played only two times for the intervention group. Violating the limited playing time could be too much time-consuming, which could in turn affect the planned discussion period. Even though we could not comply with their requests, we did provide them the video link so that they could rewatch it on their own after the intervention ended.

Lastly, we obtained participants' qualitative data. Although, we could substantially learn from what the numbers 1 to 5 in the scales of measures told us, students' written messages could add more values to our understanding of the numerical data. That is to say, a student may choose 5 to reflect 'strongly agree' to

growth mindset items. Her/His writing could help to confirm whether the chosen number was convincing. For the intervention group, a growth mindset written message was what we expected to see. Apart from it, mirroring through their original handwriting, we could also grasp other respects such as their innocence, happiness, determination, as well as their humor. Upon reading one message after another, our hearts bloomed.

However, to the best of our knowledge, this present study is subject to at least five limitations. First of all, we allocated students into conditions using the systematic assignment (see details in Chapter 2, Participants Section), not the true random assignment. To a certain degree, the method we used posed a risk that the chance of each student being assigned into a particular group was not exactly equal. Nevertheless, during the intervention, no systematic bias occurred. On top of that, statistical tests helped to prove that at the outset, students in both conditions were not significantly different in terms of the variables measured. This was homogenous in both schools.

Second, similarly to the study by Burnette et al. (2018), our intervention was multifaceted. We designed few growth mindset activities; four for School 1 and two for the other school. With the number of activities administered, we could not conclude with supreme certainty what activity predominately steered the significant effect. On the one hand, a single activity might be dominant and the rest was subordinate whereas on the other hand each of them could be equally responsible for the effect.

Third, it was possible that the response on the pretest measures, especially the Perceived English Teacher Support, was influenced by the presence of an English teacher. At each school, beforehand, teachers as well as other school personnel were asked to cooperate with us in giving students some private time (15-20 minutes) to respond to the pretest (and posttest) on their own. For other periods of time, we agreed to let them observe the activities. Despite that, at School 1, the Mattayom two English teacher briefly came into the room while students in the control group were focusing on the pretest measures. We immediately took action by asking the teacher to wait outside until they finished.

The request was willingly complied with. As we tried our best to minimize external factors that could bias the response, our ideal picture was that the response should completely be based on the students' opinions. However, the teacher's presence, even though very brief (less than a minute), could affect the answers. Still, for each school, it turned out that both conditions did not significantly differ regarding the perceived teacher support.

Next, there was a possible experimenter bias. While multiple studies delivered a growth mindset intervention online (e.g., Broda et al., 2018; Burnette et al., 2018; Paunesku et al., 2015), our research intervention was face-to-face. That is to say, every activity was directly and mainly administered by a person, not via a computer screen. It was partly due to a limited learning resource (i.e. not enough computers) and also we wanted the students to absorb the everyday realism of studying atmosphere, resembling their normal classrooms. Consequently, interactions between the activity administrator and students might not be entirely equal for the control and treatment groups, either consciously or not. Nonetheless, we took several steps intended to fill the gap. For instance, we made sure that the activity administrator and his team understood the purpose of the study clearly. It was vital that we stood on mutual ground. Next, we had constant activity rehearsals by running through every step, in depth, from the beginning to the end. More importantly, we asked a third party to help materialize the attempt to minimize this concern addressed — a dozen independent non-psychology master students from Chulalongkorn University were asked to rate four short video recordings capturing the activity administrator while teaching. It was to assess whether he behaved similarly across all conditions of both schools (see Appendix F). The rating results highlighted that he did not significantly show different behaviors across conditions.

Last of all, it was the students' literacy that might affect their measure responses. At each school, we were initially given with a list of students who needed special supervision because of their poor literacy as they had substandard Thai reading and writing skills. It could mean that, the numbers 1 to 5 they circled for the measure items were based simply on a wild guess, not on their

consideration. Being well-aware of the circumstance, the research team took care of them individually by giving them a thorough instruction explanation as well as reading each item slowly so that they could easily comprehend. In spite of our attempt to ease the literacy issue, we could not tell with certitude whether each and every one of them fully understood or had an equal understanding. To this point, it might look like the supervision was highly weighted upon this group of students. For the elucidation, nevertheless, every other student in general was also our prime concern. We made sure to give clear instructions for all measures and emphasized that there should be no hesitation if any of them had questions, even the slightest ones.

In conclusion, the limitations acknowledged might sound, to some extent, discouraging. All things considered, however, they were outweighed by the research strengths as the latter gave us a propitious sign of the intervention potency, which could give a sweet fruit that benefited partakers. Various students, especially the underprivileged, may have self-doubt about their own tendency toward developing their individual abilities or intelligence. Dwelling in the doubt is terrifyingly dark. We hope that our growth mindset intervention could be the light, though modestly not the brightest, at the end of the dark tunnel.

CHAPTER V
CONCLUSION

From the rocketing interest in the past decades, an existing literature related to the belief about the malleability of abilities and intelligence as known as a growth mindset is rich. Typically, researchers have been fascinated by the mindset and its association with other constructs, especially the ones pertaining to academic outcomes. Convinced by its potentially auspicious usefulness, a variety of studies have explored further by delving into its causal effects. Consequently, growth mindset boosting interventions have arisen, with high hopes to crack open the growth mindset seed within individuals, students in particular.

The mindset interventions occur to be advantageous for students in general but at-risk or underprivileged students have been highlighted to reap most of the benefits. That is to say, it has been widely investigated whether the interventions help underprivileged students to build a growth mindset and whether the mindset in turn helps the students to build fortresses against academic challenges as well as personal adversities, poverty, for example. To put it simply, at the end point, researchers have sought to find out whether the interventions lead to the students being academically resilient.

Yet, the interventions intended to cultivate a growth mindset in general intelligence seem to be common whereas the mindset in a specific domain of intelligence does not. Intrigued by the scarcity, we came up with an intervention focusing mainly on fostering a growth mindset in English Intelligence, which could successively foster academic resilience in the subject. English was initially chosen as it has obvious boons for Thai students — paving the way for advanced future success either in further education or in everyday life, for instance.

Moreover, students' perception of support from their teachers has been found to be linked to the students' mindset as well as academic resilience and other academic achievements. Again, disadvantaged students appear to be the ones who get the most advantage out of the perceived support.

Taking everything into account, we aimed to conduct a field experiment by designing a growth mindset intervention and sought to examine its effects on underprivileged students' English intelligence mindset and academic resilience in the subject. The intervention was based on teaching English with additional growth mindset related activities for students in the intervention group. As for their counterparts in the control group, the same English topics and contents were taught, together with the same learning materials. The difference was that this group joined additional activities of similar format, only without a growth mindset matter being incorporated. The intervention effects on the growth mindset in English intelligence and on the academic resilience in English were investigated in hypothesis one, as well as the mediating role of the growth mindset in hypothesis two, and the moderating role of the perceived teacher support in hypothesis three.

The intervention was delivered to 216 underprivileged Mattayom two students from two distant schools in a province located in the Eastern region of Thailand, with 116 students from one school and 100 from the other. They were known, in this research, as School 1 or the main school and School 2 for the partial replication school. For each school, students were systematically assigned into conditions, each having almost an equal number of students. The students were underprivileged in terms of their poor socioeconomic status.

As for the findings, statistical analyses demonstrated that the intervention at both schools yielded similar results — students in the growth mindset intervention condition had a significantly stronger English intelligence growth mindset at posttest compared to themselves at pretest and to the control group. The increase of the mindset level was significantly different between the two groups, with the intervention group having a greater increase. Also, at posttest, the treatment group reported a significantly higher level of academic resilience in English. Hypothesis 1 was, thus, supported. For hypothesis 2 on the mediation analysis, we found that Growth Mindset in English Intelligence fully mediated the effect of the intervention on the resilience. This hypothesis was also supported. However, the third hypothesis concerning the moderated mediation effect was not supported, as it turned out that Perceived English Teacher Support did not moderate the intervention effects,

although we noticed a likelihood toward its moderating role. A larger sample size might elevate the probability of the hypothesis substantiation.

Although, this present study has a number of limitations such as the assignment method, possible experimenter bias, and students' literacy, all the strengths combined, nevertheless, showcase that students could benefit twofold, at least, from our intervention. First, they were introduced to the idea that our abilities and intelligence are not at all fixed. Some of them may previously, but vaguely, had the idea. For the case, our intervention served as a confirmation. Second, the growth mindset either as a newly introduced belief or as a stronger former belief seemed to help the students to forge their personal academic armors against any learning enemies or personal hardships. They, on this account, occurred to start to be 'Armored White Elephants,' standing steadily ready to fight off their academic foes.

Practical Implications

Internationally, growth mindset interventions occur to have broadly gained popularity and the main beneficiaries are students. Narrowing down to a national level, likewise, there are growth mindset interventions in Thailand, often designed for children from well-to-do families. Underprivileged students, however, do not seem to have such luxury bestowed upon them. Besides, we do not have the access to the empirical data on the effectiveness of those programs. To the best of our knowledge at present, this current work is the first to deliver a growth mindset intervention on a specific sort of intelligence; English, with underprivileged adolescent students as participants. The present findings might have noteworthy implications and suggest courses of actions for parents, teachers, pedagogical practitioners as well as psychological researchers in general. The implications are plausibly fourfold as follows:

First, as our intervention activities can be versatile, they could partially be applied within a family where children have been raised. The more interspersed of the growth mindset language and atmosphere, the more they feel embraced, with not being afraid of mistakes or failures. It could start as early as when the children begin to do things by themselves. Parents can comfort them by convincing that the

mistakes they are making now were once the same ones the parents made. The mistake normalization can be reflected through saying “It’s no big deal at all” or “It’s okay. Try harder. I once made the same mistakes when I was your age and I’ve learned from them since!” when the children wrongly lace their shoes or when they mistakenly write ‘d’ for ‘b’. We believe if a growth mindset is cultivated at home, it can be further fortified at school and possibly vice versa.

Second, English teachers can select the elements of our intervention activities that they think appropriate to encourage their students to have to a growth mindset, which can in turn lead to the students’ excelling in the subject. They might as well adjust the activities to meet the students’ learning levels, abilities, and preferences. We also hope that a growth mindset idea starting with English could be generalized or extrapolated to other subjects, abilities as well as other disciplines of life.

Third, teachers in other subjects aside from English can also modify our intervention to create their own growth mindset promoting activities. To illustrate, after letting the students warm up by stretching their limbs, Physical Education teachers can regularly use the ‘You Can Grow Your Intelligence’ message to motivate students as it gives an analogy of brain and intelligence development versus physical stamina as a result of consistent workout or practice. A person may not at first be strong enough to do a hand stand but after one hour of practice after another, a hand stand can become a piece of cake as the body muscles become stronger with practice. Using the message as well as giving relevant examples might make the idea more vivid in students’ mind. That could, seriatim, shape the core of a growth mindset and make them academically resilient in the subject if they put the mindset matter into use.

Last, alternatively, what might be worth focusing on is that although Perceived English Teacher Support failed to be a moderator, the perceived support on its own significantly and positively led to a growth mindset and academic resilience. As a consequence, teachers should appropriately invest in whatever to make students perceive that they are being supported or cared for. For example, a teacher may sacrifice one hour or so after work to teach extra lessons to students who could not catch up in class or to attentively listen to them when they need

someone they trust. These are examples of instrumental and emotional support respectively. The support provided by teachers is essential to most students in general but the support perceived by students who are disadvantaged in certain ways is even more so. This might to a great extent remind us of the quote by the renowned author and speaker Coloroso (as cited in Demetriou, 2018) saying, “If kids come to us (teachers) from strong, healthy functioning families, it makes our job easier. If they do not come to us from strong, healthy, functioning families, it makes our job more important.”

To sum up, this present work not only seemed to benefit our research participants but can also potentially benefit other students taught by teachers who may decide to employ one of, some of, or all of our intervention activities. Additionally, it should be noted that perceived teacher support has its role to play when it comes to constructing a growth mindset and academic resilience. We once came across a story told by Dweck (2010) that, “…We will never forget one boy who had always cut up with his friends. Upon hearing the growth mind-set message, he chased his friends away, looked up at us, and asked with great emotion, “You mean I don't have to be dumb?”…” Before the intervention delivery, it was beyond our imagination of what it would feel like to be in the situation. However, we later encountered a similar question. While other students were preparing to go home after the final of day of the intervention ended, a boy came to us with our ‘Growth Mindset Brochure’ in his hand asking, “From what you told us which I had been told by no one before, it means I can still learn and I don’t have to care if others call me not by my name but by what they think I am such as ‘half-wit,’ right?” He continued, “I cannot read. I can barely write my school name. But I will try. One day, I will be able to read the entire brochure.” Back then, the boy might not realize yet that the sparkle of a growth mindset had already started to reside in him.

REFERENCES

Abel, N. R. (2013). *Trait emotional intelligence, perceived discrimination, and academic achievement among African American and Latina/o high school students: A study of academic resilience.* (Doctor of Education). Minnesota State University, Mankato, Mankato, Minnesota

Alfaro, E. C., Umana-Taylor, A. J., Gonzales-Backen, M. A., Bamaca, M. Y., & Zeiders, K. H. (2009). Latino adolescents' academic success: The role of discrimination, academic motivation, and gender. *Journal of Adolescence, 32*(4), 941-962. doi:10.1016/j.adolescence.2008.08.007

Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology, 38*(2), 113-125. doi:10.1006/jesp.2001.1491

Bangkok Post. (2018). O-Net scores still disappoint. Retrieved from https://www.bangkokpost.com/thailand/general/1438387/o-net-scores-still-disappoint

Bartley, M., Schoon, I., Mitchell, R., & Blane, D. (2009). *Resilience as an asset for healthy development*. Venice: WHO European Office for Investment for Health and Development.

Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*, 246–263.

Broda, M., Yun, J., Schneider, B., Yeager, D. S., Walton, G. M., & Diemer, M. (2018). Reducing inequality in academic success for incoming college students: A randomized trial of growth mindset and belonging interventions. *Journal of Research on Educational Effectiveness, 11*(3), 317-338. doi:10.1080/19345747.2018.1429037

Burnette, J. L., & Finkel, E. J. (2012). Buffering against weight gain following dieting setbacks: An implicit theory intervention. *Journal of Experimental Social Psychology, 48*(3), 721-725. doi:10.1016/j.jesp.2011.12.020

Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin, 139*(3), 655-701. doi:10.1037/a0029531

Burnette, J. L., Russell, M. V., Hoyt, C. L., Orvidas, K., & Widman, L. (2018). An online growth mindset intervention in a sample of rural adolescent girls. *British Journal of Educational Psychology, 88*(3), 428-445. doi:10.1111/bjep.12192

Cassidy, S. (2016). The academic resilience scale (ARS-30): A new multidimensional construct measure. *Frontiers in Psychology, 7*, 1-11. doi:10.3389/fpsyg.2016.01787

Cheung, S. (1995). Life events, classroom environment, achievement expectation, and depression among early adolescents. *Social Behavior and Personality, 23*, 83-92.

Cimpian, A., Arce, H. M., Markman, E. M., & Dweck, C. S. (2007). Subtle linguistic cues impact children's motivation. *Psychological Science, 18*, 314-316.

Claro, S., Paunesku, D., & Dweck, C. S. (2016). Growth mindset tempers the effects of poverty on academic achievement. *Proceedings of the National Academy of Sciences of the United States of America, 113*(31), 8664-8668. doi:10.1073/pnas.1608207113

Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African American youth: Context, self, action, and outcomes in school. *Child Development, 65*(2), 493-506.

Coohey, C., Renner, L. M., Hua, L., Zhang, Y. J., & Whitney, S. D. (2011). Academic achievement despite child maltreatment: A longitudinal study. *Child Abuse and Neglect, 35*(9), 688-699. doi:10.1016/j.chiabu.2011.05.009

Costa, A., & Faria, L. (2018). Implicit theories of intelligence and academic achievement: A meta-analytic review. *Frontiers in Psychology, 9*, 1-16. doi:10.3389/fpsyg.2018.00829

Crosnoe, R., & Elder, G. H. (2004). Family dynamics, supportive relationships, and educational resilience during adolescence. *Journal of Family Issues, 25*(5), 571-602. doi:10.1177/0192513x03258307

DeBacker, T. K., Heddy, B. C., Kershen, J. L., Crowson, H. M., Looney, K., & Goldman, J. A. (2018). Effects of a one-shot growth mindset intervention on beliefs about

intelligence and achievement goals. *Educational Psychology, 38*(6), 711-733. doi:10.1080/01443410.2018.1426833

Demetriou, H. (2018). *Empathy, emotion & education*. London: Springer Nature.

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the short grit scale (grit-s). *Journal of Personality Assessment, 91*(2), 166-174. doi:10.1080/00223890802634290

Dudovitz, R. N., Chung, P. J., & Wong, M. D. (2017). Teachers and coaches in adolescent social networks are associated with healthier self-concept and decreased substance use. *Journal of school health, 87*(1), 12-20.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality and development*. Philadelphia: Taylor and Francis/Psychology Press.

Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality and development*. Philadelphia: Psychology Press.

Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY: Random House.

Dweck, C. S. (2008). *Mindsets and math/science achievement*. Retrieved from http://www.growthmindsetmaths.com/uploads/2/3/7/7/23776169/mindset_and_math_science_achievement_-_nov_2013.pdf

Dweck, C. S. (2010). Mind-sets and equitable education. *Principal Leadership, 10*(5), 26-29.

Dweck, C. S., Chiu, C.-y., & Hong, Y.-y. (1995). Implicit theories: Elaboration and extension of the model. *Psychological Inquiry, 6*(4), 322-333. doi:10.1207/s15327965pli0604_12

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256-273.

Equitable Education Fund. (2018). เด็กยากจน 1.69 ล้านคน พวกเขาและเธออยู่ที่ไหน? Retrieved from https://www.eef.or.th/%E0%B9%80%E0%B8%94%E0%B9%87%E0%B8%81%E0%B8%A2%E0%B8%B2%E0%B8%81%E0%B8%88%E0%B8%99/

Ericsson, K. A., Charness, N., Feltovich, P. J., & Hoffman, R. R. (2006). *The Cambridge handbook of expertise and expert performance*. New York: Cambridge

University Press.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*(2), 221-234. doi:10.1037/0021-9010.82.2.221

Flannery, M. (2016). *Growth mindset and its impact on learning and school culture*. Retrieved from https://scholar.googleusercontent.com/scholar?q=cache:jL06ETPy4rEJ:scholar.google.com/&hl=en&as_sdt=0,5

Garmezy, N., & Masten, A. S. (1986). Stress, competence, and resilience: Common frontiers for therapist and psychopathologist. *Behavior Therapy, 17*(5), 500-521.

Ghaith, G. M. (2002). The relationship between cooperative learning, perception of social support, and academic achievement. *System, 30*(3), 263-273.

Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied Developmental Psychology, 24*(6), 645-662.

Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence, 13*(1), 21-43.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7 ed.). Upper Saddle River, New Jersey: Pearson Education International.

Hampton, F. M. (2016). The seven secrets of successful urban school students: The evidence continues to grow. *Education and Urban Society, 48*(5), 423-443.

Harada, N. (2011). *Developing a growth mindset with Harry Potter.* Paper presented at the JALT2010, Tokyo.

Harris, N., Hartley, S., Sexton, K., Symons, R., & Williams, E. (2010). *Illustrated encyclopedia: Human body*. Oxfordshire: Orpheus Books.

Hodge, B., Wright, B., & Bennett, P. (2018). The role of grit in determining engagement and academic outcomes for university students. *Research in Higher Education, 59*(4), 448-460.

Hong, Y.-y., Chiu, C.-y., Dweck, C. S., Lin, D. M.-S., & Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. *Journal of Personality*

and Social psychology, 77(3), 588-599.

House, J. S. (1981). *Work stress and social support*. Reading, MA Addison-Wesley.

Huang, S.-y. L., & Waxman, H. C. (1996). *Comparing learning environment of resilient and nonresilient Asian American students*. Paper presented at the Research for Education in a Democratic Society, New York City, NY.

Huansuriya, T., & Ariyabuddhiphongs, K. (2018). *Growth and fixed mindset in Thai culture: The development of general and personal implicit theories of intelligence scales*. Manuscript. Basic and Applied Social Psychology. Chulalongkorn University. Bangkok.

Irvin, M. J. (2012). Role of student engagement in the resilience of african american adolescents from low-income rural communities. *Psychology in the Schools, 49*(2), 176-193. doi:10.1002/pits.20626

Kamins, M. L., & Dweck, C. S. (1999). Person versus process praise and criticism: Implications for contingent self-worth and coping. *Developmental psychology, 35*(3), 835-847.

Kania, B. F., Wronska, D., & Zieba, D. (2017). Introduction to neural plasticity mechanism. *Journal of Behavioral and Brain Science, 7*(2), 41-49. doi:10.4236/jbbs.2017.72005

Kannangara, C. S., Allen, R. E., Waugh, G., Nahar, N., Khan, S. Z. N., Rogerson, S., & Carson, J. (2018). All that glitters is not grit: Three studies of grit in university students. *Front Psychol, 9*, 1539. doi:10.3389/fpsyg.2018.01539

Kornilova, T. V., Kornilov, S. A., & Chumakova, M. A. (2009). Subjective evaluations of intelligence and academic self-concept predict academic achievement: Evidence from a selective student population. *Learning and Individual Differences, 19*(4), 596-608. doi:10.1016/j.lindif.2009.08.001

LaForett, D. R., Watt, N. F., Diaz, L., McCullough, J., & Barrueco, S. (2000). *Resilience and reading proficiency of head start graduates in inner-city schools*. Paper presented at the 5th Annual Head Start National Research Conference: Developmental and Contextual Transitions of Children and Families.

Leary, K. A., & DeRosier, M. E. (2012). Factors promoting positive adaptation and resilience during the transition to college. *Psychology, 3*(12), 1215-1222.

doi:10.4236/psych.2012.312A180

Lim, W., Plucker, J. A., & Im, K. (2002). We are more alike than we think we are: Implicit theories of intelligence with a Korean sample. *Intelligence, 30*(2), 185-208. doi:10.1016/s0160-2896(01)00097-6

Luo, S. W., Lee, K., Ong, J., Wong, H. M., & Foo, S. F. (2014). *Implicit theories of ability, homework behavior, and achievement.* Paper presented at the 40th Annual Conference of the International Association of Educational Assessment (IAEA) on "Assessment Innovations for the 21st Century", Singapore.

Luo, W., Lee, K., Ng, P. T., & Ong, J. X. W. (2014). Incremental beliefs of ability, achievement emotions and learning of Singapore students. *Educational Psychology, 34*(5), 619-634. doi:10.1080/01443410.2014.909008

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562.

Magno, C. (2012). Implicit theories of intelligence, achievement goal orientation, and academic achievement of engineering students. *The International Journal of Research and Review, 9*, 32-43.

Malecki, C. K., & Demaray, M. K. (2003). What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support. *School Psychology Quarterly, 18*(3), 231-252.

Malecki, C. K., & Demaray, M. K. (2006). Social support as a buffer in the relationship between socioeconomic status and academic performance. *School Psychology Quarterly, 21*(4), 375-395. doi:10.1037/h0084129

Marsh, H. W., & Martin, A. J. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools, 43*(3), 267-281. doi:10.1002/pits.20149

Martin, A. J. (2013). Academic buoyancy and academic resilience: Exploring 'everyday' and 'classic' resilience in the face of academic adversity. *School Psychology International, 34*(5), 488-500. doi:10.1177/0143034312472759

Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology, 46*(1), 53-

83. doi:10.1016/j.jsp.2007.01.002

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227-238. doi:10.1037//0003-066x.56.3.227

Matichon. (2018). ช้างเผือกภูธร!! "น้องเชลซี" นร.หญิง"ป.6"ร.ร.ภูกระดึง สอบโอเน็ตภาษาอังกฤษ 100 คะแนนเต็ม. Retrieved from http://www.hub.interscholarship.com/studyabroad/430/#

McWhirter, E. H. (1996). *Teacher Support Scale (TSS): A measure of support experienced by high school students from their high school teachers*. Manuscript.

Mercer, S., & Ryan, S. (2009). A mindset for EFL: Learners' beliefs about the role of natural talent. *English Language Teaching, 64*(4), 436-444. doi:10.1093/elt/ccp083

Mercer, S. H., Nellis, L. M., Martínez, R. S., & Kirk, M. (2011). Supporting the students most in need: Academic self-efficacy and perceived teacher support in relation to within-year academic growth. *Journal of School Psychology, 49*(3), 323-338.

Metheny, J., McWhirter, E. H., & O'Neil, M. E. (2008). Measuring perceived teacher support and its influence on adolescent career development. *Journal of Career Assessment, 16*(2), 218-237. doi:10.1177/1069072707313198

Mills, I. M., & Mills, B. S. (2018). Insufficient evidence: Mindset intervention in developmental college math. *Social Psychology of Education, 21*(5), 1045-1059. doi:10.1007/s11218-018-9453-y

Mindset Works Inc. (2002). You can grow your intelligence. Retrieved from https://www.mindsetworks.com/websitemedia/youcangrowyourintelligence.pdf

Ministry of Education Thailand (Producer). (2016a). English for Thailand: ดาราและคนดังชวนเรียนภาษาอังกฤษ. Retrieved from https://www.youtube.com/watch?v=3QZcM-BIIXo

Ministry of Education Thailand. (2016b). ภาษาอังกฤษเด็กไทยไม่ก้าวหน้าปัญหาอยู่ที่ใคร? Retrieved from http://www.moe.go.th/moe/th/news/detail.php?NewsID=45063&Key=hotnews

Ministry of Education Thailand. (2017). To learn English, we must think outside box. Retrieved from http://www.en.moe.go.th/enMoe2017/index.php/articles/36-to-

learn-english-we-must-think-outside-box

Molden, D. C., & Dweck, C. S. (2006). Finding "meaning" in psychology: A lay theories approach to self-regulation, social perception, and social development. *American Psychologist, 61*(3), 192-203. doi:10.1037/0003-066X.61.3.192

Morales, E. E. (2014). Learning from success: How original research on academic resilience informs what college faculty can do to increase the retention of low socioeconomic status students. *International Journal of Higher Education, 3*(3), 92-102. doi:10.5430/ijhe.v3n3p92

Murray, C., Murray, K. M., & Waas, G. A. (2008). Child and teacher reports of teacher–student relationships: Concordance of perspectives and associations with school adjustment in urban kindergarten classrooms. *Journal of Applied Developmental Psychology, 29*(1), 49-61. doi:10.1016/j.appdev.2007.10.006

National Institute of Educational Testing Service. (2018). Summary results of ordinary national educational test (O-NET) of mattayom 3 students in academic year 2017. Retrieved from http://www.newonetresult.niets.or.th/AnnouncementWeb/Login.aspx

Nicaise, I., Tonguthai, P., & Fripont, I. (2000). *School dropout in Thailand: Causes and remedies*. Leuven: Katholieke Universiteit Leuven.

Noom-ura, S. (2013). English-teaching problems in Thailand and Thai teachers' professional development needs. *English Language Teaching, 6*(11), 139-147. doi:10.5539/elt.v6n11p139

Organization for Economic Co-operation and Development. (2018). PISA test. Retrieved from http://www.oecd.org/pisa/test/

Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-set interventions are a scalable treatment for academic underachievement. *Psychological Science, 26*(6), 784-793. doi:10.1177/0956797615571017

Poomkokruk, A. (2016). *Illustrated encyclopedia: Human body*. Bangkok: MIS Publishing.

Raskauskas, J., Rubiano, S., Offen, I., & Wayland, A. K. (2015). Do social self-efficacy and self-esteem moderate the relationship between peer victimization and academic performance? *Social Psychology of Education, 18*(2), 297-314.

doi:10.1007/s11218-015-9292-z

Rattan, A., Good, C., & Dweck, C. S. (2012). “It's ok — Not everyone can be good at math”: Instructors with an entity theory comfort (and demotivate) students. *Journal of Experimental Social Psychology, 48*(3), 731-737. doi:10.1016/j.jesp.2011.12.012

Robins, R. W., & Pals, J. L. (2002). Implicit self-theories in the academic domain: Implications for goal orientation, attributions, affect, and self-esteem change. *Self and Identity, 1*(4), 313-336. doi:10.1080/15298860290106805

Romero, C., Master, A., Paunesku, D., Dweck, C. S., & Gross, J. J. (2014). Academic and emotional functioning in middle school: The role of implicit theories. *Emotion, 14*(2), 227-234. doi:10.1037/a0035490

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry, 147*(6), 598-611.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American journal of orthopsychiatry, 57*(3), 316-331.

Ryan, A. M., & Patrick, H. (2001). The classroom social environment and changes in adolescents’ motivation and engagement during middle school. *American Educational Research Journal, 38*(2), 437-460. doi:10.3102/00028312038002437

Sanonguthai, S. (2014). Ready or not? The state of Thai schools in response to the ASEAN English language policy. *Thammasat Review, 16*(2), 128-142.

Sarkar, M., & Fletcher, D. (2013). How should we measure psychological resilience in sport performers? *Measurement in Physical Education and Exercise Science, 17*(4), 264-280. doi:10.1080/1091367x.2013.805141

Sarrasin, J. B., Nenciovici, L., Foisy, L.-M. B., Allaire-Duquette, G., Riopel, M., & Masson, S. (2018). Effects of teaching the concept of neuroplasticity to induce a growth mindset on motivation, achievement, and brain activity: A meta-analysis. *Trends in Neuroscience and Education, 12*, 22-31. doi:10.1016/j.tine.2018.07.003

Schafer, J. L. (1999). Multiple imputation: A primer. *Statistical methods in medical research, 8*(1), 3-15.

Schetter, C. D., & Dolbier, C. (2011). Resilience in the context of chronic stress and health in adults. *Social and Personality Psychology Compass, 5*(9), 634-652.

doi:10.1111/j.1751-9004.2011.00379.x

Sharkey, J. D., You, S., & Schnoebelen, K. (2008). Relations among school assets, individual resilience, and student engagement for youth grouped by level of family functioning. *Psychology in the Schools, 45*(5), 402-418. doi:10.1002/pits.20305

Sisk, V. F., Burgoyne, A. P., Sun, J., Butler, J. L., & Macnamara, B. N. (2018). To what extent and under which circumstances are growth mind-sets important to academic achievement? Two meta-analyses. *Psychological Science, 29*(4), 549-571. doi:10.1177/0956797617739704

Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology, 100*(4), 765-781. doi:10.1037/a0012840

Tarbetsky, A. L., Collie, R. J., & Martin, A. J. (2016). The role of implicit theories of intelligence and ability in predicting achievement for Indigenous (Aboriginal) Australian students. *Contemporary Educational Psychology, 47*, 61-71. doi:10.1016/j.cedpsych.2016.01.002

Thaipublica. (2017). ถอดรหัสผล PISA 2015 พบกลุ่มช้างเผือก “เด็กด้อยโอกาสยากจนไทย” มีคะแนนสูงระดับโลก. Retrieved from https://thaipublica.org/2017/06/pisa-2015-resilient-student/

Thaipublica. (2018). กสศ. สำรวจนักเรียนยากจนมี 1.69 ล้านคน ชี้ยากจนพิเศษ 6 แสนคน มีรายได้เฉลี่ยวันละ 42.7 บาท/ครอบครัว. Retrieved from https://thaipublica.org/2018/08/thai-education-reform-3/

Thairath Online. (2018). สทศ. เผยคะแนนเฉลี่ยโอเน็ตปี 60 ไม่ต่างจากปีก่อน 4 วิชา เพิ่มลดใกล้ ๆ กัน. Retrieved from https://www.thairath.co.th/news/society/1239191

Thumthong, D., Sirasoondhorn, P., Buason, R., & Siripornpaiboon, T. (2013). Problem of underprivileged children in education: Situation of inequality in Thailand. *Journal of Humanities and Social Sciences*, 123-141.

Tudor, K. E., & Spray, C. M. (2017). Approaches to measuring academic resilience: A systematic review. *International Journal of Research Studies in Education, 7*(4), 41-61. doi:10.5861/ijrse.2017.1880

UNICEF. (2007). *A Human rights-based approach to education for all: A framework for*

the realization of children's right to education and rights within education. New York: UNICEF.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1997). *Fostering educational resilience in inner-city schools*. Retrieved from https://eric.ed.gov/?id=ED419856

Waxman, H. C., Huang, S.-y. L., & Padron, Y. N. (1997). Motivation and learning environment differences between resilient and nonresilient Latino middle school students. *Hispanic Journal of Behavioral Sciences, 19*(2), 137-155.

Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology, 89*(3), 411-419.

Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes, 9*(1), 1-18. doi:10.1186/1477-7525-9-8

Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational Psychologist, 47*(4), 302-314. doi:10.1080/00461520.2012.722805

Yeager, D. S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., Hinojosa, C., . . . Dweck, C. S. (2016). Using design thinking to improve psychological interventions: The case of the growth mindset during the transition to high school. *Journal of Educational Psychology, 108*(3), 374-391. doi:10.1037/edu0000098

APPENDICES

APPENDIX A

GROWTH MINDSET IN ENGLISH INTELLIGENCE SCALE

1. Growth Mindset in English Intelligence Scale

This Growth Mindset in English Intelligence Scale was adapted from the Personal Implicit Theories of Intelligence Scale (Huansuriya & Ariyabuddhiphongs, 2018). The original scale items and the newly adapted items before the scale development are in Table 26.

Table 26

Original and Adapted Growth Mindset Scales Before Scale Development

ข้อ	มาตรวัดความเชื่อตามทฤษฎีนัยความฉลาดของตนเอง (Personal Implicit Theories of Intelligence Scale)	มาตรวัดกรอบคิดเติบโตในความฉลาดภาษาอังกฤษ (Growth Mindset in English Intelligence Scale)
1	ฉันเปลี่ยนแปลงระดับสติปัญญาหรือความฉลาดของตัวฉันเองไม่ได้หรอก	ฉันเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของตัวฉันเองไม่ได้หรอก
2	ฉันเรียนรู้สิ่งใหม่ ๆ ได้ แต่ฉันไม่สามารถเปลี่ยนระดับสติปัญญาหรือความฉลาดที่เป็นพื้นฐานเดิมของฉันได้	ฉันเรียนรู้สิ่งใหม่ ๆ ได้ แต่ฉันไม่สามารถเปลี่ยนระดับความเก่งภาษาอังกฤษที่เป็นพื้นฐานเดิมของฉันได้
3	สติปัญญาหรือความฉลาดของฉันเป็นคุณสมบัติตามธรรมชาติที่ไม่สามารถเปลี่ยนได้มากนัก	ความเก่งภาษาอังกฤษของฉันเป็นคุณสมบัติตามธรรมชาติที่ไม่สามารถเปลี่ยนได้มากนัก
4	ฉันไม่สามารถทำอะไรเพื่อเปลี่ยนระดับสติปัญญาหรือความฉลาดที่ฉันมีอยู่ได้	ฉันไม่สามารถทำอะไรเพื่อเปลี่ยนระดับความเก่งภาษาอังกฤษที่ฉันมีอยู่ได้
5	ฉันสามารถเปลี่ยนระดับสติปัญญาหรือความฉลาดของฉันได้	ฉันสามารถเปลี่ยนระดับความเก่งภาษาอังกฤษของฉันได้
6	ฉันสามารถเปลี่ยนแปลงระดับสติปัญญาหรือความฉลาดของฉันไปจากเดิมได้อีกมาก	ฉันสามารถเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของฉันไปจากเดิมได้อีกมาก
7	ไม่ว่าตอนนี้จะมีระดับสติปัญญาหรือความฉลาดอยู่ในระดับใด ฉันก็ยังสามารถเปลี่ยนแปลงมันได้อีก	ไม่ว่าตอนนี้จะมีระดับความเก่งภาษาอังกฤษอยู่ในระดับใด ฉันก็ยังสามารถเปลี่ยนแปลงมันได้อีก
8	ฉันสามารถเพิ่มพูนสติปัญญาหรือความฉลาดให้มากขึ้นจากพื้นฐานเดิมของฉันเองได้เสมอ	ฉันสามารถเพิ่มพูนความเก่งภาษาอังกฤษให้มากขึ้นจากพื้นฐานเดิมของฉันเองได้เสมอ

2. Growth Mindset in English Intelligence Scale Development

The details of the Growth Mindset in English Intelligence Scale development are as follows:

2.1 Participants were 560 general junior high school students (Mattayom one to Mattayom three), aged 12-16. Each of them completed the scale online via

Surveygizmo.com or responded to the paper-based version survey. We distributed the survey link and the paper-based survey to teachers, parents, relatives, and legal guardians of children that fitted the age of our potential participants and asked the adults to pass down the link or the survey sheets to their children.

2.2 Measures were

2.2.1 Demographic data: age, sex, academic level, and school name.

2.2.2 The Growth Mindset in English Intelligence Scale which was adapted from the Personal Implicit Theories of Intelligence Scale (Huansuriya & Ariyabuddhiphongs, 2018). The scale was previously translated and developed from Dweck's General Implicit Theories of Intelligence Scale (2000). There are totally 8 items. The first 4 items reflect a fixed mindset and the other 4 items reflect a growth mindset. All items in the newly adapted scale concern an individual's belief about the flexibility of his/her English intelligence. "I can always substantially change how intelligent I am in the English subject" is an example of our scale items. Originally, the answer to each item was based on a 1-7 Likert-type scale. We reduced it to 1-5, with 1 equals strongly disagree and 5 equals strongly agree. The reduction was to make it easier for the target participants to select the answers.

2.3 Data collection procedure

2.3.1 To be able to conceptually and operationally define the variable, we conducted a literature review by gathering ideas and related studies about the variable of interest that we aimed to create a measure.

2.3.2 We searched for the existing developed and validated measures that appeared to appropriately match our study.

2.3.3 The Personal Implicit Theories of Intelligence Scale (Huansuriya & Ariyabuddhiphongs, 2018), which is already in Thai, was selected.

2.3.4 We adjusted some wordings in order to make the scale more specific about the English intelligence and to make it easier for our target Mattayom two participants to understand the item language better.

2.3.5 According to Hair, Black, Babin, and Anderson (2010), in order to conduct a factor analysis, at least 5 to 10 respondents are required for each item of

each measure. Since there are 8 items, at least 40 to 80 respondents were needed. The number of our respondents exceeded the required sample size.

2.3.6 The scale was delivered both online and in the paper-based version to teachers, parents, relatives, and legal guardians of children who are 12-16 years old, currently studying in the junior high school level. We asked them to share the survey link and the paper-based survey to their children who we considered our potential participants in the measure development procedure.

2.3.7. After receiving the survey link or the paper-based survey and prior to responding to the items, each participant was provided with a consent form consisting of 1) the purposes of the survey 2) the total number of questions and the approximate amount of time to be taken 3) the emphasis on the importance of giving true responses which would be a valuable contribution to the development of a research measure and to the academic field 4) the assurance that no response would be judged as right or wrong 5) the assurance of the confidentiality of the data and of the respondents' information 6) the assurance that neither risks nor negative effects would occur and 6) the contact information of the researcher and the researcher's advisor.

2.3.8 After the data were obtained, we proceeded with the data analyses to evaluate the quality of our measure.

2.4 Factor structure

2.4.1 To assess the appropriateness of the scale items for factor analysis, two initial analyses were executed. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .831 which was considered acceptable and Bartlett's Test of Sphericity reached the significance level ($p < .001$). The results of the test of the scale item appropriateness revealed that all the items were adequately related.

2.4.2 Since the two analyses were satisfactory, the exploratory factor analysis was conducted with the Principal axis factoring and oblique (promax) rotation.

2.4.3 Two factors emerged with 4 fixed-mindset items loaded on the same factor. The factor loadings for this factor from item 1 to item 4 were .698, .778, .773, and .654 respectively. The factor was labeled "Fixed Mindset about English

Intelligence." The 4 growth-mindset items also loaded on the same factor. The factor loadings for this factor from item 5 to item 8 were .659, .866, .797, and .739 respectively. This factor was labeled "Growth Mindset about English Intelligence" (see Table 27). The cumulative percent of variance was 56.515.

2.5 Reliability analysis

2.5.1 The internal consistency analyses were conducted in order to assess the reliability of the scale items. The analyses were to assess each factor separately and the global measure. The Cronbach's alpha for Factor 1 (Fixed Mindset) was .818 and for Factor 2 (Growth Mindset) was .846. Moreover, 4 negatively phrased items (reflecting a fixed mindset) were reversed, resulting in totally 8 items of a growth mindset. A high score indicated having a growth mindset whereas a low score meant inclining to have a fixed mindset. The Cronbach's alpha for the global scale was .836 (see Table 27).

2.5.2 The item-scale analysis was conducted. Corrected Item-Total Correlations (CITC) were calculated separately for each factor, with 4 items for Factor 1 and another 4 items for Factor 2. We set the criterion for the retention of each item at the CITC greater than .300 (approximately 10% of variance in the item was shared with the total score of other items). All the 8 items met the requirement. The CITCs for items 1 to 4 in Factor 1 were .640, .691, .630, and .596 respectively and for items 5 to 8 in Factor 2 were .584, .768, .719, and .674 respectively (see Table 27).

Since none of the scale items was deleted during the process of the factor and reliability analyses after the development of the Growth Mindset in English Intelligence Scale, all the 8 items were retained to be used to create a measure for the research participants.

2.6 Validity analysis

2.6.1 We tested the construct validity of the Growth Mindset in English Intelligence Scale by analyzing the convergent validity. It was to test whether our newly developed growth mindset scale would have a correlation with another construct that it should be related with. In the previous studies (e.g., Kannangara et al., 2018), a significant association between a growth mindset and grit was found.

Thus, we conducted a validity analysis between our newly developed scale and the short 8-item grit scale (Grit-S) by Duckworth and Quinn (2009).

2.6.2 The short grit scale served as one of the four measures in the survey we delivered.

2.6.3 After converting the fixed mindset item scores into the growth mindset scores and the negatively phrased grit scores into positive scores, we ran a correlation analysis using the means of the two measures.

2.6.4 A statistically significant positive correlation between our Growth Mindset in English Intelligence Scale (M = 3.989, SD = .636) and the Grit-S (M = 3.507, SD = .580) was found ($r(482) = .346$, $p < .001$). The correlation reflected the convergent validity of our scale. It indicates that students who believe that their English intelligence and ability is flexible, with the potential to be changed and developed, are inclined to persevere in pursuit of goals, to have hardiness, to be resilient and to be conscientious, especially when the English subject is concerned.

Table 27

Results of Factor Analysis and Reliability Analyses of Growth Mindset in English Intelligence Scale

Factors	Item Codes	Items	CITC	EFA
Fixed Mindset about English Intelligence (α = .818)	F1	ฉันเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของตัวฉันเองไม่ได้หรอก	.640	.698
	F2	ฉันเรียนรู้สิ่งใหม่ ๆ ได้ แต่ฉันไม่สามารถเปลี่ยนระดับความเก่งภาษาอังกฤษที่เป็นพื้นฐานเดิมของฉันได้	.691	.778
	F3	ความเก่งภาษาอังกฤษของฉันเป็นคุณสมบัติตามธรรมชาติที่ไม่สามารถเปลี่ยนได้มากนัก	.630	.773
	F4	ฉันไม่สามารถทำอะไรเพื่อเปลี่ยนระดับความเก่งภาษาอังกฤษที่ฉันมีอยู่ได้	.596	.654
Growth Mindset about English Intelligence (α = .846)	G1	ฉันสามารถเปลี่ยนระดับความเก่งภาษาอังกฤษของฉันได้	.584	.659
	G2	ฉันสามารถเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของฉันไปจากเดิมได้อีกมาก	.768	.866
	G3	ไม่ว่าตอนนี้จะมีระดับความเก่งภาษาอังกฤษอยู่ในระดับใด ฉันก็ยังสามารถเปลี่ยนแปลงมันได้อีก	.719	.797
	G4	ฉันสามารถเพิ่มพูนความเก่งภาษาอังกฤษให้มากขึ้นจากพื้นฐานเดิมของฉันเองได้เสมอ	.674	.739

APPENDIX B

ACADEMIC RESILIENCE IN ENGLISH SCALE

1. Academic Resilience in English Scale

The Academic Resilience in English Scale was adapted from the Academic Resilience Scale (ARS-30) (Cassidy, 2016). The scenario, original scale items, and the translated and adapted items before the scale development (see Table 28) are as follows:

"ฉันเป็นนักเรียนชั้น ม. 2 ครูภาษาอังกฤษมอบหมายงานทั้งหมด 3 งานด้วยกัน และคะแนนจากทั้ง 3 ชิ้นงานจะเป็นตัวตัดสินว่าฉันจะได้เกรดในวิชาภาษาอังกฤษดีเพียงพอที่จะผ่านไปเรียนต่อในชั้น ม.3 หรือไม่ ฉันตั้งความหวังว่าจะผ่านไปเรียนต่อไว้สูงมากและไม่อยากทำให้ครอบครัว คนรอบข้างและตัวเองผิดหวัง ผลปรากฏว่า ฉันไม่ผ่านงานชิ้นแรกซึ่งเป็นงานเขียน ครูเขียนแสดงความเห็นไว้ท้ายกระดาษว่า ฉัน "ขาดความเข้าใจในเรื่องที่เขียน" และ "เขียนสื่อสารได้ไม่ดี" งานชิ้นที่สองเป็นการพูด ฉันก็ได้คะแนนน้อยมาก ครูให้ความเห็นว่า ฉัน "ไม่มีความมั่นใจ" และ "พูดตะกุกตะกัก" ส่วนงานชิ้นที่สามเป็นการอ่านออกเสียงและจับใจความ ครูให้ความเห็นว่า ฉัน "อ่านไม่คล่อง" และ "ขาดทักษะการจับใจความ" นอกจากการแสดงความเห็น ครูก็จะบอกวิธีการปรับปรุงเพื่อให้การทำงานแต่ละชิ้นดีขึ้น"

Table 28

Original and Adapted Academic Resilience Scales Before Scale Development

ข้อ	มาตรวัดการฟื้นคืนได้ทางการเรียน (Academic Resilience Scale: ARS-30)	มาตรวัดการฟื้นคืนได้ทางการเรียนวิชาภาษาอังกฤษ
1	I would not accept the tutors' feedback.	ฉันจะไม่ยอมรับความคิดเห็นของครู
2	I would use the feedback to improve my work.	ฉันจะนำความคิดเห็นนั้นมาปรับปรุงงานของฉัน
3	I would just give up.	ฉันคงจะยอมแพ้
4	I would use the situation to motivate myself.	ฉันจะนำสถานการณ์ที่เกิดขึ้นมาเป็นแรงจูงใจให้ตัวเอง
5	I would change my career plans.	ฉันจะเปลี่ยนแผนการเรียนต่อที่วางไว้
6	I would probably get annoyed.	ฉันอาจจะรู้สึกไม่พอใจ
7	I would begin to think my chances of success at university were poor.	ฉันจะเริ่มคิดว่าโอกาสที่จะได้เรียนต่อระดับชั้นต่อไปนั้นน้อยเต็มที
8	I would see the situation as a challenge.	ฉันจะมองว่าสถานการณ์ที่เกิดขึ้นเป็นความท้าทายหนึ่งเท่านั้น

Table 28

Original and Adapted Academic Resilience Scales Before Scale Development (Cont.)

ข้อ	มาตรวัดการฟื้นคืนได้ทางการเรียน (Academic Resilience Scale: ARS-30)	มาตรวัดการฟื้นคืนได้ทางการเรียนวิชาภาษาอังกฤษ (Academic Resilience in English Scale)
9	I would do my best to stop thinking negative thoughts.	ฉันจะพยายามอย่างดีที่สุดที่จะเลิกนึกถึงความคิดลบ ๆ
10	I would see the situation as temporary.	ฉันจะมองว่าสถานการณ์นี้เกิดขึ้นเพียงชั่วคราว เดี๋ยวก็ผ่านไป
11	I would work harder.	ฉันจะขยันเรียนวิชาภาษาอังกฤษมากขึ้น
12	I would probably get depressed.	ฉันอาจจะรู้สึกหมดกำลังใจที่จะเรียนภาษาอังกฤษ
13	I would try to think of new solutions.	ฉันจะพยายามคิดถึงทางออกใหม่ ๆ
14	I would be very disappointed.	ฉันจะผิดหวังอย่างมาก
15	I would blame the tutor.	ฉันจะโทษว่าเป็นความผิดของครู
16	I would keep trying.	ฉันจะยังคงพยายามต่อไปเรื่อย ๆ
17	I would not change my long-term goals and ambitions.	ฉันจะไม่เปลี่ยนเป้าหมายและความทะเยอทะยานของตัวเองในการเรียนภาษาอังกฤษ
18	I would use my past successes to help motivate myself.	ฉันจะนำเอาความสำเร็จในอดีตมาสร้างแรงจูงใจในการเรียนภาษาอังกฤษให้ตัวเอง
19	I would begin to think my chances of getting the job I want were poor.	ฉันจะเริ่มคิดว่าโอกาสที่จะได้เรียนต่อในระดับมัธยมปลายนั้นน้อยเต็มที
20	I would start to monitor and evaluate my achievements and effort.	ฉันจะเริ่มติดตามและประเมินความสำเร็จและความพยายามในการเรียนภาษาอังกฤษของตัวเอง
21	I would seek help from my tutors.	ฉันจะขอความช่วยเหลือจากครูคนอื่น ๆ
22	I would give myself encouragement.	ฉันจะให้กำลังใจตัวเอง
23	I would stop myself from panicking.	ฉันจะบอกตัวเองให้หยุดตื่นตระหนก
24	I would try different ways to study.	ฉันจะลองใช้วิธีการเรียนแบบอื่น ๆ
25	I would set my own goals for achievement.	ฉันจะตั้งเป้าหมายความสำเร็จของตัวเอง
26	I would seek encouragement from my family and friends.	ฉันจะขอกำลังใจจากครอบครัวและเพื่อน ๆ
27	I would try to think more about my strengths and weaknesses to help me work better.	ฉันจะพยายามคิดถึงทั้งจุดเด่นและจุดด้อยของตัวเองเพื่อมาช่วยให้ฉันทำได้ดีขึ้นในวิชาภาษาอังกฤษ
28	I would feel like everything was ruined and was going wrong.	ฉันจะรู้สึกว่าทุกอย่างพังทลายลงและผิดพลาดไปหมด
29	I would start to self-impose rewards and punishments depending on my performance.	ฉันจะเริ่มให้รางวัลและลงโทษตัวเอง ขึ้นอยู่กับว่าฉันทำผลงานวิชาภาษาอังกฤษได้ดีแค่ไหน
30	I would look forward to showing that I can improve my grades.	ฉันจะรอคอยที่จะแสดงให้เห็นว่าฉันสามารถปรับปรุงเกรดวิชาภาษาอังกฤษได้

2. Academic Resilience in English Scale Development

The details of the Academic Resilience in English Scale development are as follows:

2.1 Participants were 487 general junior high school students (Mattayom one to Mattayom three), aged 12-16. They were the same individuals who responded to the Growth Mindset in English Intelligence Scale. However, as this scale was placed the third among 4 scales in the survey, some decided to drop out before giving responses and some did not meet the criterion of our manipulation check, it resulted in the remaining of 487 participants. Each of the participants completed the scale online via Surveygizmo.com or responded to the paper-based version survey.

We distributed the survey link and the paper-based survey to teachers, parents, relatives, and legal guardians of children that fitted the age of our target participants and asked the adults to pass down the link or the survey sheets to their children.

2.2 Measures were

2.2.1 Demographic data: age, sex, academic level, and school name.

2.2.2 The Academic Resilience in English Scale which was adapted from the Academic Resilience Scale (ARS-30) by Cassidy (2016). The original scale comprises of a short scenario instructing each university participant to imagine himself/herself as the university student in it and followed by the rating of 30 items related to the scenario. All the items measure respondents' behavioral and cognitive-affective responses to academic obstacles and adversities with 5-point Likert-type scale answers where 1 equals "likely" to 5 equals "unlikely." For our scale that we developed, we adjusted the details in the scenario to match our target research participants (junior high school students) and to match the subject of interest; English. In addition, Cassidy's 30 items were translated into Thai and adjusted to focus on the English subject as well. Next, to make the item response choices consistent with other scales in this research, they were changed to 1 equals "very unlikely" to 5 equals "very likely." Example of items are "I would feel like everything was ruined and was going wrong," "I would see the situation as temporary," and "I would try different ways to study."

2.3 Data collection procedure

2.3.1 We conducted a literature review of related concepts and studies about academic resilience that we aimed to create a measure.

2.3.2 We searched for the existing developed and validated measures that appeared to appropriately match the variable of interest in our study.

2.3.3 Among the measures by several researchers, the Academic Resilience Scale (ARS-30) by Cassidy (2016) was selected.

2.3.4 The scenario was adjusted for our target junior high school participants. It depicts a student who faces academic challenges in the junior high school level. The student does poorly in all the English assignments that he/she in fact needs good scores in order to pass to the next academic level and to make her beloved ones proud. The English teacher's comments and feedbacks for the assignments are critical such as "Lack of skills and understanding" and "Lack of confidence."

2.3.5 The 30 items following the short scenario were translated into Thai. Some wordings were added or cut off to make it easier for our participants to comprehend. We also adjusted the items to be specific about the English subject.

2.3.6 Along with the scenario and the 30 translated items, we also added 4 items as a manipulation check to assess the authenticity and the possibility of our scenario. The 4 manipulation check items were "Generally, what happens in the scenario I just read is likely to happen in the real life," "What happens in the scenario is likely to happen with me," "What happens in the scenario is likely to happen with my classmates," and "While reading, I had been imagining about what happens in the scenario." Respondents were provided with 5-point Likert-type scale answers with 1 equals very unlikely and 5 equals very likely. In order to pass our manipulation check, each respondent must have the average score of all the 4 manipulation check items greater than 3 or otherwise we would not proceed further with the analysis of the data from that particular participant. With the criterion for the manipulation check that some did not pass and with the fact that some dropped out before responding to this Academic Resilience in English Scale, 487 people remained as respondents.

2.3.7 According to Hair et al. (2010), in order to conduct a factor analysis, at least 5 to 10 respondents are required for each item of each measure. Since there are 30 items, at least 150 to 300 respondents were needed. The number of our respondents still exceeded the required sample size.

2.3.8 The scale was delivered both online and in the paper-based version to teachers, parents, relatives, and legal guardians of children who are 12-16 years old, currently studying in the junior high school level. We asked them to share the survey link and the paper-based survey to their children who we considered our potential participants in the measure development procedure.

2.3.9. Since this scale was one of the 4 scales in our whole survey, prior to reading the short scenario or responding to the items in this scale, each participant was provided with a consent form consisting of 1) the purposes of the survey 2) the total number of questions and the approximate amount of time to be taken 3) the emphasis on the importance of giving true responses which would be a valuable contribution to the development of a research measure and to the academic field 4) the assurance that no response would be judged as right or wrong 5) the assurance of the confidentiality of the data and of the respondents' information 6) the assurance that neither risks nor negative effects would occur and 6) the contact information of the researcher and the researcher's advisor.

2.3.10 After the data were obtained, we proceeded with the data analyses to evaluate the quality of our measure.

2.4 Factor structure

2.4.1 Two initial analyses were conducted in order to assess the appropriateness of the scale items for factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .907, which was considered acceptable and Bartlett's Test of Sphericity was statistically significant ($p < .001$). The results of the two analyses revealed that the scale items were reasonably associated.

2.4.2 Since the two analyses were satisfactory, the exploratory factor analysis was conducted with the Principal axis factoring and oblique (promax) rotation.

2.4.3 Initially, six factors emerged. However, we managed to delete some items, one by one, that did not load on any particular factors. Moreover, since we aimed to make this scale shorter for the target junior high school students, we decided to proceed with gradually cutting off some items with the factor loadings less than .450. It resulted in the deletion of totally 14 items. Those deleted items were items 1, 3, 5, 8, 9, 10, 15, 16, 17, 18, 21, 23, 29, and 30.

2.4.4 After the deletion of items, we rechecked the KMO. It was .879. The Bartlett's Test of Sphericity was still statistically significant, with the approximated chi-square of 2563.161, $p < .001$. The number of factors was down to three.

2.4.5 For all the 16 items that were retained, each of them loaded particularly on one of the three remaining factors, with the cumulative percent of variance of 43.767. Six items (items 6, 7, 12, 14, 19, and 28) loaded on Factor 1 with the range of factor loadings from .535 to .671. This factor was labeled "Emotional Response." Five items (items 2, 4, 11, 13, and 20) loaded on Factor 2 with the range of factor loadings from .593 to .758. The factor was labeled "Perseverance." Another five items (items 22, 24, 25, 26, and 27) loaded on Factor 3 with the range of factor loadings from .561 to .778. The third factor was labeled "Reflecting and Adaptive Help-Seeking" (see Table 29). Since almost every item of our newly adapted scale loaded on the same factors as Cassidy's original scale (2016), the name of each factor of our scale was parallel with Cassidy's.

As some items were deleted because they did not load on any factors in particular and because we wanted to make our scale shorter, we used the 16-item Academic Resilience in English Scale in Table 29 with our target research participants instead of the full 30-item scale.

The 30-item Academic Resilience in English Scale ($M = 3.903$, $SD = .467$) and the 16-item Academic Resilience in English Scale ($M = 3.973$, $SD = .526$) were highly correlated ($r(485) = .950$, $p < .001$). Therefore, it might be reasonable to utilize the shorter version of the scale.

2.5 Reliability analysis

2.5.1 After the factor analysis with the deletion of items, we conducted the internal consistency analyses to assess the reliability of the remaining scale items. The analyses were to assess each of the factors separately and the measure as a whole. Before the analyses, the scores for negatively phrased items were reversed. The Cronbach's alpha for Factor 1 to Factor 3 were .785, .792, and .815 respectively. The Cronbach's alpha for the full scale was .841 (see Table 29).

2.5.2 The item-scale analysis was conducted. Corrected Item-Total Correlations (CITC) were calculated separately for each factor, with six items for Factor 1, five items for Factor 2 and another five items for Factor 3. The requirement for the retention of each item was to have the CITC greater than .300. All the 16 items met the requirement. The CITCs for the items in Factor 1 ranged from .466 to .591. The CITCs for the items in Factor 2 ranged from .495 to .628 and the CITCs for the items in Factor 3 ranged from .500 to .669 (see Table 29).

2.6 Validity analysis

2.6.1 As significant associations between academic outcomes capturing academic resilience and theoretically related constructs including grit have been found in the previous studies (e.g., Hodge, Wright, & Bennett, 2018), we conducted a validity analysis between our academic resilience scale and the short 8-item grit scale (Grit-S) by Duckworth and Quinn (2009).

2.6.2 The short grit scale served as one of the four measures in the survey we delivered.

2.6.3 The result of the analysis showed a significant positive correlation between our Academic Resilience in English Scale without the item deletion (30 items) (M = 3.903, SD = .467) and the Grit-S (M = 3.507, SD = .580) with $r(482) = .428$, $p < .001$). After the deletion of items during the factor analysis process, the correlation between the remaining 16 items of our academic resilience scale (M = 3.975, SD = .524) and the Grit-S (M = 3.507, SD = .580) was also statistically significant ($r(482) = .449$, $p < .001$). The correlations demonstrated the convergent validity of the scale. It signifies that students who are more diligent, determined, hard-working as well as those who do not give up easily tend to be associated with

more positive educational outcomes despite facing academic hardships or challenges.

Table 29

Results of Factor Analysis and Reliability Analyses of Academic Resilience in English Scale

Factors	Item Codes	Items	CITC	EFA
Emotional Response (α = .785)	AR6	ฉันอาจจะรู้สึกไม่พอใจ	.466	.535
	AR7	ฉันจะเริ่มคิดว่าโอกาสที่จะได้เรียนต่อระดับชั้นต่อไปนั้นน้อยเต็มที	.543	.618
	AR12	ฉันอาจจะรู้สึกหมดกำลังใจที่จะเรียนภาษาอังกฤษ	.569	.671
	AR14	ฉันจะผิดหวังอย่างมาก	.528	.593
	AR19	ฉันจะเริ่มคิดว่าโอกาสที่จะได้เรียนต่อในระดับมัธยมปลายนั้นน้อยเต็มที	.514	.625
	AR28	ฉันจะรู้สึกว่าทุกอย่างพังทลายลงและผิดพลาดไปหมด	.591	.671
Perseverance (α = .792)	AR2	ฉันจะนำความคิดเห็นนั้นมาปรับปรุงงานของฉัน	.581	.593
	AR4	ฉันจะนำสถานการณ์ที่เกิดขึ้นมาเป็นแรงจูงใจให้ตัวเอง	.574	.663
	AR11	ฉันจะขยันเรียนวิชาภาษาอังกฤษมากขึ้น	.628	.758
	AR13	ฉันจะพยายามคิดถึงทางออกใหม่ ๆ	.495	.602
	AR20	ฉันจะเริ่มติดตามและประเมินความสำเร็จและความพยายามในการเรียนภาษาอังกฤษของตัวเอง	.588	.672
Reflecting and Adaptive Help-Seeking (α = .815)	AR22	ฉันจะให้กำลังใจตัวเอง	.605	.561
	AR24	ฉันจะลองใช้วิธีการเรียนแบบอื่น ๆ	.500	.620
	AR25	ฉันจะตั้งเป้าหมายความสำเร็จของตัวเอง	.669	.778
	AR26	ฉันจะขอกำลังใจจากครอบครัวและเพื่อน ๆ	.618	.740
	AR27	ฉันจะพยายามคิดถึงทั้งจุดเด่นและจุดด้อยของตัวเองเพื่อมาช่วยให้ฉันทำได้ดีขึ้นในวิชาภาษาอังกฤษ	.648	.567

APPENDIX C

PERCEIVED ENGLISH TEACHER SUPPORT SCALE

1. Perceived English Teacher Support Scale

The scale was translated and adapted from the Teacher Support Scale (TSS) (McWhirter, 1996) and the revised Teacher Support Scale (Metheny et al., 2008). The original scale items and the translated and adapted items before the scale development are in Table 30.

Table 30

Original and Adapted Perceived Teacher Support Scales Before Scale Development

ข้อ	มาตรวัดการสนับสนุนจากครู (Teacher Support Scale)	มาตรวัดการรับรู้การสนับสนุนจากครูภาษาอังกฤษ (Perceived English Teacher Support Scale)
	"Most teachers in my high school..."	**ครูภาษาอังกฤษของฉัน...**
1	expect me to work hard in school	คาดหวังให้ฉันขยันเรียนในวิชาภาษาอังกฤษ
2	try to answer my questions	พยายามตอบคำถามต่าง ๆ ของฉัน
3	are interested in my future	สนใจว่าอนาคตฉันจะเป็นอย่างไร
4	take the time to help me get better grades	ใช้เวลาเพื่อช่วยให้ฉันได้เกรดที่ดีในวิชาภาษาอังกฤษ
5	think I am a hard worker	คิดว่าฉันเป็นคนขยันเรียนวิชาภาษาอังกฤษ
6	are helpful when I have questions about career issues	ให้ความช่วยเหลือเมื่อฉันมีคำถามเกี่ยวกับการเรียนต่อ
7	are helpful when I have questions about school issues	ให้ความช่วยเหลือเมื่อฉันมีคำถามเกี่ยวกับวิชาภาษาอังกฤษ
8	would tell other people good things about me	บอกข้อดีของฉันให้คนอื่น ๆ ฟัง
9	push me to succeed	ผลักดันให้ฉันประสบความสำเร็จในวิชาภาษาอังกฤษ
10	challenge me to think about my future goals	ท้าทายให้ฉันคิดถึงเป้าหมายเกี่ยวกับอนาคตของฉัน
11	believe I am smart	เชื่อว่าฉันเก่งภาษาอังกฤษ
12	help me understand my strengths	ช่วยให้ฉันเข้าใจข้อดีของตัวเอง
13	want me to do well in school	อยากให้ฉันทำได้ดีในวิชาภาษาอังกฤษ
14	enjoy having me in their classes	ยินดีที่มีฉันในห้องเรียนวิชาภาษาอังกฤษ
15	care about what happens to me	ห่วงใยว่าเกิดอะไรขึ้นกับฉันบ้าง
16	encourage me to learn	กระตุ้นให้ฉันเรียนรู้วิชาภาษาอังกฤษ
17	think I should continue my education after high school	คิดว่าฉันควรเรียนต่อมัธยมปลาย
18	support my goals for the future	สนับสนุนเป้าหมายในอนาคตของฉัน

Table 30

Original and Adapted Perceived Teacher Support Scales Before Scale Development (Cont.)

ข้อ	มาตรวัดการสนับสนุนจากครู (Teacher Support Scale)	มาตรวัดการรับรู้การสนับสนุนจากครูภาษาอังกฤษ (Perceived English Teacher Support Scale)
	"Most teachers in my high school…"	**ครูภาษาอังกฤษของฉัน…**
19	will listen if I want to talk about a problem	จะรับฟังฉัน หากฉันอยากเล่าปัญหาสักเรื่องหนึ่ง
20	are easy to talk to about school things	เป็นคนที่คุยด้วยง่ายเกี่ยวกับเรื่องการเรียนวิชาภาษาอังกฤษ
21	are easy to talk to about things besides school	เป็นคนที่คุยด้วยง่ายเกี่ยวกับเรื่องต่าง ๆ นอกเหนือจากการเรียนวิชาภาษาอังกฤษ
22		มักประเมินความสามารถวิชาภาษาอังกฤษของฉันตามความเป็นจริง
23		ประเมินความสามารถวิชาภาษาอังกฤษของฉันเพื่อให้ฉันนำมาปรับปรุงตัวเอง
24		ให้ความเชื่อมั่นว่าฉันสามารถเรียนวิชาภาษาอังกฤษได้

2. Perceived English Teacher Support Scale Development

The details of the Perceived English Teacher Support Scale development are as follows:

2.1 Participants were 531 general junior high school students (Mattayom one to Mattayom three), aged 12-16. They were the same individuals who responded to the Growth Mindset in English Intelligence Scale and the Academic Resilience in English Scale. However, as this scale was placed the second, following the Growth Mindset in English Intelligence Scale with 560 respondents at the onset and preceding the Academic Resilience in English and Grit-S scales in the survey, some decided to drop out before giving responses. Each of the participants completed the scale online via Surveygizmo.com or responded to the paper-based version survey.

We distributed the survey link and the paper-based survey to teachers, parents, relatives, and legal guardians of children that fitted the age of our target participants and asked the adults to pass down the link or the survey sheets to their children.

2.2 Measures were

2.2.1 Demographic data: age, sex, academic level, and school name.

2.2.2 The Perceived English Teacher Support Scale which was adapted from Teacher Support Scale (TSS) (McWhirter, 1996) and the revised Teacher Support Scale (Metheny et al., 2008). The original scales include the opening first half statement, “Most teachers in my high school…” Respondents were asked to rate 21 items as the second half to conclude each statement with the 5-point Likert-type scale by selecting a number from 1 to 5 reflecting the degree of their agreement upon each scale item, with 1 equals strongly disagree to 5 equals strongly agree. The adapted scale was more specific for Mattayom two students and their perception of support from their English teacher(s) from last semester in class at school. The reason we aimed to measure students’ perception of English teacher(s) support from the previous semester (Mattayom 1) because the students were likely to have almost zero knowledge about their current English teacher(s) (Mattayom 2) as the new academic semester freshly started when we delivered our intervention. Hence, the opening first half of the sentence was adjusted to “My English teacher(s) from last semester…” Examples of the second half statements are “…try to answer my questions,” “…encourage me to learn English,” and “…will listen if I want to talk about a problem.” Also, some items was added to cover all the aspects of support by House (1981).

2.3 Data collection procedure

2.3.1 We conducted a literature review by delving into related concepts and studies mostly in an academic field about perceived teacher support that we aimed to create a measure.

2.3.2 We searched for the existing developed and validated measures that appeared to appropriately capture the essence of the variable of interest in our study.

2.3.3 Amongst the measures by several researchers, the Teacher Support Scale (TSS) (McWhirter, 1996) and the revised Teacher Support Scale (Metheny et al., 2008) were chosen. The two measures were created by the same researcher Ellen Hawley McWhirter.

2.3.4 The opening first half of the item sentence was adapted from “Most teachers in my high school…” to “My English teacher(s) from last semester…”

and the second half of 21 items meant to conclude each statement were translated and adapted to be specifically about the matter relevant to the English subject and related to the academic setting of junior high school students.

2.3.5 Since we mainly focused on the subtypes of support by House (1981) including the emotional, instrumental, informational, and appraisal support and the two chosen measures captured all the subtypes except for the appraisal support, we decided to add 3 items reflecting the support the measures lacked. With the 3 additional items, our measure consisted of 24 items in total.

2.3.6 According to Hair et al. (2010), in order to conduct a factor analysis, at least 5 to 10 respondents are required for each item of each measure. Since there are 24 items, at least 120 to 240 respondents were needed. Although some respondents dropped out, the number of our remaining respondents still exceeded the required sample size.

2.3.7 The scale was delivered both online and in the paper-based version to teachers, parents, relatives, and legal guardians of children who are 12-16 years old, currently studying in the junior high school level. We asked them to share the survey link and the paper-based survey to their children who we considered our potential participants in the measure development procedure.

2.3.8 Since this scale was one of the 4 scales in our whole survey, prior to responding to the items in this scale, each participant was provided with a consent form as the survey cover consisting of 1) the purposes of the survey 2) the total number of questions and the approximate amount of time to be taken 3) the emphasis on the importance of giving true responses which would be a valuable contribution to the development of a research measure and to the academic field 4) the assurance that no response would be judged as right or wrong 5) the assurance of the confidentiality of the data and of the respondents' information 6) the assurance that neither risks nor negative effects would occur and 6) the contact information of the researcher and the researcher's advisor.

2.3.9 After the data were obtained, we proceeded with the data analyses to evaluate the quality of our measure.

2.4 Factor structure

2.4.1 Two initial analyses were conducted in order to assess the appropriateness of the scale items for factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .947 and Bartlett's Test of Sphericity was statistically significant ($p < .001$). The analyses demonstrated the appropriate relations among the scale items.

2.4.2 Since the two analyses were satisfactory, the exploratory factor analysis was conducted with the Principal axis factoring and oblique (promax) rotation.

2.4.3 Initially, four factors emerged. However, we managed to delete some items that did not load on any particular factors one by one. Furthermore, since we wanted to make this scale shorter for the target junior high school students, we decided to proceed with gradually cutting off some items with the factor loadings less than .400. It resulted in the deletion of totally 9 items. Those deleted items were items 4, 8, 9, 12, 13, 14, 16, 20, and 21.

2.4.4 After the deletion of items, we rechecked the KMO. It was .914. The Bartlett's Test of Sphericity was still statistically significant, with approximated chi-square of 2906.340, $p < .001$. One factor disappeared, resulting in totally three factors.

2.4.5 For all the 15 items that were retained, each of them loaded particularly on one of the three remaining factors, with the cumulative percent of variance of 44.350. Six items (items 5, 11, 17, 22, 23, and 24) loaded on Factor 1 with the range of factor loadings from .431 to .682. This factor was labeled "Perceived English Teacher Appraisal Support." Five items (items 3, 10 15, 18, and 19) loaded on Factor 2 with the range of factor loadings from .449 to .673. The factor was labeled "Perceived English Teacher Emotional Support." Finally, four items (items 1, 2, 6, and 7) loaded on Factor 3 with the range of factor loading from .454 to .702. The third factor was labeled "Perceived English Teacher Informational Support" (see Table 31). We named our factors in accordance with the names of House's four types of support. However, since only three instead of four factors emerged after the item deletion, our scale did not appear to capture House's instrumental support. This was

parallel with the Teacher Support Scale by Metheny et al. (2008) as their scale also captured all types of support except for the appraisal support.

Since some items were deleted as they did not load on any factor in particular and as we wanted to make ours scale shorter, we used the 15-item Perceived English Teacher Support Scale in Table 31 with our target research participants instead of the full 24-item scale.

The 24-item Perceived English Teacher Support Scale (M = 3.933, SD = .544) and the 15-item Perceived English Teacher Support Scale (M = 3.953, SD = .528) were highly correlated ($r(529) = .979$, $p < .001$). Therefore, it might be reasonable to utilize the shorter version of the scale.

2.5 Reliability analysis

2.5.1 After the factor analysis with the deletion of items, we conducted the internal consistency analyses to assess the reliability of the remaining 15 scale items. The analyses were to assess each of the factors separately and the measure as a whole. The Cronbach's alpha for Factor 1 to Factor 3 were .768, .803, and .761. The Cronbach's alpha for the full scale was .890 (see Table 31).

2.5.2 The item-scale analysis was conducted. Corrected Item-Total Correlations (CITC) were calculated separately for each factor, with six items for Factor 1, five items for Factor 2 and four items for Factor 3. The requirement for the retention of each item was to have the CITC greater than .300. All the 15 items met the requirement. The Corrected Item-Total Correlations for Factor 1 items ranged from .411 to .605. The CITCs for the items in Factor 2 ranged from .525 to .623 and the CITCs for the items in Factor 3 ranged from .494 to .606 (see Table 31).

2.6 Validity analysis

2.6.1 To conduct a validity analysis for our Perceived English Teacher Support Scale, we added 2 items in the survey that we delivered to the respondents. The two items were "I enjoy learning English." and "I want to be more attentive in my English class." They reflected students' enjoyment and enthusiasm in English learning.

2.6.2 The average score of the two additional items (M = 4.024, SD = .769) was positively correlated with the average score of the 24-item Perceived

English Teacher Support Scale (*M* = 3.933, *SD* = .544) with *r*(529) = .473, *p* < .001. After cutting off 9 items from the scale, the correlation between the average score of the two additional items (*M* = 4.024, *SD* = .769) and the average score of the 15-item Perceived English Teacher Support Scale (*M* = 3.953, *SD* = .528) was still significant, surprisingly with *r*(529) = .473, *p* < .001 as well. The correlations demonstrated the convergent validity of the scale. It means students who perceive greater support from their English teacher(s) are more likely to be associated with the feeling of enjoyment and eagerness in studying English whereas those who experience and perceive less support from the teacher(s) will not feel as zealous or will likely be more detached from both the English classes and teachers.

Table 31

Results of Factor Analysis and Reliability Analyses of Perceived English Teacher Support Scale

Factors	Item Codes	Items	CITC	EFA
		ครูภาษาอังกฤษเทอมที่ผ่านมาของฉัน		
Perceived English Teacher Appraisal Support (α = .768)	PTS5	...คิดว่าฉันเป็นคนขยันเรียนวิชาภาษาอังกฤษ	.411	.460
	PTS11	...เชื่อว่าฉันเก่งภาษาอังกฤษ	.469	.431
	PTS17	...คิดว่าฉันควรเรียนต่อมัธยมปลาย	.508	.541
	PTS22	...มักประเมินความสามารถวิชาภาษาอังกฤษของฉันตามความเป็นจริง	.596	.515
	PTS23	...ประเมินความสามารถวิชาภาษาอังกฤษของฉันเพื่อให้ฉันนำมาปรับปรุงตัวเอง	.528	.465
	PTS24	...ให้ความเชื่อมั่นว่าฉันสามารถเรียนวิชาภาษาอังกฤษได้	.605	.682
Perceived English Teacher Emotional Support (α = .803)	PTS3	...สนใจว่าอนาคตฉันจะเป็นอย่างไร	.525	.524
	PTS10	...ท้าทายให้ฉันคิดถึงเป้าหมายเกี่ยวกับอนาคตของฉัน	.623	.614
	PTS15	...ห่วงใยว่าเกิดอะไรขึ้นกับฉันบ้าง	.587	.673
	PTS18	...สนับสนุนเป้าหมายในอนาคตของฉัน	.614	.544
	PTS19	...จะรับฟังฉัน หากฉันอยากเล่าปัญหาสักเรื่องหนึ่ง	.590	.449
Perceived English Teacher Informational Support (α = .761)	PTS1	...คาดหวังให้ฉันขยันเรียนในวิชาภาษาอังกฤษ	.494	.454
	PTS2	...พยายามตอบคำถามต่าง ๆ ของฉัน	.535	.702
	PTS6	...ให้ความช่วยเหลือเมื่อฉันมีคำถามเกี่ยวกับการเรียนต่อ	.606	.582
	PTS7	...ให้ความช่วยเหลือเมื่อฉันมีคำถามเกี่ยวกับวิชาภาษาอังกฤษ	.605	.587

APPENDIX D

MEASURES FOR PRETEST

แบบสอบถามความรู้สึกและความคิดเห็นต่อวิชาภาษาอังกฤษ (ก่อนกิจกรรม)

คำชี้แจง

1. แบบสอบถามนี้มีวัตถุประสงค์เพื่อการสำรวจความคิดเห็นของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่มีต่อวิชาภาษาอังกฤษ โดยเป็นส่วนหนึ่งของการจัดกิจกรรมภาษาอังกฤษและเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับมหาบัณฑิต ภาควิชาจิตวิทยาสังคม จุฬาลงกรณ์มหาวิทยาลัย
2. แบบสอบถามนี้แบ่งเป็น 2 ส่วน ได้แก่
   ส่วนที่ 1 ความเชื่อในความสามารถวิชาภาษาอังกฤษของฉัน
   ส่วนที่ 2 ครูภาษาอังกฤษเทอมที่ผ่านมาของฉัน
3. แบบสอบถามมีคำถามทั้งสิ้น 25 ข้อ ใช้เวลาตอบประมาณ 5 - 10 นาที
4. ขอความร่วมมือน้อง ๆ ตอบคำถามทุกข้อ**ตามความเป็นจริง** โดยข้อมูลจากน้อง ๆ จะเป็นประโยชน์และมีคุณค่าอย่างยิ่งในการพัฒนาองค์ความรู้ในเชิงวิชาการ และคำตอบทุกข้อเป็นการแสดงความคิดเห็นส่วนตัวของน้อง ๆ จะ**ไม่มีการตัดสินว่าถูกหรือผิด**
5. ขอรับรองว่าข้อมูลทั้งหมดที่เกี่ยวข้องกับน้อง ๆ จะ**ถูกเก็บไว้เป็นความลับ** และจะนำเสนอข้อมูลเป็นภาพรวมเท่านั้น อีกทั้งการตอบแบบสอบถามของน้อง ๆ จะไม่มีผลกระทบหรือความเสี่ยงใด ๆ ต่อตัวน้อง ๆ ทั้งสิ้น
6. หากน้อง ๆ มีข้อสงสัยหรือต้องการแสดงความคิดเห็นเพิ่มเติม สามารถติดต่อผู้วิจัยได้ทาง E-mail: P.buathong29@gmail.com หรือเบอร์โทรศัพท์ 080-3265934

ชื่อ..... **(ใช้สำหรับจับฉลากรับรางวัล)**

กลุ่มที่..... โรงเรียน.....

ส่วนที่ 1 ความเชื่อในความสามารถวิชาภาษาอังกฤษของฉัน

คำชี้แจง โปรดอ่านข้อความแต่ละข้อและทำเครื่องหมาย ✓ ลงในช่องว่างที่ตรงกับน้อง ๆ **มากที่สุด**

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยและเห็นด้วยพอกัน	เห็นด้วย	เห็นด้วยอย่างยิ่ง
	1	2	3	4	5
1. ฉันเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของตัวฉันเองไม่ได้หรอก					
2. ฉันเรียนรู้สิ่งใหม่ ๆ ได้ แต่ฉันไม่สามารถเปลี่ยนระดับความเก่งภาษาอังกฤษที่เป็นพื้นฐานเดิมของฉันได้					
3. ความเก่งภาษาอังกฤษของฉันเป็นคุณสมบัติตามธรรมชาติที่ไม่สามารถเปลี่ยนได้มากนัก					
4. ฉันไม่สามารถทำอะไรเพื่อเปลี่ยนระดับความเก่งภาษาอังกฤษที่ฉันมีอยู่ได้					
5. ฉันสามารถเปลี่ยนระดับความเก่งภาษาอังกฤษของฉันได้					
6. ฉันสามารถเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของฉันไปจากเดิมได้อีกมาก					
7. ไม่ว่าตอนนี้จะมีระดับความเก่งภาษาอังกฤษอยู่ในระดับใด ฉันก็ยังสามารถเปลี่ยนแปลงมันได้อีก					
8. ฉันสามารถเพิ่มพูนความเก่งภาษาอังกฤษให้มากขึ้นจากพื้นฐานเดิมของฉันเองได้เสมอ					
9. ฉันมีความสุขในการเรียนวิชาภาษาอังกฤษ					
10. ฉันตั้งใจเรียนวิชาภาษาอังกฤษ					

ส่วนที่ 2 ครูภาษาอังกฤษเทอมที่ผ่านมาของฉัน

คำชี้แจง ข้อ 11 - 25 จะมีวลีขึ้นต้นประโยคให้น้อง ๆ ว่า **"ครูภาษาอังกฤษเทอมที่ผ่านมาของฉัน..."** และมีข้อความต่อท้าย

เช่น ข้อ 11 *...คาดหวังให้ฉันขยันเรียนในวิชาภาษาอังกฤษ* หมายความว่า ***"ครูภาษาอังกฤษเทอมที่ผ่านมาของฉัน คาดหวังให้ฉันขยันเรียนในวิชาภาษาอังกฤษ"***

โปรดเลือกคำตอบที่ตรงกับความรู้สึกที่น้องมีต่อครูภาษาอังกฤษเทอมที่ผ่านมาของน้อง**มากที่สุด** ด้วยการทำเครื่องหมาย ✓ ลงในช่องว่าง

✎ **หมายเหตุ** ✎ ผู้วิจัยขอรับรองว่าความเห็นของน้องที่มีต่อครูภาษาอังกฤษจะไม่มีการเปิดเผยถึงครูหรือผู้บริหาร

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยและเห็นด้วยพอกัน	เห็นด้วย	เห็นด้วยอย่างยิ่ง
	1	2	3	4	5
ครูภาษาอังกฤษเทอมที่ผ่านมาของฉัน...					
11. ...คาดหวังให้ฉันขยันเรียนในวิชาภาษาอังกฤษ					
12. ...พยายามตอบคำถามต่าง ๆ ของฉัน					
13. ...สนใจว่าอนาคตฉันจะเป็นอย่างไร					
14. ...คิดว่าฉันเป็นคนขยันเรียนวิชาภาษาอังกฤษ					
15. ...ให้ความช่วยเหลือเมื่อฉันมีคำถามเกี่ยวกับการเรียนต่อ					
16. ...ให้ความช่วยเหลือเมื่อฉันมีคำถามเกี่ยวกับวิชาภาษาอังกฤษ					
17. ...ท้าทายให้ฉันคิดถึงเป้าหมายเกี่ยวกับอนาคตของฉัน					
18. ...เชื่อว่าฉันเก่งภาษาอังกฤษ					
19. ...ห่วงใยว่าเกิดอะไรขึ้นกับฉันบ้าง					
20. ...คิดว่าฉันควรเรียนต่อมัธยมปลาย					
21. ...สนับสนุนเป้าหมายในอนาคตของฉัน					
22. ...จะรับฟังฉัน หากฉันอยากเล่าปัญหาสักเรื่องหนึ่ง					
23. ...มักประเมินความสามารถวิชาภาษาอังกฤษของฉันตามความเป็นจริง					
24. ...ประเมินความสามารถวิชาภาษาอังกฤษของฉันเพื่อให้ฉันนำมาปรับปรุงตัวเอง					
25. ...ให้ความเชื่อมั่นว่าฉันสามารถเรียนวิชาภาษาอังกฤษได้					

APPENDIX E

GROWTH MINDSET INTERVENTION

Growth Mindset Intervention Descriptions

The growth mindset intervention activities were implemented as supplementary to the English teaching sessions. The intervention highlighted the growth mindset attributes as shown in Table 32.

Table 32

Growth Mindset Attributes and Brief Intervention Descriptions

Session	Growth Mindset Attributes	Brief Intervention Descriptions (as a supplement to normal English learning activities)
1	Believing that intelligence can be changed/developed	- Directly giving the simplified facts about our brain plasticity and information about the difference of the mindsets. Related research were also be given. (Printed information in Thai was given to each student so that they could read and re-read anytime they would like to). We then led a discussion based on the topic. Successively, each student was asked to write, in their own word, about what they had learned. **(45 mins)**
2	Not being afraid of failures and learning from mistakes (Imperfection is the true perfection.)	- The activity administrator and each student came up with their own past experiences of how they failed or made mistakes in the English subject and how they could learn from such mistakes. (Mistakes and failures were normalized.) **(45 mins)**
3	Seeing an effort as a pathway to mastery and success (Fear not the challenges)	- Giving an exercise of coming up with a positive 'note to self' message in Thai. E.g., "If I try hard to learn English, I will..." or "Putting efforts into learning English will help me...." or "I can better my English by ..." and a positive 'note to significant others.' E.g. "Trying hard to be good at English will... (referring to how it would benefit each student's important people)" and sharing the ideas. **(45 mins)**

Table 32

Growth Mindset Attributes and Brief Intervention Descriptions (Cont.)

Session	Growth Mindset Attributes	Brief Intervention Descriptions (as a supplement to normal English learning activities)
4	Seeing an effort as a pathway to mastery and success (Fear not the challenges) (Cont.)	- Giving examples of famous Thai people from different fields (e.g., singers, football players, actors, news anchors, and businessmen) and telling students those exemplary people's tips of efforts that make them become successful in learning English and how English has partially contributed to their life success. Students watched this short three-minute video from the project called "I SPEAK ENGLISH เพื่อชีวิตที่ BETTER" or "I SPEAK ENGLISH for the better life, created by the Ministry of Education and G-MM Grammy: https://www.youtube.com/watch?v=3QZcM-BIIXo (Ministry of Education Thailand, 2016a). Then, there was a group discussion and some students were randomly chosen to tell their friends whose tips they liked most, how the tips would motivate them to learn English and why. **(45 mins)**

Intervention Materials

Brain brochure for the intervention group.

The brochure about the flexibility and the development of animal and human brains was given to the students in the intervention group (see Figure 12). It was translated and adapted from Mindset Works Inc. (2002). There are some illustrations that match each section of the content. The brochure is as follows:

Figure 12. Brain brochure (for intervention group).

Brain brochure for the control group.

The brochure about general human brain anatomy concerning its components and functions was given to the students in the control condition (see Figure 13). To avoid an overlap of information between the growth mindset intervention group and the control group, the information on this brochure was unrelated to neuroplasticity or how human brain develops as result of learning. All the brochure information was adapted from Harris et al. (2010) and from Poomkokruk (2016). There are also illustrations related to the content. The brochure is as follows:

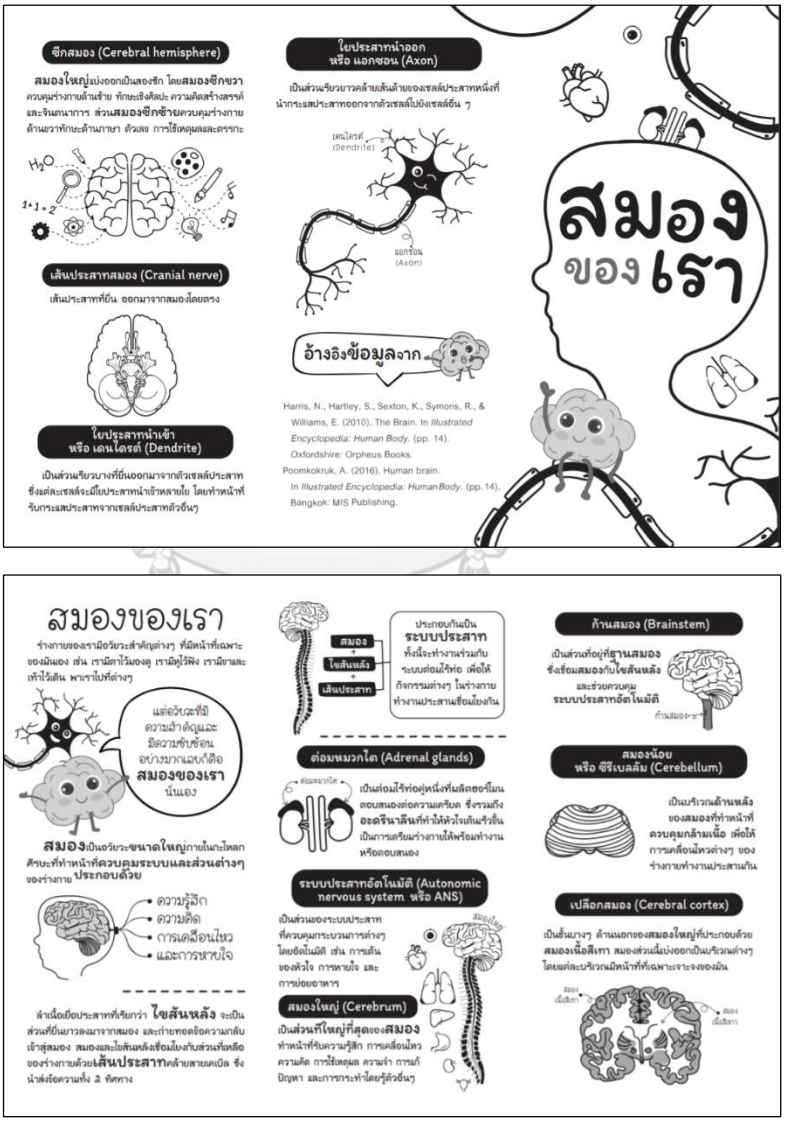


Figure 13. Brain brochure (for control group).

Intervention scripts.

The example of guideline scripts in Thai that were used for each intervention session are as follows:

กิจกรรมที่ 1 ความเชื่อว่าความสามารถและสติปัญญาของเราเปลี่ยนแปลงได้: เรียนรู้เรื่องสมองและความสามารถ (แปลและดัดแปลงมาจาก Mindset Works Inc., 2002)

"ร่างกายคนเรามีอวัยวะต่าง ๆ ที่ล้วนจำเป็นและเอื้อต่อการดำรงชีวิต เช่น ตาที่ทำให้เรามองเห็น หูที่ทำเราได้ยินเสียง ขาที่ให้เราได้เดินหรือวิ่งไปไหนมาไหนได้ทุกที่ ส่วนอวัยวะที่เราไม่สามารถมองเห็นได้ แต่มีความสำคัญและมหัศจรรย์อย่างมากเลยก็คือ สมองของเรานั่นเอง น้อง ๆ รู้ไหมเอ่ยว่า ความฉลาดนั้นสร้างได้ และมีงานวิจัยใหม่ ๆ ชี้ว่าสมองพัฒนาได้เหมือนกับกล้ามเนื้อเลย

มีคนจำนวนไม่น้อยคิดว่าสมองเป็นสิ่งลึกลับซับซ้อน เพราะอาจมีความรู้ความเข้าใจไม่มากนักว่าความฉลาดคืออะไรและเป็นอย่างไร เมื่อคิดถึงความฉลาด หลายคนเชื่อว่าคือสิ่งที่คนเรามีติดตัวมาแต่กำเนิด เช่น ฉลาดมาก ฉลาดปานกลาง หรือฉลาดน้อย และจะเป็นเช่นนั้นไปตลอดชีวิต

แต่งานวิจัยชิ้นใหม่ ๆ กลับชี้ให้เห็นว่า สมองคนเราจะคล้ายกับกล้ามเนื้อที่สามารถพัฒนาและเปลี่ยนแปลงได้เมื่อใช้งาน และนักวิทยาศาสตร์ก็เพิ่งแสดงให้เห็นว่าสมองคนเราจะเติบโตและแข็งแรงขึ้นได้อย่างไรเมื่อเกิดการเรียนรู้

เมื่อยกน้ำหนัก ทุกคนทราบว่ากล้ามเนื้อจะมีขนาดใหญ่ขึ้นและแข็งแรงยิ่งขึ้น เช่น ตอนเริ่มออกกำลังกาย คนคนหนึ่งไม่อาจยกน้ำหนัก 9 กิโลกรัมได้ แต่หลังจากออกกำลังกายเป็นระยะเวลานานพอจนร่างกายแข็งแรงก็สามารถยกน้ำหนักถึง 45 กิโลกรัมได้ เพราะกล้ามเนื้อเริ่มขยายตัวและแข็งแรงขึ้นผ่านการออกกำลังกายนั่นเอง แต่หากหยุดออกกำลังกาย กล้ามเนื้อก็จะเริ่มหดตัวและทำให้เราอ่อนแรงลง จึงเป็นที่มาของคำกล่าวที่ว่า 'Use it or lose it! ถ้าเราไม่ใช้ เราก็จะสูญเสียมันไป'

คนส่วนใหญ่มักไม่ทราบว่า เมื่อพวกเขาฝึกฝนและเรียนรู้สิ่งใหม่ ๆ สมองส่วนต่าง ๆ จะมีการเปลี่ยนแปลงและขยายขนาดเพิ่มขึ้นเหมือนกับกล้ามเนื้อขณะออกกำลังกาย

ภายในคอร์เท็กซ์ หรือ เปลือกสมอง ประกอบด้วยเซลล์ประสาทขนาดจิ๋วมากมาย เรียกว่า นิวรอน เซลล์ประสาทเหล่านี้มีหลายแขนง ทำหน้าที่เชื่อมต่อกับเซลล์อื่น ๆ ในโครงข่ายที่ซับซ้อน และการสื่อสารระหว่างเซลล์นี้เองที่ทำให้คนเรารู้จักวิธีคิดและแก้ไขปัญหาต่าง ๆ ได้

เมื่อเราเรียนรู้สิ่งใหม่ ๆ การเชื่อมต่อของเซลล์เล็ก ๆ ในสมองจะเพิ่มเป็นทวีคูณและแข็งแรงยิ่งขึ้น และยิ่งเรากล้าที่จะเรียนรู้มากเท่าไร เซลล์สมองก็จะยิ่งเพิ่มมากขึ้นเท่านั้น จากนั้นสิ่งที่เราเคยคิดว่าเป็นเรื่องยาก หรือคิดว่าทำไม่ได้ด้วยซ้ำ เช่น การพูดภาษาต่างประเทศหรือแก้โจทย์พีชคณิตก็จะกลายเป็นเรื่องง่าย ซึ่งเป็นผลมาจากสมองที่แข็งแรงและฉลาดยิ่งขึ้นนั่นเอง

แล้วเรารู้ได้อย่างไรว่าสมองพัฒนาให้แข็งแรงขึ้นได้?

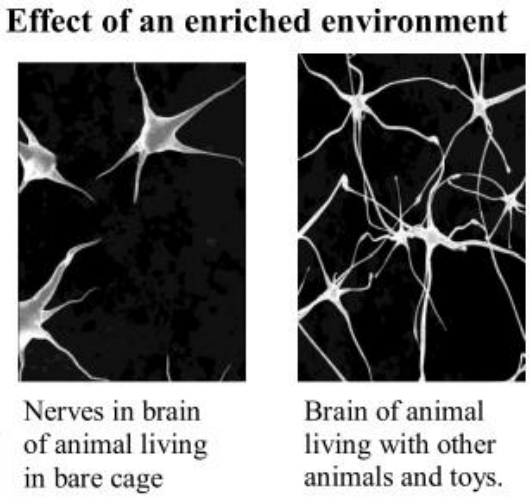
นักวิทยาศาสตร์เริ่มเกิดแนวคิดว่า สมองคนเราสามารถพัฒนาและเปลี่ยนแปลงได้จากการศึกษาระบบสมองของสัตว์ต่าง ๆ โดยพบว่าสัตว์ที่อยู่ในสภาพแวดล้อมที่ท้าทายร่วมกับสัตว์อื่น ๆ และมีของเล่นจะแตกต่างจากสัตว์ที่อยู่เพียงลำพังในกรง

สัตว์ที่อยู่ตัวเดียวจะกินและนอนเฉย ๆ ตลอดเวลา ในขณะที่สัตว์ที่อยู่ร่วมกับสัตว์ตัวอื่น ๆ และมีของเล่นจะมีความคล่องแคล่วว่องไวเสมอ เพราะพวกมันได้ใช้เวลาส่วนใหญ่คิดวิธีเล่นของเล่น รวมถึงวิธีใช้ชีวิตอยู่ร่วมกับสัตว์ตัวอื่น ๆ

สัตว์เหล่านี้จะมีจุดเชื่อมต่อระหว่างเซลล์ประสาทภายในสมองมากขึ้น ขนาดใหญ่ขึ้น และแข็งแรงขึ้น โดยมีน้ำหนักสมองมากกว่าสัตว์ที่อยู่ตัวเดียวและไม่มีของเล่นถึงประมาณ 10 % เลยทีเดียว

สัตว์ที่มีการบริหารสมองด้วยการเล่นของเล่นและเล่นกับเพื่อนสัตว์ด้วยกันจะฉลาดขึ้นด้วย เพราะพวกมันมีทักษะการแก้ปัญหาที่ดียิ่งขึ้นและได้เรียนรู้สิ่งใหม่ ๆ นั่นเอง

แม้แต่สัตว์ตัวที่แก่แล้วก็สามารถพัฒนาให้ฉลาดขึ้นและเพิ่มจุดเชื่อมต่อในสมองได้เมื่อมีโอกาสเล่นของเล่นใหม่ ๆ ร่วมกับสัตว์ตัวอื่น ๆ เมื่อนักวิทยาศาสตร์จับพวกมันใส่ไว้ในกรงเดียวกับสัตว์ที่มีอายุน้อยกว่า พร้อมกับมีของเล่นใหม่ ๆ ให้เล่น พวกเขาพบว่าสมองของสัตว์เหล่านี้จะพัฒนาขึ้นประมาณ 10% ภาพที่พี่จะให้ดูนี้เป็นภาพผลของการอาศัยในสภาพแวดล้อมที่แตกต่างกันต่อเซลล์ประสาทในสมองของสัตว์



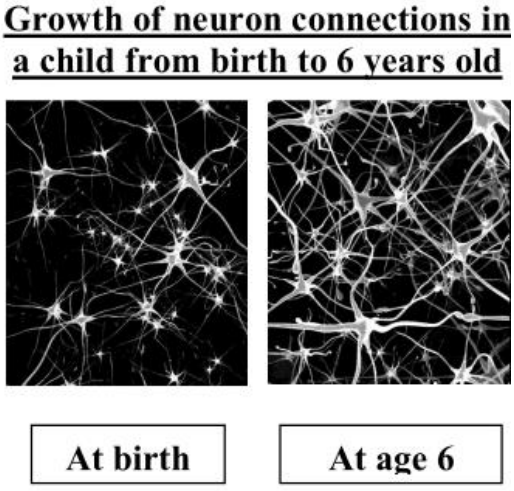
จากภาพที่พี่ให้น้อง ๆ ดู เห็นไหมเอ่ยว่าสัตว์ที่ถูกขังเดี่ยว ไม่ได้ปฏิสัมพันธ์กับเพื่อน ๆ หรือไม่ได้เล่นของเล่น มีเซลล์ประสาทในสมองที่ไม่ค่อยเชื่อมโยงกัน แต่สัตว์ที่ได้อยู่ร่วมกับเพื่อน ๆ และได้เล่นของเล่นกลับมีเซลล์ประสาทที่เชื่อมโยงถึงกันมากกว่า

แล้วการพัฒนาสมองของคนล่ะ?

อีกสิ่งหนึ่งที่ทำให้นักวิทยาศาสตร์สนใจเกี่ยวกับเจริญเติบโตและเปลี่ยนแปลงของสมอง คือ เด็ก เราทุกคนทราบกันดีว่าเด็กแรกเกิดไม่สามารถพูดหรือเข้าใจภาษาได้ จนถึงช่วง 2-3 ปีแรก เด็กเกือบทั้งหมดก็จะพูดภาษาแม่ได้ แล้วพวกเขาทำได้อย่างไร

พวกเขาอาศัยการฝึกฝนซึ่งเป็นหัวใจสำคัญของการพัฒนาสมองนั่นเอง เพราะนับตั้งแต่ลืมตาดูโลก ทุก ๆ วันเด็กจะได้ยินเสียงพูดคุยของคนรอบตัว ไม่ว่าจะเป็นการพูดคุยกับเด็กหรือพูดคุยกันเอง เด็กจึงต้องพยายามใช้ประสาทสัมผัสในการจับเสียงต่าง ๆ แล้วทำความเข้าใจความหมายเหล่านั้น ในทางหนึ่งคือ เด็กกำลังบริหารสมองด้วยการตั้งใจฟังนั่นเอง จากนั้น เมื่อเด็กอยากบอกสิ่งที่ต้องการกับพ่อแม่ พวกเขาก็จะเริ่มฝึกพูด ช่วงแรกเด็กอาจส่งเสียงอ้อแอ้ จากนั้นจึงเริ่มพูดเป็นคำคำจนกระทั่งก่อนอายุประมาณ 3 ขวบ เด็กส่วนใหญ่ก็จะเริ่มพูดเป็นประโยคที่สมบูรณ์ได้

เมื่อเด็กเรียนรู้ภาษา พวกเขาจะไม่มีวันลืม เพราะสมองเกิดการเปลี่ยนแปลงจนฉลาดยิ่งขึ้น ซึ่งการเรียนรู้ทำให้เกิดการเปลี่ยนแปลงอย่างถาวรในสมอง เซลล์สมองของเด็กจะมีขนาดใหญ่ขึ้น และพัฒนาจุดเชื่อมต่อระหว่างประสาทใหม่ ๆ ทำให้สมองของพวกเขาแข็งแรงและฉลาดยิ่งขึ้น คล้ายกับกล้ามเนื้อมัดใหญ่ของนักยกน้ำหนักเลย พี่จะให้ดูภาพการเจริญเติบโตและการเชื่อมโยงกันของเซลล์ประสาทในสมอง เปรียบเทียบกันระหว่างเด็กแรกเกิดกับเด็ก 6 ขวบนะครับ



เห็นไหมเอ่ยว่าเด็กแรกเกิดเนี่ยเขาแทบจะไม่ค่อยมีการพัฒนาของการเชื่อมโยงของเซลล์สมองเท่าไรเลย เราจะเห็นช่องว่างระหว่างเซลล์เป็นสีดำ ๆ เยอะแยะไปหมด แต่พอเขาโตขึ้นอายุ 6 ขวบ สมองก็มีการพัฒนาและเติบโตไปด้วย การเชื่อมโยงของเซลล์ประสาทก็จะมีเพิ่มมากขึ้น โยงเชื่อมถึงกันคล้าย ๆ แหจับปลาเลย

ต่อไปเรามาพูดถึงความฉลาดกับความโง่กันนะครับ

ไม่มีใครคิดว่าเด็กทารกโง่เพราะพูดไม่ได้ เพราะพวกเขาแค่ยังไม่ได้เรียนรู้ แต่สำหรับบางคนจะเรียกคนอื่นว่าโง่ หากพวกเขาแก้โจทย์คณิตศาสตร์ไม่ได้ สะกดคำไม่ถูกต้อง หรืออ่านหนังสือไม่เร็ว แม้จะผ่านการเรียนรู้และฝึกฝนมาแล้ว

ไม่มีใครอ่านหนังสือออกหรือแก้สมการได้เลยตั้งแต่แรก แต่เมื่อผ่านการฝึกฝนก็จะเกิดการเรียนรู้ และยิ่งเรียนรู้มากเท่าไร การเรียนรู้สิ่งใหม่ ๆ ก็ยิ่งง่ายขึ้น เพราะกล้ามเนื้อสมองได้มีการพัฒนา

นักเรียนที่ทุกคนคิดว่า ‘ฉลาดที่สุด’ อาจไม่ได้เกิดมาแตกต่างจากคนอื่น ๆ เลย แต่ก่อนที่จะเข้าเรียน พวกเขาอาจได้ฝึกฝนการอ่านมาแล้ว จนบ่มเพาะทักษะการอ่านได้แข็งแรงเหมือนกับกล้ามเนื้อ จากนั้นทุกคนในชั้นเรียนก็จะพูดว่า ‘นั่นคือเด็กที่เก่งที่สุดในชั้นเรียน’ เพราะพวกเขาไม่ได้ตระหนักว่า เด็กนักเรียนคนอื่น ๆ ก็ทำได้เช่นกันหากฝึกฝนและอ่านมากพอ โปรดจำไว้เสมอว่า เด็กนักเรียนคนอื่น ๆ ที่เรียนรู้อย่างน้อย 1 ภาษาซึ่งเป็นเรื่องยากมากสำหรับผู้ใหญ่ก็ทำได้ เพียงแค่ต้องเริ่มฝึกสร้างทักษะการอ่านด้วยเท่านั้น

แล้วเราต้องทำอย่างไรให้ฉลาดยิ่งขึ้น?

หากเราต้องการมีสมองที่แข็งแรงเหมือนกับนักยกน้ำหนักหรือนักบาสเกตบอล เราก็ต้องหมั่นฝึกฝน บริหารสมอง และเรียนรู้ทักษะเสริมพัฒนาสมอง เหมือนกับนักบาสเกตบอลที่เรียนรู้วิธีเคลื่อนไหวแบบใหม่ ๆ อยู่เสมอ แต่มีคนจำนวนไม่น้อยพลาดโอกาสในการพัฒนาสมองให้แข็งแรงยิ่งขึ้น เพียงเพราะคิดว่าตัวเองทำไม่ได้ หรือสิ่งนั้นยากเกินไป ซึ่งจริง ๆ แล้วต้องอาศัยการฝึกฝนเหมือนกับการพัฒนาร่างกายให้แข็งแรงขึ้น หรือเป็นนักฟุตบอลที่เก่งขึ้น แม้บางครั้งอาจเจ็บปวดบ้างก็ตาม แต่หากเรารู้สึกดีกับตัวเองมากขึ้นและเข้มแข็งขึ้น ทุกสิ่งที่ทำก็ล้วนคุ้มค่าแล้ว นอกจากนี้ คนที่คิดว่าสมองและความสามารถของตัวเองนั้นเปลี่ยนแปลงไม่ได้อีก เกิดมามีเท่าไรก็เท่านั้น เราเรียกว่า ‘คนที่มีกรอบคิดแบบยึดติด หรือ fixed-mindset person’ ส่วนคนที่เชื่อว่าสมอง ความสามารถและสติปัญญาตัวเองพัฒนา เปลี่ยนแปลงได้ผ่านความพยายาม การฝึกฝนและการไม่ท้อถอย เราเรียกว่า ‘คนที่มีกรอบคิดแบบเติบโต หรือ growth-mindset person’ นั่นเอง พี่นำเรื่องสมองและความฉลาดมาพูดให้น้อง ๆ ฟัง เพราะอยากให้น้อง ๆ ได้รู้ว่าสมองของเราทุกคนสามารถเปลี่ยนแปลงและพัฒนาได้อีกนะครับ ความสามารถหรือความฉลาดของน้อง ๆ ก็เช่นกันเลย ยิ่งเราหมั่นเพียรฝึกฝนมากเท่าไร เราก็จะยิ่งมีความรู้ความสามารถที่พัฒนาไปมากขึ้นเท่านั้น น้อง ๆ ลองถามเพื่อน ๆ ที่เป็นนักกีฬาดูนะครับ กว่าเขาจะเก่ง จนเล่นได้คล่องแคล่วและชำนาญนั้น พวกเขาก็ต้องผ่านการฝึกฝนและหมั่นซ้อมมากน้อยเท่าไร หากน้อง ๆ อยากเก่งในเรื่องไหนหรือวิชาใด ลองเริ่มจากการฝึกฝนวันละเล็กวันละน้อยดูนะครับ พอเวลาผ่านไป น้อง ๆ จะพบว่าความพยายามไม่สูญเปล่าเลย เช่น ลองฝึกท่องคำศัพท์ภาษาอังกฤษ เริ่มจากคำง่าย ๆ วันละ 1-2 คำ ต่อไปเพิ่มเป็นวันละ 3-5 คำ แล้วก็เพิ่มไป

เรื่อย ๆ เมื่อเรามีคลังคำศัพท์มากพอก็สามารถนำไปแต่งเป็นประโยค หรือเขียนเป็นเรียงความได้เลยทีเดียว พี่เชื่อว่าน้อง ๆ ทุกคนมีความสามารถและทำได้ เราลองมาพยายามกันนะครับ”

กิจกรรมที่ 2 การไม่กลัวความล้มเหลวและการเรียนรู้จากความผิดพลาด: ประสบการณ์ความล้มเหลวและการเรียนรู้จากความผิดพลาดในวิชาภาษาอังกฤษ

“ลองมองย้อนไปตอนพวกเราเด็ก ๆ ที่เราฝึกทำอะไรต่าง ๆ ด้วยตัวเอง เช่น ตอนกำลังฝึกเดิน กว่าเราจะเดินได้คล่องหรือวิ่งปร๋อ พวกเราล้วนเริ่มจากการเดินเตาะแตะ ก้าวเล็ก ๆ ทีละก้าวมาก่อน แม้เราเดินแล้วเซบ้าง ล้มบ้าง เราก็พยายามจะลุกและก้าวเดินใหม่อีกครั้ง หรือแม้ตอนฝึกกินข้าวด้วยตัวเอง กว่าจะป้อนข้าวเข้าปากตัวเองได้สักคำหนึ่ง ก็เริ่มจากการฝึกจับช้อนพร้อมกับข้าวที่หกเลอะเทอะเต็มไปหมด การเรียนภาษาอังกฤษก็เช่นกันเลย หลาย ๆ คนอาจมองว่าเป็นเรื่องยาก เพราะไม่ใช่ภาษาแม่ที่เราคุ้นเคย การจะเรียนภาษาอังกฤษให้เก่งหรือนำไปใช้ได้อย่างคล่องแคล่วนั้น เราก็อาจมีจุดเริ่มต้นที่ต้องล้มลุกคลุกคลาน ทำผิดพลาดมาแล้วเช่นกัน ก่อนจะนำความผิดพลาดนั้นมาเป็นบทเรียนเพื่อปรับปรุงตัวเอง (ทีมวิทยากรสลับกันเล่าความผิดพลาดในการเรียนภาษาอังกฤษของตัวเอง) ตั้งแต่นั้นมาพี่ก็เรียนรู้ว่าความผิดพลาดไม่ใช่เรื่องน่าอายหรือน่ากลัวเลย แต่กลับเป็นสิ่งที่ทำให้เราเรียนรู้และนำมาพัฒนาตัวเอง ไม่หนำซ้ำยังเป็นสิ่งที่เราจะไม่ลืมและพยายามเตือนตัวเองไม่ให้ผิดแบบนั้นอีก หลังจากนั้น พี่พยายามฝึกแนะนำตัวเองทีละประโยค ฝึกพูดหน้ากระจก พูดกับเพื่อน ๆ และกับที่บ้าน พร้อมกับฝึกเขียน เริ่มจากชื่อตัวเอง สีที่ชอบ อาหารที่ชอบ สัตว์เลี้ยง ฯลฯ พี่อยากให้น้อง ๆ มาแลกเปลี่ยนประสบการณ์ว่าตัวเองเคยล้มเหลวหรือทำผิดพลาดอะไรบ้างในวิชาภาษาอังกฤษและได้เรียนรู้อะไรจากความผิดพลาดหรือความล้มเหลวนั้น ๆ บ้าง ไม่ต้องกลัวที่จะแบ่งปันนะครับ เรามาแลกเปลี่ยนกันเพื่อจะได้เห็นว่า ความผิดพลาดที่เราต่างก็เจอนั้นเป็นส่วนหนึ่งของการเรียนรู้ เป็นประสบการณ์และบทเรียนให้เรานำมาพัฒนาตัวเองต่อไป พี่อยากฟังทุกคนเลยครับ”

กิจกรรมที่ 3 การมองความพยายามเป็นหนทางสู่ความสำเร็จ: เขียนข้อความถึงตัวเองและคนสำคัญในชีวิต

“น้อง ๆ น่าจะเกิดไม่ทันสมัยที่การส่งจดหมายเพื่อติดต่อสื่อสารกันเป็นที่นิยมใช่ไหมเอ่ย เพราะในปัจจุบัน การจะได้ติดต่อหรือคุยกันนั้นสะดวกและรวดเร็วเป็นอย่างมาก ซึ่งมาจากการที่เทคโนโลยีมีความก้าวหน้าและพัฒนาไปอย่างก้าวกระโดด อยากคุยกันก็โทรหา ส่งข้อความหากันผ่านแอปพลิเคชันต่าง ๆ ได้เลย วันนี้พี่ ๆ อยากพาน้อง ๆ ทุกคนย้อนไปในอดีตด้วยการเขียนจดหมาย ไม่ได้ส่งหาใครที่ไหนนะครับ แต่เป็นการเขียนจดหมายถึงตัวเอง หรือที่เรียกว่า ‘note to self’ นั่นเอง พี่เคยเขียนจดหมายถึงตัวเองก่อนเรียนจบ ว่าพี่อยากทำอะไรบ้าง มีเป้าหมายในอนาคตว่า

อะไร และจะพัฒนาตัวเอง หรือพยายามอย่างไรเพื่อจะไปให้ถึงเป้าหมายที่วางไว้ เช่น จะพยายามใช้เวลาทบทวนบทเรียนให้มากขึ้น พยายามดูหนังที่เป็นภาษาอังกฤษบ่อย ๆ เพื่อฝึกการฟัง เป็นต้น หลังจากเขียนเสร็จ พี่อ่านทวนอีกรอบ พับจดหมายลง ใส่ซองไว้แล้วใส่ไว้ในลิ้นชักที่ไม่ได้เปิดบ่อย ๆ อีกทีหนึ่ง หลังจากนั้น เวลาที่จะทำอะไร บ่อยครั้งพี่มักจะคิดว่าพี่เคยเขียนถึงตัวเอง และความมุ่งมั่นหรือความพยายามที่จะปรับปรุงตัวเองอย่างไร เพื่อเป็นกำลังใจและเป็นแรงผลักดันให้ตัวเอง พี่อยากให้น้อง ๆ ได้ลองเขียนจดหมายถึงตัวเองกันดูนะครับ ว่าน้อง ๆ เห็นว่าภาษาอังกฤษมีความสำคัญกับน้อง ๆ อย่างไร และน้อง ๆ จะพยายามอย่างไรเพื่อปรับปรุงและพัฒนาทักษะภาษาอังกฤษของตัวเอง พี่มีตัวอย่างการขึ้นต้นประโยคให้นะครับ เช่น 'ถ้าฉันอยากเก่งภาษาอังกฤษ ฉันจะต้อง....' หรือ 'ถ้าฉันพยายามและขยันเรียนภาษาอังกฤษมากขึ้น ฉันจะ....' น้อง ๆ สามารถเติมข้อความส่วนท้าย หรือคิดข้อความใหม่ตั้งแต่ต้นได้ตามความคิดของน้อง ๆ เองเลยนะครับ เช่น 'ถ้าฉันอยากเก่งภาษาอังกฤษ ฉันจะต้องท่องคำศัพท์และฝึกเขียนบ่อย ๆ' และ 'ถ้าฉันพยายามและขยันเรียนภาษาอังกฤษมากขึ้น ฉันจะได้เกรดที่ดีขึ้น' (ให้เวลาน้อง ๆ เขียน) เมื่อเขียนถึงตัวเองเสร็จแล้ว น้อง ๆ พลิกกระดาษไปด้านหลังแล้วเรามาเขียนจดหมายถึงคนสำคัญในชีวิตของน้อง ๆ กันนะครับ หรือที่เรียกว่า 'note to significant others' อยากให้น้อง ๆ เขียนว่าถ้าน้อง ๆ พยายามและเก่งภาษาอังกฤษแล้วจะเป็นประโยชน์ต่อคนสำคัญรอบ ๆ ตัวน้อง ๆ อย่างไร เช่น 'ถ้าฉันพยายามและขยันเรียนภาษาอังกฤษมากขึ้น ฉันจะได้เกรดที่ดีขึ้นและทำให้พ่อแม่ภูมิใจ มีกำลังใจทำงาน' เป็นต้น พี่ให้เวลาน้อง ๆ เขียนอย่างเต็มที่เลยแล้วเดี๋ยวเรามาแบ่งปันข้อความกันนะครับ (หลังจากแบ่งปันข้อความ) พี่อยากให้น้อง ๆ เก็บจดหมายที่ตัวเองเขียนไว้ กลับไปถึงบ้านอาจจะอ่านทวนอีกสักรอบสองรอบแล้วพับเก็บไว้นะ หลังจากผ่านไปหนึ่งเทอม ค่อยกลับมาเปิดอ่านอีกครั้งแล้วดูว่าเราได้ทำตามที่เขียนไว้มากน้อยแค่ไหน และมีส่วนไหนที่อยากปรับปรุงเพิ่มเติม หรือใครอยากเขียนมาเล่าให้พี่ ๆ ฟังก็ยินดีมากเลย เดี๋ยวพี่จะให้ที่อยู่และเบอร์โทรศัพท์ติดต่อนะครับ"

กิจกรรมที่ 4 การมองความพยายามเป็นหนทางสู่ความสำเร็จ: ตัวอย่างคนดังที่ให้ความสำคัญและพยายามฝึกภาษาอังกฤษและประสบความสำเร็จส่วนหนึ่งเพราะภาษาอังกฤษ

"ก่อนอื่นเลย พี่ขอถามน้อง ๆ เพื่อเป็นการทบทวนคำศัพท์กันสักหน่อยนะครับ ว่าอาชีพที่พี่พูดถึงแปลเป็นไทยว่าอย่างไร คำแรกคือ actor แปลว่าอะไรเอ่ย คำต่อมาคือ footballer แปลว่า... คำว่า singer ล่ะแปลว่า... แล้วคำว่า businessman ล่ะครับ น้อง ๆ ทุกคนน่าจะเห็นข่าวและจำพี่ตูนบอดี้สแลม ที่วิ่งในโครงการก้าวคนละก้าวเพื่อ 11 โรงพยาบาลทั่วประเทศเมื่อปลายปีที่แล้วกันได้ใช่ไหมเอ่ย พี่ตูนเป็นคนดังที่เป็นทั้ง singer และ runner เลยนะ แล้วน้อง ๆ รู้ไหมเอ่ยว่าพี่ตูนให้ความสำคัญกับภาษาอังกฤษมาก ๆ เลย พี่ตูนบอกว่า 'I'm a singer and I'm proud to be Thai ผมเป็นนักร้องและภูมิใจที่เป็นคนไทย' เคล็ดลับของการเรียนภาษาอังกฤษของพี่ตูนคือ 'เริ่มต้นจาก

ภาษาอังกฤษระหว่างวันง่าย ๆ ก่อน กล้าพูด กล้าคิด กล้าใช้ I speak English เพื่อชีวิตที่ better' คนดังคนอื่น ๆ ก็ให้ความสำคัญกับภาษาอังกฤษไม่แพ้กัน และมีเคล็ดลับของตัวเอง เช่น

นักฟุตบอลทีมชาติไทย พี่สารัช อยู่เย็น บอกว่า 'ใช้วิธีจำเอาจากนักเตะต่างชาติที่เวลาเขาพูดกันในสนาม ต้องขวนขวาย ต้องเรียนรู้ด้วยตัวเองและต้องกล้าที่จะพูด'

นักฟุตบอลอีกคนคือ พี่ตอง กวินทร์ ธรรมสัจจานันท์ บอกว่า 'ผมเป็นคนชอบดูหนังหรืออ่านหนังสือที่เป็นภาษาอังกฤษและมีคำแปลด้านล่างเป็นภาษาไทย มันช่วยฝึกในการฟังทำให้เรารู้คำศัพท์มากยิ่งขึ้น'

นักแสดงชื่อจีจ้า ญาณิน บอกว่า 'ถ้าจ้าพูดภาษาอังกฤษไม่ได้ ก็คงไม่ได้เล่นหนังอินเตอร์ที่นำความเป็นไทยไปสู่สายตาชาวโลกได้'

นักแสดงฮอลลีวูดชื่อจา พนม บอกว่า 'ภาษาอังกฤษคือกุญแจดอกสำคัญ ศัพท์ภาษาอังกฤษก็เหมือนทรัพย์ ยิ่งคุณสะสมเยอะ ๆ คุณก็ยิ่งจะรวย'

นักร้องและนักแสดงชื่อ เป้ อารักษ์ บอกว่า 'ถ้าเราอ่านภาษาอังกฤษได้ก็หมายความว่าเราสามารถมีลิงก์ไปสู่ข้อมูลอีกมากมาย'

นักแสดงและนักธุรกิจ เป๋า วฤธ บอกว่า 'ภาษาอังกฤษไม่ใช่ภาษาแรกของเราอยู่แล้ว เพราะฉะนั้นคุณกล้าที่จะพูด กล้าที่จะผิด แล้วคุณจะเรียนรู้จากมันได้เยอะ...โลกเล็ก ๆ ของคุณจะใหญ่ขึ้น มีสิทธิ์ประสบความสำเร็จมากขึ้น'

นักร้องและนักธุรกิจ ป๊อก ภัสสรกรณ์ บอกว่า 'อย่าไปท้อถอย อย่าไปคิดว่าสิ่งที่เราทำมันยาก เราทำไม่ได้ เราไม่เก่งเท่าเขา'

นักร้อง พี่สิงโต นำโชค บอกว่า 'เคล็ดลับในการเรียนรู้ภาษาอังกฤษ ผมจะใช้วิธีฟังฮะ ฟังแล้วก็จำ จำแล้วก็ไปพูด...สำเนียงไทยลิช (Thai-English) เรานี่แหละ very cute very น่ารัก พูดไปได้เลยครับผม' และ

นักแสดงวัยรุ่น เบลล์ ฮอร์โมน บอกว่า 'ถ้ารู้จักเพื่อนเป็นฝรั่งก็ลองไปคุยกับเขา อย่าไปอายที่จะพูดภาษาอังกฤษ'

น้อง ๆ เห็นไหมเอ่ยว่าคนดังที่มีอาชีพต่าง ๆ ก็ให้ความสำคัญกับภาษาอังกฤษอย่างมากเลยหลาย ๆ คนก็เน้นย้ำว่า ต้องใช้การฝึกฝน พยายาม ทบทวนบ่อย ๆ กล้าใช้ และไม่ต้องอาย ไม่กลัวว่าจะใช้ผิด น้อง ๆ เองลองเอาแง่คิดของแต่ละคนมาปรับใช้กับตัวเองได้เลยนะครับ แล้วบอกตัวเองเสมอ ๆ ว่า 'Just go for it ลุยไปเลย' เดี๋ยวพี่จะเปิดวิดีโอสั้น ๆ ที่เหล่าคนดังมาพูดให้ฟังอีกครั้งนะครับ แล้วตอนท้าย น้อง ๆ ลองบอกว่าชอบความคิดและเคล็ดลับของใครมากที่สุด และอยากนำเคล็ดลับไหนมาปรับใช้กับตัวเอง เพราะอะไร หรือถ้าน้อง ๆ คนไหนอยากกลับไปย้อนดูวิดีโอที่บ้านหรือยามว่าง เดี๋ยวพี่จะให้ลิงก์ไปนะครับ"

APPENDIX F

EVALUATION FORM FOR INDEPENDENT JEDGES

This form was one of the attempts to assess whether the head teacher leading all the activities behaved the same across conditions and schools. We recorded 4 short videos, one from each condition from each school. All the recordings captured the same moment when an activity was being administered, without the inclusion of participants in them. That is, a video was recorded when the students in the control group in the first school were studying about 'my favorite hobbies.' The other 3 videos from the intervention group of the same school and the 2 conditions from the other school were recorded, capturing the same moment when my favorite hobbies topic was being taught. Later, independent judges rated on this form after watching the videos. Each judge watched all the 4 videos without knowing which video was from which condition. The judges were 12 Chulalongkorn's master students who were blind to our research hypotheses. Facial expressions, voice, and gestures served as the main criteria for the evaluation and there were 2 items for the rating of each criterion. To answer, there were numbers ranging from 1 to 5 with 1 equals very mildly to 5 very strongly. The form is as follows:

หัวข้อการประเมิน	คะแนน				
	น้อยที่สุด (1)	น้อย (2)	ปานกลาง (3)	มาก (4)	มากที่สุด (5)
การแสดงออกทางสีหน้า					
ยิ้มแย้ม					
ผ่อนคลาย					
ท่าทาง					
กระตือรือร้น					
เป็นมิตร					
การใช้เสียง					
น้ำเสียงสดใสร่าเริง					
พูดชัดเจน เสียงมีพลัง					

After each of the judges rated every one of the 4 videos, repeated measures ANOVA was used to analyze whether the 12 judges perceived that the teacher behaved the same across conditions and schools.

APPENDIX G

MEASURES FOR POSTTEST

แบบสอบถามความรู้สึกและความคิดเห็นต่อวิชาภาษาอังกฤษ (หลังกิจกรรม)

คำชี้แจง

1. แบบสอบถามนี้มีวัตถุประสงค์เพื่อการสำรวจความคิดเห็นของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่มีต่อวิชาภาษาอังกฤษ โดยเป็นส่วนหนึ่งของการจัดกิจกรรมภาษาอังกฤษและเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับมหาบัณฑิต ภาควิชาจิตวิทยาสังคม จุฬาลงกรณ์มหาวิทยาลัย
2. แบบสอบถามนี้แบ่งเป็น 3 ส่วน ได้แก่
   ส่วนที่ 1 ความเชื่อในความสามารถวิชาภาษาอังกฤษของฉัน
   ส่วนที่ 2 ฉันจะทำอย่างไร
   ส่วนที่ 3 ความคิดเห็นต่อกิจกรรม
3. แบบสอบถามมีคำถามทั้งสิ้น 30 ข้อ ใช้เวลาตอบประมาณ 5 - 10 นาที
4. ขอความร่วมมือน้อง ๆ ตอบคำถามทุกข้อ**ตามความเป็นจริง** โดยข้อมูลจากน้อง ๆ จะเป็นประโยชน์และมีคุณค่าอย่างยิ่งในการพัฒนาองค์ความรู้ในเชิงวิชาการ และคำตอบทุกข้อเป็นการแสดงความคิดเห็นส่วนตัวของน้อง ๆ จะ**ไม่มีการตัดสินว่าถูกหรือผิด**
5. ขอรับรองว่าข้อมูลทั้งหมดที่เกี่ยวข้องกับน้อง ๆ จะ**ถูกเก็บไว้เป็นความลับ** และจะนำเสนอข้อมูลเป็นภาพรวมเท่านั้น อีกทั้งการตอบแบบสอบถามของน้อง ๆ จะไม่มีผลกระทบหรือความเสี่ยงใด ๆ ต่อตัวน้อง ๆ ทั้งสิ้น
6. หากน้อง ๆ มีข้อสงสัยหรือต้องการแสดงความคิดเห็นเพิ่มเติม สามารถติดต่อผู้วิจัยได้ทาง E-mail: P.buathong29@gmail.com หรือเบอร์โทรศัพท์ 080-3265934

ชื่อ..... **(ใช้สำหรับจับฉลากรับรางวัล)**

กลุ่มที่..... โรงเรียน.....

ส่วนที่ 1 ความเชื่อในความสามารถวิชาภาษาอังกฤษของฉัน

คำชี้แจง โปรดอ่านข้อความแต่ละข้อและทำเครื่องหมาย ✓ ลงในช่องว่างที่ตรงกับน้อง ๆ **มากที่สุด**

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยและเห็นด้วยพอกัน	เห็นด้วย	เห็นด้วยอย่างยิ่ง
	1	2	3	4	5
1. ฉันเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของตัวฉันเองไม่ได้หรอก					
2. ฉันเรียนรู้สิ่งใหม่ ๆ ได้ แต่ฉันไม่สามารถเปลี่ยนระดับความเก่งภาษาอังกฤษที่เป็นพื้นฐานเดิมของฉันได้					
3. ความเก่งภาษาอังกฤษของฉันเป็นคุณสมบัติตามธรรมชาติที่ไม่สามารถเปลี่ยนได้มากนัก					
4. ฉันไม่สามารถทำอะไรเพื่อเปลี่ยนระดับความเก่งภาษาอังกฤษที่ฉันมีอยู่ได้					
5. ฉันสามารถเปลี่ยนระดับความเก่งภาษาอังกฤษของฉันได้					
6. ฉันสามารถเปลี่ยนแปลงระดับความเก่งภาษาอังกฤษของฉันไปจากเดิมได้อีกมาก					
7. ไม่ว่าตอนนี้จะมีระดับความเก่งภาษาอังกฤษอยู่ในระดับใด ฉันก็ยังสามารถเปลี่ยนแปลงมันได้อีก					
8. ฉันสามารถเพิ่มพูนความเก่งภาษาอังกฤษให้มากขึ้นจากพื้นฐานเดิมของฉันเองได้เสมอ					

ส่วนที่ 2 ฉันจะทำอย่างไร

คำชี้แจง โปรดอ่านข้อความในกล่อง ▢ ด้านล่างนี้ พร้อมทั้งจินตนาการว่าตัวน้อง ๆ คือนักเรียนที่อยู่ในข้อความ และทำเครื่องหมาย ✓ลงในช่องว่างเพื่อให้คะแนนข้อความข้อ **9 – 24** ที่ตรงกับน้อง ๆ **มากที่สุด**

"ฉันเป็นนักเรียนชั้น ม. 2 ครูภาษาอังกฤษมอบหมายงานทั้งหมด 3 งานด้วยกัน และคะแนนจากทั้ง 3 ชิ้นงานจะเป็นตัวตัดสินว่าฉันจะได้เกรดในวิชาภาษาอังกฤษดีเพียงพอที่จะผ่านไปเรียนต่อในชั้น ม.3 หรือไม่ ฉันตั้งความหวังว่าจะผ่านไปเรียนต่อไว้สูงมากและไม่อยากทำให้ครอบครัว คนรอบข้างและตัวเองผิดหวัง ผลปรากฏว่า ฉันไม่ผ่านงานชิ้นแรกซึ่งเป็นงานเขียน ครูเขียนแสดงความเห็นไว้ท้ายกระดาษว่า ฉัน "ขาดความเข้าใจในเรื่องที่เขียน" และ "เขียนสื่อสารได้ไม่ดี" งานชิ้นที่สองเป็นการพูด ฉันก็ได้คะแนนน้อยมาก ครูให้ความเห็นว่า ฉัน "ไม่มีความมั่นใจ" และ "พูดตะกุกตะกัก" ส่วนงานชิ้นที่สามเป็นการอ่านออกเสียงและจับใจความ ครูให้ความเห็นว่า ฉัน "อ่านไม่คล่อง" และ "ขาดทักษะการจับใจความ" นอกจากการแสดงความเห็น ครูก็จะบอกวิธีการปรับปรุงเพื่อให้การทำงานแต่ละชิ้นดีขึ้น"

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยและเห็นด้วยพอกัน	เห็นด้วย	เห็นด้วยอย่างยิ่ง
	1	2	3	4	5
9. ฉันจะนำความคิดเห็นนั้นมาปรับปรุงงานของฉัน					
10. ฉันจะนำสถานการณ์ที่เกิดขึ้นมาเป็นแรงจูงใจให้ตัวเอง					
11. ฉันอาจจะรู้สึกไม่พอใจ					
12. ฉันจะเริ่มคิดว่าโอกาสที่จะได้เรียนต่อระดับชั้นต่อไปนั้นน้อยเต็มที					
13. ฉันจะขยันเรียนวิชาภาษาอังกฤษมากขึ้น					
14. ฉันอาจจะรู้สึกหมดกำลังใจที่จะเรียนภาษาอังกฤษ					
15. ฉันจะพยายามคิดถึงทางออกใหม่ ๆ					
16. ฉันจะผิดหวังอย่างมาก					
17. ฉันจะเริ่มคิดว่าโอกาสที่จะได้เรียนต่อในระดับมัธยมปลายนั้นน้อยเต็มที					
18. ฉันจะเริ่มติดตามและประเมินความสำเร็จและความพยายามในการเรียนภาษาอังกฤษของตัวเอง					
19. ฉันจะให้กำลังใจตัวเอง					
20. ฉันจะลองใช้วิธีการเรียนแบบอื่น ๆ					
21. ฉันจะตั้งเป้าหมายความสำเร็จของตัวเอง					
22. ฉันจะขอกำลังใจจากครอบครัวและเพื่อน ๆ					
23. ฉันจะพยายามคิดถึงทั้งจุดเด่นและจุดด้อยของตัวเองเพื่อมาช่วยให้ฉันทำได้ดีขึ้นในวิชาภาษาอังกฤษ					
24. ฉันจะรู้สึกว่าทุกอย่างพังทลายลงและผิดพลาดไปหมด					

ส่วนที่ 3 ความคิดเห็นต่อกิจกรรม

คำชี้แจง โปรดอ่านข้อความแต่ละข้อและทำเครื่องหมาย ✓ ลงในช่องว่างที่ตรงกับน้อง ๆ **มากที่สุด**

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยและเห็นด้วยพอกัน	เห็นด้วย	เห็นด้วยอย่างยิ่ง
	1	2	3	4	5
25. ฉันประทับใจกิจกรรมนี้					
26. กิจกรรมนี้เป็นประโยชน์สำหรับฉัน					
27. กิจกรรมนี้ทำให้ฉันอยากตั้งใจเรียนภาษาอังกฤษมากขึ้น					
28. กิจกรรมนี้ทำให้ฉันรู้ว่าฉันสามารถเปลี่ยนแปลงความเก่งภาษาอังกฤษของตัวเองได้					
29. กิจกรรมนี้ทำให้ฉันกล้าเผชิญอุปสรรคในการเรียนภาษาอังกฤษมากขึ้น					

30. ความคิดเห็นเพิ่มเติมต่อกิจกรรมนี้

☺ สิ่งที่ฉันประทับใจ ☺

.....

.....

😐 สิ่งที่ฉันอยากให้ปรับปรุง 😐

.....

.....

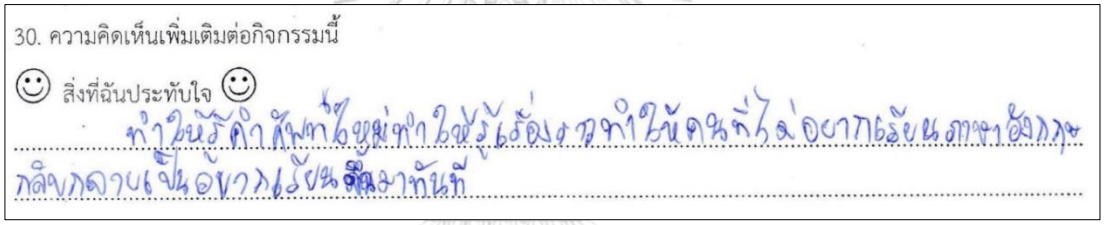
APPENDIX H

QUALITATIVE DATA: PARTICIPANTS' WRITTEN MESSAGES

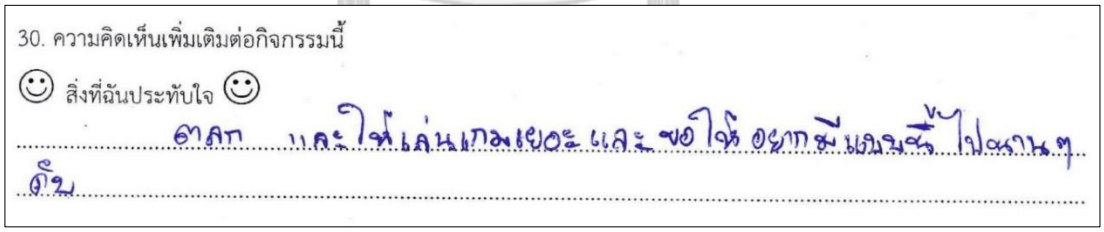
Other than the numerical data, students' written messages at the end of the posttest were considered examples of our qualitative data. They reflected the students' opinions toward themselves as well as toward taking part in our research activities. Below are some of our participants' original handwriting before being translated into English.

Examples of Impression Messages from Students in the Control Group

1. "I learned new words. I never wanted to study English before but these activities make me want to learn English more."

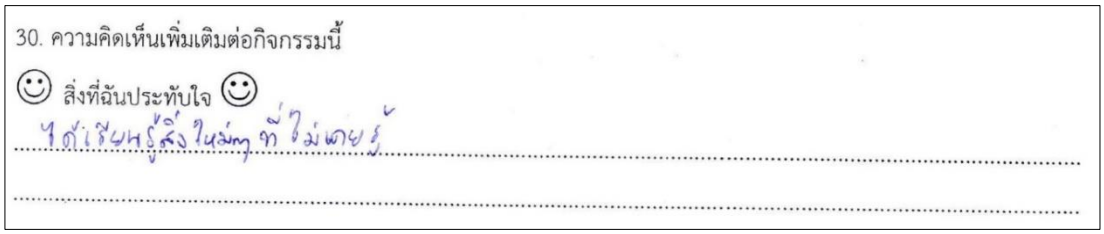


2. "It was fun and there were a lot of games. I want more of activities like these."

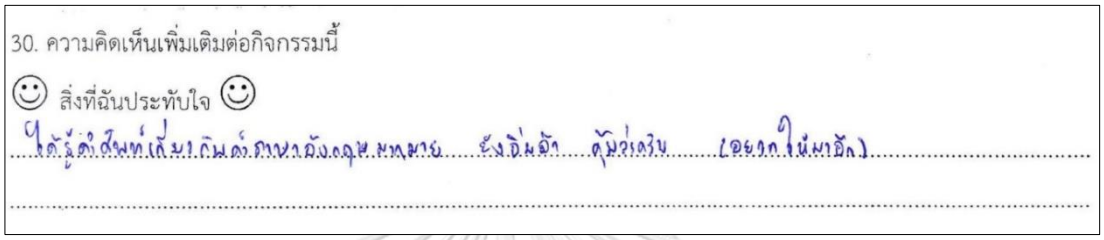


3. "We learned a lot of new English words and we were taught to work harmoniously."

4. “I learned new things that I’ve never known before.”

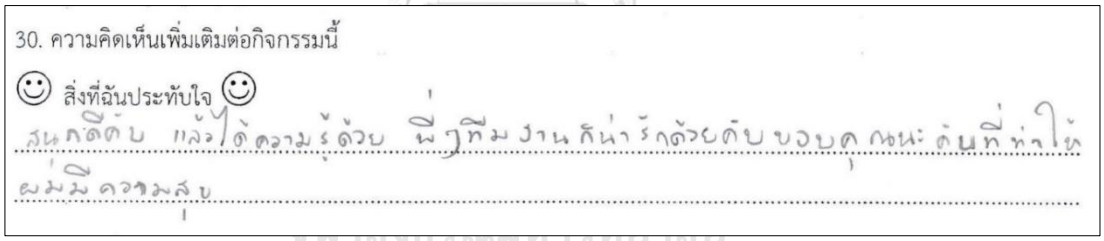


5. “I now have an extensive English vocabulary list …. It was well worth it (I want you all to come here again).”

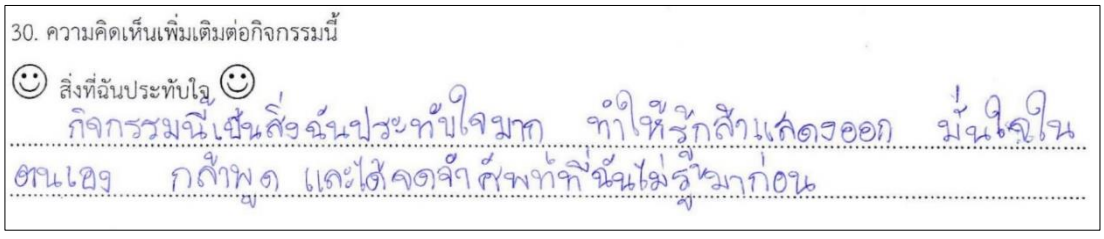


Examples of Impression Messages from Students in the Intervention Group

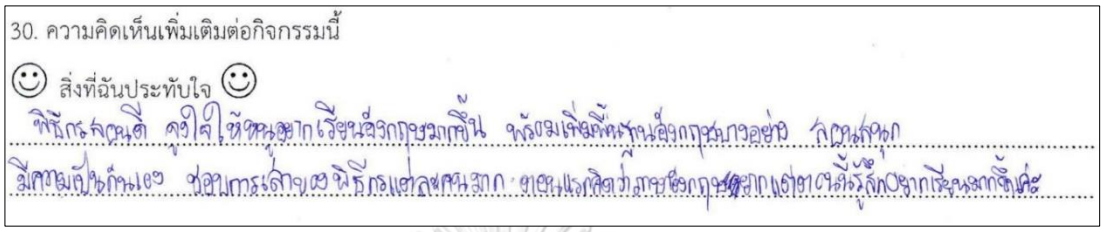
6. “It was fun and I got new knowledge. All the staff were admirable. Thank you for making me happy.”



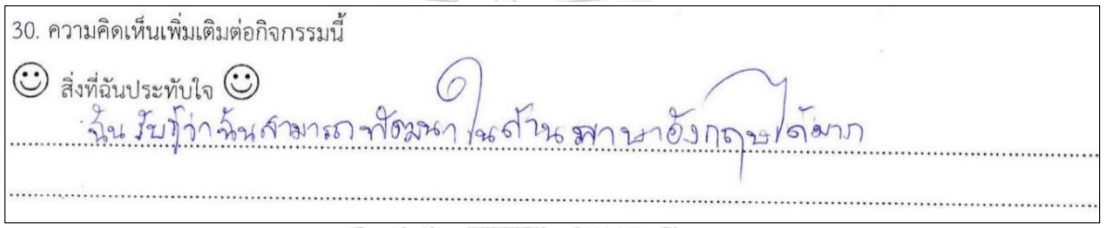
7. “These activities are really impressive. I’m more extroverted and more self-confident. I noted down the words I’ve never known before.”



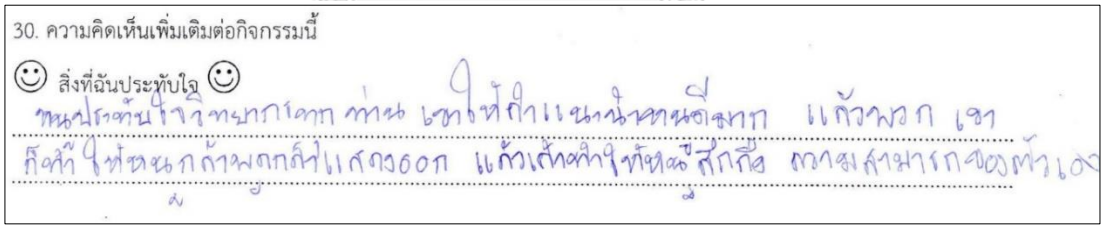
8. “The teacher taught the lessons well. He motivated me to learn English and provided me with some basic English knowledge. The teaching was fun with the cordial atmosphere. I like the way each staff member told their stories. At first I thought English was hard but now I feel like I want to study it more.”



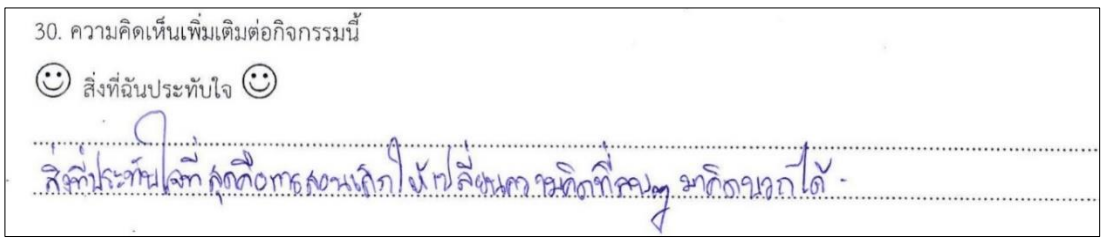
9. “I know I can still extensively develop my English intelligence.”



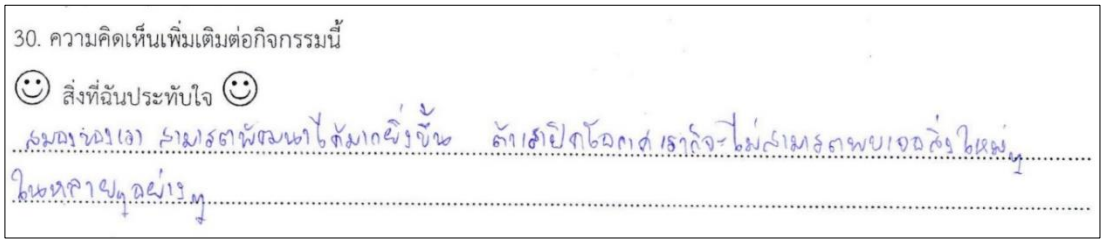
10. “I was impressed by all the staff members. They gave me good pieces of advice and they made me become more confident. Also, they made me realize my own abilities.”



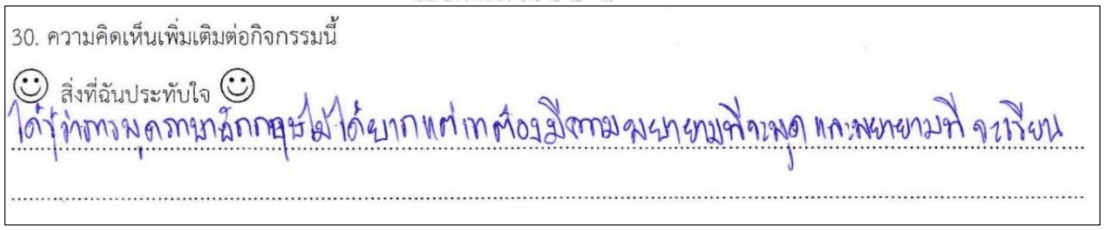
11. “The most impressive thing is that I was taught to change my negative thoughts to more positive ones.”



12. “Our brain can substantially be developed. If we close ourselves off to new opportunities, we’ll never experience new things in diverse aspects.”

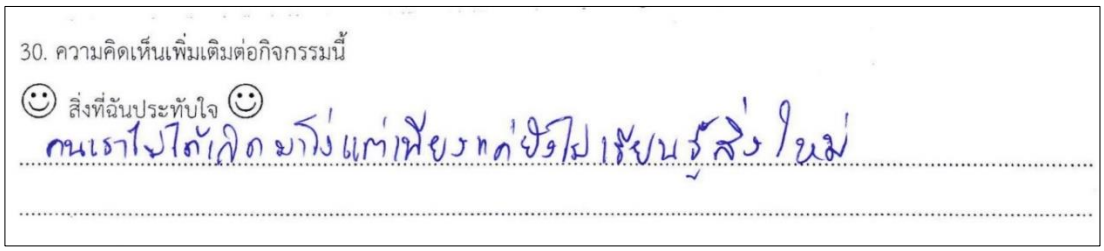


13. “I learned that English is not hard but we have to try to speak and to study.”



14. “It makes me realize that English is not as difficult as I first thought. We only need the open-mindedness and constant practice.”

15. “There is no such thing as being born stupid. It’s only that we haven’t learned new things yet.”



VITA

NAME	Pimporn Buathong
DATE OF BIRTH	29 June 1993
PLACE OF BIRTH	Nakhon Si Thammarat
HOME ADDRESS	122/99, Moo 6, Na Phru, Phra Phrom, Nakhon Si Thammarat, 80000