SMU | Annette Caldwell Simmons School of Education & Human Development

Research in Mathematics Education

STEM Academy for Science Teachers and Leaders: Student Survey Administration

Internal Report

Technical Report 19-01

STEM Academy for Science Teachers and Leaders: Student Survey Administration

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Southern Methodist University

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Table of Contents

STEM Academy for Science Teachers and Leaders: Student Survey Administration

Overview of Project

The STEM Academy for Science Teachers and Leaders, funded by the Texas Instruments Foundation and the O'Donnell Foundation, is a partnership between the Dallas Independent School District (DISD) and Southern Methodist University (SMU). The STEM Academy for Science Teachers and Leaders (STEM Academy) consists of two main components across three years. These components include: (a) 70 hours of face-to-face work at SMU and 20 hours of online pre-academy work and summary post-academy coursework, and (b) ongoing support during the academic year with up to seven one-on-one coaching cycles and up to seven professional learning community meetings at their schools with an SMU instructional coach. The project adopted a cohort model. At the time of this amended report (V2), one cohort of teachers was in their second year of participation, and a second cohort was in their third year of participation.

In this report, we focus on the students of the teachers participating in the STEM Academy. In particular, we are interested in students' motivation towards science. To measure students' motivation towards science, we adopted the Science Motivation Questionnaire II (SMQ-II, Glynn, Brickman, Armstrong, & Taasoobshirazi, 2011).

Purpose of this Report

The purpose of this report is to provide an overview of the student survey administration process. In particular, the report focuses on the sample selection, parental consent process, the student assent process, administration of student surveys, and data management. This amended report also provides changes that occurred for the student survey administration for the 2019/2020 school year.

Sample Selection

The project team first collected the student survey in spring of 2018. At that time, 15 teachers participated in the STEM Academy. Given this relatively small sample of teachers, the project team invited students in all classes taught by each teacher to complete the survey, pending parental consent. Following the addition of 30 teachers in summer of 2018, the project team developed a sampling strategy for student surveys in order to reduce project costs and ensure adequate sampling of students within teachers to justify multi-level modeling (n=25 students within each teacher). During the 2018/2019 and 2019/2020 school years, the project team identified two classes for each teacher to participate in student surveys. The first surveyed class was the class visited by the STEM Academy coach (i.e., the target class). The STEM Academy coach provided feedback to the teacher based on observations made during this class period

throughout the school year. Although this feedback was likely relevant to other class periods, students in the target class received instruction that was most closely related to the STEM Academy. The second surveyed class was a class either before or after the target class (i.e., the secondary class). When possible, the project team selected a secondary class that was similar in subject and grade to the target class. This sampling strategy resulted in an adequate sample of students for multi-level modeling in most cases and limited the time necessary for data collection.

Parental Consents

Generation of Parental Consents

The research team designed the parental consent forms to be as accessible as possible for the student population, and as efficient as possible for processing purposes. In particular, the parental consent form was created in both English and Spanish and the form was designed to allow easier processing from the research team (i.e., use of teleform). The form was generated to include the student's teacher and school. Blank fields were provided for students to input their name, student ID, and class period. Parental consent forms were submitted and approved by the SMU Institutional Review Board (IRB). The Center on Research and Evaluation (CORE) at SMU assisted with teleform development, printing, and processing. A copy of the parental consent form can be found in Appendix A. Parental consents for the 2019/2020 school year were administered once only, in the fall of 2019. The consents administered in fall of 2019 were applicable for the spring administration of the student surveys.

Packaging Parental Consents

The data manager provided CORE with a list of teacher names, number of parental consents to print, and a copy of the parental consent form. Then, CORE ensured proper formatting and printed 40 teleformed parental consents per teacher class period. After printing, the parental consents were then packaged by teacher and period. A note was provided within the packages asking teachers to send the parental consents home with students' lab safety forms at the beginning of the school year.

Parental Consents Delivery

During an initial meeting with school leadership, a RME project evaluator and RME project lead coach delivered two sets of parental consent forms for each teacher, one for each class period. The consent forms were in duplicate so that parents would be able to keep a copy for themselves once processed with parent signatures. For campuses with only one teacher, parental consent forms were delivered through the mail or in-person.

Teachers were asked to provide each student within their selected periods a parental consent form with their required lab safety forms that typically go home with students during the first week of school. The bundling of the two forms was intended to increase sample representativeness.

Parental Consent Collection

Project coaches retrieved the signed consent forms during the initial meeting with teachers in mid-September. However, the research team allowed for collection of parental consents until the day of survey administration. Project coaches delivered the completed parental consent forms to the data manager, who then pre-processed the forms. Pre-processing of the forms involved sorting and counting the forms to keep an accurate record of the number of forms collected by teacher and period. The data manager then oversaw the processing of the forms by trained student workers. The same process was followed for the fall of 2019 and Spring of 2020.

Teleform Training

Training was necessary to process and verify teleforms. CORE hosted a training of the data manager, project evaluator, student workers, and project staff. The training demonstrated how to process forms through the teleform machine and the necessary steps to ensure proper processing. Verification was also demonstrated. In addition, policies specific to RME were discussed, which included tracking requirements, bundling size, and double verification process. The teleform processing and management plan is at the following link.
https://smu.box.com/s/77k06w3by63oncfsw9to8bir4j3a12pj

Parental Content Processing

A student worker at RME prepared parental consents to be processed by the teleform machine. Preparation included removing the first three pages of the parental consent, to be returned to the student, and keeping the last page with the name and signature of the student and parent to be scanned. Next, the student worker bundled parental consents in groups of 50 or less and scanned the parental consents through the teleform machine located in CORE. The student assistant stamped each bundle with a unique identifier for tracking purposes.

After scanning, the student assistant returned the scanned bundle to the data manager and logged the bundle with the unique identifier in the tracking excel sheet. Required tracking information can be found at the RME policies link noted previously. The data manager also noted whether a bundle needed to be double verified and contacted CORE to identify the double-verified bundle in the teleform system. Identification of double-verified bundles must be done before initial verification begins or the system will not allow for double verification.

A student worker then verified the information scanned into the teleform machine. Verification involved matching the information on the parental consent form to the digital version produced by the teleform machine. Corrections were made to the digital copy when discrepancies from the paper copy were evident. After verification of a bundle was complete, the student worker returned the bundle to the data manager for secure storage, and the data manager logged the bundle in the tracking spreadsheet, as verified. The cycle of processing continued until all parental consents were completed. Double verifications were conducted on 20% of the bundles processed. Double verifications were conducted by another member of the project who did not do the initial verification.

Student Surveys

Roster Generation

After processing of the parental consents, a list of eligible students for surveying was provided by CORE to the data manager. The data manager or other project staff utilized the following template to generate rosters by teacher and period (link: https://smu.box.com/s/98iwpfe31i4o5wy5c0dif1h75ms2w927). Blank spaces were provided on the rosters to allow for additional consented students if additional consents were collected after the first attempt to collect. If students did not identify a class period on their consent form, then the student was added to both class periods for that teacher.

Student Assents

In addition to parent/guardian consent, allowing the student to participate in the survey, an assent was also required from the student. Assents were printed to reflect the number of students with completed parental consents, with an additional 15 assents added per class period to allow for additional consented students. A copy of the student assent can be found in Appendix B.

Student Survey Printing and Packaging

The data manager provided CORE with a cleaned data file that indicated the teacher, student name, student ID, and class period (when identified). The CORE representative then printed the student surveys with blanks left for class period (if not initially identified), and pre-AP status. Fifteen additional blank student surveys were also printed by class period for students whose consents were collected the day of survey administration. A copy of the 2018-19 student survey can be found in Appendix C. For spring 2020 administration, the survey form was updated to enable easier de-identification of hard copies after all surveys are complete. A copy of the spring 2020 student survey can be found in Appendix D.

A student assistant created a manila folder for each class period by teacher. The folder contained the roster, student assents, and the student surveys. The folders were organized by school and stored in a data collection bin and stored in a secure location until administered. The bins also included pens and a schedule for data collection that included teacher room numbers at each school. Bins were labeled with school name on the outside.

The survey, parental consent, and student assent (fall) or survey and student assent (spring) were bundled together to facilitate easier handing out of the materials in class.

Student Incentive

For the 2018-2019 school year, participating students received a SMU back pack once they returned their parent consent and completed the survey. For the 2019-2020 school year, participating students received a STEM water bottle once they returned their parent consent and completed the survey. Incentives were only distributed during the fall administration when

consented students completed the survey. A student worker assisted in packaging the incentives by teacher. In most cases, boxes or extra-large ziplocs were needed to transport the incentives to schools. The incentive was also provided for participating teachers and leaders.

Administration Scheduling

The data manager worked with project staff to develop an administration schedule for student surveys. The schedule was designed to avoid district testing and other data collection efforts (e.g., coaching observations). Administrations were scheduled for either the first or last 15 minutes of the class period, with efforts to schedule back-to-back administrations to minimize interruption to classes and manage project costs. In some instances, administrations were scheduled at multiple schools in one day when time allowed.

Administration schedules were created and organized by schools, date, and individual school schedules, class and period. Proposed schedules were sent to teachers and leaders through a generic email for approval or approved in-person by a project coach. Changes were made to the administration schedule when teachers identified conflicts (e.g., testing, field trip). Coaches scheduled student survey administrations through an automated tool called AppToTo, which sent reminders via email and text of when data collectors would be on their campuses for data collection.

Administration Procedures

On the day of survey administration, data collectors gathered their bin from the data manager and proceeded to the assigned school. Once at the school, the data collector signed-in with office personnel following school check-in protocol and proceeded to their first scheduled administration. Administration consisted of the following steps.

1) Check-in with the teacher to verify if any additional consents were collected (fall only).

2) At the preference of the teacher, pull consented students out to the hallway or stay in the classroom.

3) Re-distribute original parental consent (signed), distribute blank assent, and distribute survey to each student (fall 2019 and spring 2020, these were bundled and paper-clipped by student).

4) Read the assent aloud to the student.

5) Student fills out first and last name and agreement to participate on student assent, writing yes or no and circling yes or no in their assent to participate.

6) If student agrees to participate, student completes the student survey in black ink, emphasizing that student ID is confirmed by the student. If student does not agree to participate, student returns any forms and proceed to participate in class.

7) Gather all forms and check all questions on each survey to ensure completion, no blanks.

8) Distribute incentives to surveyed students (fall only).

9) Thank students and return students to class if in hallway.

10) Complete fields on roster (assent, survey, incentive) and ensure counts. Add newly consented/assented students to roster (if applicable; fall only). Indicate problems or absences in notes on roster. If a student had withdrawn or moved classes, this was indicated too.

Returning Survey Data

At the end of each data collection, the data collector returned bins to the data manager for secure storage. The data manager pre-processed the bins which included sorting assents from surveys and counting the number of student surveys received by teacher and class period. The number of surveys was included in a tracking spreadsheet file on BOX. The data manager was in communication with, and sent periodic updates to, project management to determine if additional days of administration were warranted. If surveys were incomplete or assents indicated a student did not want to participate by circling "no" on the assent, the survey would be discarded/shredded and the student would be removed from the roster and ultimately, the study.

Processing Student Surveys

Similar to the processing steps for parental consents, a student worker bundled student surveys in stacks of 50 or less. The student worker then scanned the student surveys in CORE, stamping each bundle with a unique identifier for tracking purposes. The student worker returned the bundle to the data manager for recording, and then proceeded to the verification process for the bundle. The data manager coordinated with CORE on which bundles needed double verification (20%) prior to initial verification. A second member of project staff assisted with double verification.

Student Survey Data

The data manager worked with CORE at the conclusion of data verification to develop the raw data file. The raw data file was stored in the project's secure data folder, under raw data files. The file is not to be modified.

References

Glynn, S. M., Brickman, P., Armstrong, N., & Taasoobshirazi, G. (2011). Science motivation questionnaire II: Validation with science majors and nonscience majors. *Journal of Research in Science Teaching, 48*(10), 1159-1176.

Appendix A – Parental Consent

Campus _____ Teacher

SOUTHERN METHODIST UNIVERSITY
PARTICIPATION EXPLANATION AND CONSENT FORM

DUE: 9/4/2018

Class Period

PROJECT TITLE:
The STEM Academy for Science Teachers & Leaders

Versión en español detrás

INVESTIGATORS/CONTACT INFORMATION:
PI: Leanne Ketterlin-Geller, Ph.D.

My signature below indicates that I have read the information provided and have decided to allow my child, _____ (print student's name), to participate in the project titled, "The STEM Academy for Science Teachers & Leaders" to be conducted at my child's school.

I agree to the conditions listed below with the understanding that I may withdraw my child from the project at any time, and that my child may choose not to answer any questions that he/she does not want to answer.

Introduction:
Before you say that your child will be in this research study you need to read this form. It is important for you to understand all the information in this form because it will tell you what the study is about and how it will be done. It will tell you about some problems that might happen during the study, as well as the good things that might happen during the study. When you read a paper like this to learn about a research study, it is called "informed consent". When you give your consent for something, it is the same thing as giving your permission. If you do not understand something in this form, please talk with one of the staff to answer your questions. Do not sign this consent form unless all your questions have been answered and you feel comfortable with the information you have read. You will be given a copy of the form to keep.

Your child is being asked to take part in this study because Dallas ISD identified your school as a candidate for benefitting from this professional development for your child's science teacher and your principal agreed to your school's participation in this project. Your child's personal participation in this study is voluntary.

Why Is This Study Being Done?
The purpose of this study is to understand the impact of providing middle-school science teachers with an intensive STEM science academy during the summer, coupled with ongoing coaching throughout the year to support the academy content and objectives. As a student in this study, your child will be asked to take a survey twice a year. Each administration will take approximately 5-10 minutes, for a total of 10-20 minutes during the year. The purpose of the survey is to understand students' motivation in science, and hopefully measure an improvement in their motivation in science over time as they their teacher advances his or her science teaching content and pedagogy. The objective of the project overall, is to improve students' achievement in science through improving their attitudes towards science, their science reasoning abilities, and the use of active learning methods.

How Many People Will Take Part In The Study?
In year 1 of the study, 18 teachers and 3,000 students in their classrooms will participate. By the end of the study (year 3), it is anticipated that 216 teachers will be participating.

SOUTHERN METHODIST UNIVERSITY
FORMULARIO DE INSTRUCCIONES Y AUTORIZACIÓN DE PARTICIPACIÓN

TÍTULO DEL PROYECTO:
La Academia STEM para maestros de ciencias y líderes

INVESTIGADORES / INFORMACIÓN DE CONTACTO:
IP: Leanne Ketterlin-Geller, Ph.D.

Con la firma de este documento, doy fe que he leído la información proporcionada y autorizo que mi hijo/a, (escriba el nombre del estudiante), participe en el proyecto titulado "La Academia STEM para Maestros y Líderes de Ciencias" que se llevará a cabo en su escuela.

Acepto las condiciones que se enumeran a continuación con el conocimiento de que puedo retirar a mi hijo/a del proyecto en cualquier momento y que mi hijo/a puede decidir no contestar preguntas que él/ella no quiera.

Introducción:
Antes de decidir la participación de su hijo/a en este proyecto de investigación, asegúrese de leer este formulario. Es importante que comprenda bien toda la información de este formulario ya que explica de qué se trata el estudio y cómo se llevará a cabo. En este formulario se le informará sobre los posibles inconvenientes que podrían ocurrir durante el estudio, así como los beneficios del mismo. Este tipo de documento, por medio del cual se informa acerca de un estudio de investigación, se denomina "autorización con conocimiento de causa". Dar su consentimiento para algo equivale a dar su autorización. Si hay algo que no entienda o no quede claro en este formulario, por favor hable con alguno de los empleados para que respondan sus preguntas. No firme este formulario de autorización a menos que todas sus preguntas hayan sido contestadas y usted se sienta cómodo/a con la información que ha leído. Se le entregará una copia del formulario para sus registros.

A su hijo/a se le pide que participe en este estudio porque Dallas ISD identificó al maestro de ciencias de la escuela de su hijo/a como candidato para beneficiarse de este desarrollo profesional y, además, el director de la escuela autorizó la participación de esta en el proyecto. La participación personal de su hijo/a en este estudio es voluntaria.

¿Por qué se está haciendo este estudio?
El propósito de este estudio es comprender el impacto que tiene la capacitación de los maestros de ciencias de escuela intermedia en una academia intensiva de ciencias STEM durante el verano, junto con la asesoría continua de un mentor que apoye el contenido y los objetivos de la academia durante todo el año escolar. Como estudiante en este estudio, a su hijo/a se le pedirá que participe en una encuesta dos veces al año. Para completar cada encuesta se necesitará aproximadamente de 5 a 10 minutos, lo que equivale a un total de 10 a 20 minutos al año. El objetivo de la encuesta es entender la motivación de los estudiantes por la ciencia con la esperanza de poder medir el progreso de la motivación del niño por la ciencia a medida que su maestro/a avanza en cuanto al contenido de ciencias y la pedagogía para su enseñanza. El objetivo general del proyecto es mejorar el rendimiento académico de los estudiantes a través de la mejora de sus actitudes hacia la ciencia, sus habilidades de razonamiento científico y el uso de métodos activos de aprendizaje.

¿Cuántas personas tomarán parte en el estudio?
En el primer año del estudio participarán 18 maestros y 3000 estudiantes en sus aulas. Al final del estudio (tercer año) se prevé que participen 216 maestros.

What Is Involved In The Study?
If you agree to allow your student to participate, your child will complete a survey on their motivation in science twice a year. Student demographic data; STAAR math, reading, and science scores; student course grades; and data on students' high school endorsement selection will be collected as well. Failure to allow access to the requested data will not affect free/reduced price meal eligibility status or course grades.

How Long Will I Be In The Study?
Students in this study will participate during the current academic year.

What are the Risks and Benefits of Participation?
As part of this study, your student's teacher will receive training and coaching to enhance their professional growth. The information gained during this study is aimed to improve the teaching and leadership practices beyond the discontinuation of the study. Teacher learning from the academies may result in higher achievement and better preparation for STEM coursework in high school and college for students. There is minimal risk as a participant in this study. To maintain confidentiality, all personally identifying information will be removed from surveys. The questions asked on the surveys focus on students' motivation in science and should not pose any risk to participants.

What Are the Costs and Will I be Paid for Taking Part in the Study?
There is no cost for taking part in this study.

What About Confidentiality?
Your student has a full right to privacy. This means that only the researchers who are part of this study will see the information about your child from this study. The results of this study may be published in a scientific book/or journal or presented to other people. If this is done, your child's name will not be used so no one will know who they are. All information about your child from this research project will be kept in the locked office of Dr. Ketterlin-Geller. Information that is kept on computers will be kept safe from access by people who should not see it, through password-protection.

What are My Rights As a Participant?
Taking part in this study is voluntary. Your student does not have to take part in this study and it is okay to refuse to sign this form. If you agree to allow your child to participate and then change your mind, you can withdraw your student for any reason. Deciding not to be in the study, or leaving the study early, will not result in any penalty or loss of benefits that you would otherwise receive by Southern Methodist University or Dallas ISD. I understand that, while this project has been reviewed by the Dallas Independent School District, Dallas ISD is not conducting the project activities.

If you change your mind and later want to withdraw your permission, you may do so. You may notify Dr. Leanne Ketterlin-Geller through verbal or written communication.

¿Qué implica el estudio?
Si autoriza la participación de su hijo/a, este completará una encuesta sobre su motivación por la ciencia dos veces al año. También se recopilarán datos demográficos y datos de rendimiento académico de los estudiantes (por ejemplo, calificaciones STAAR matemáticas, lectura, y ciencias, calificaciones en el aula), y datos en la selección de especialidades de cursos en la preparatoria también serán recolectados. El denegar el acceso a los datos solicitados no afectará el estatus de elegibilidad de comidas gratis/a precio reducido o las calificaciones del curso.

¿Cuánto tiempo estaré en el estudio?
Los estudiantes de este estudio participarán durante el año académico corriente.

¿Cuáles son los riesgos y beneficios de la participación?
Como parte de este estudio, el maestro de su hijo/a recibirá capacitación y entrenamiento para mejorar su desarrollo profesional. La información obtenida durante este estudio tiene como objetivo mejorar las prácticas de enseñanza y liderazgo más allá de la finalización del mismo. El aprendizaje obtenido por los maestros en las academias puede resultar en un mayor rendimiento y una mejor preparación para los cursos STEM en la escuela secundaria y la universidad por parte de los estudiantes. El riesgo de la participación en este estudio es mínimo. Para mantener la confidencialidad, toda la información de identificación personal del estudiante se eliminará de las encuestas. Las preguntas formuladas en las encuestas se centran en la motivación de los estudiantes por la ciencia y no deben suponer ningún riesgo para los participantes.

¿Cuáles son los costos y se me pagará por tomar parte en el estudio?
La participación en este estudio no tiene costo alguno.

¿Qué pasa con la confidencialidad?
Su hijo/a tiene pleno derecho a la privacidad. Esto significa que solo los investigadores que forman parte de este estudio tendrán acceso a la información sobre su hijo/a en el mismo. Los resultados de este estudio podrán ser publicados en libros o revistas científicas, o presentados a otras personas. Si esto ocurriera, el nombre de su hijo/a no será utilizado para garantizar su anonimato. Toda la información sobre su hijo/a en este proyecto de investigación se mantendrá bajo custodia en la oficina de la Dra. Ketterlin-Geller. El acceso a la información grabada en las computadoras se mantendrá a salvo de personas no autorizadas a través de la protección con contraseña.

¿Cuáles son mis derechos como participante?
La participación en este estudio es voluntaria. Su hijo/a no tiene la obligación de participar en el mismo y se puede negar a firmar este formulario si así lo desea. Si acepta la participación de su hijo/a en el estudio y después cambia de opinión, podrá retirar a su hijo/a sin que importe la razón. La decisión de no participar en el estudio o abandonarlo antes de tiempo, no conllevará ninguna penalización o pérdida de beneficios que de lo contrario recibiría por parte de la Southern Methodist University o del Dallas ISD. Entiendo que aunque ese proyecto ha sido repasado por Dallas ISD, el distrito no dirige actividades del proyecto.

Si cambia de opinión y luego desea retirar su autorización, puede hacerlo. En este caso deberá notificar a la Dra. Leanne Ketterlin-Geller por comunicación verbal o escrita.

Whom Do I Call If I have Questions or Problems?
If your child participates in the project, I can get information about the project and copies of any surveys or tests given to my child by contacting:

Leanne Ketterlin-Geller, Ph.D.
Texas Instruments Chair in Education Professor, Education Policy & Leadership
Director, Research in Mathematics Education
Simmons School of Education and Development

Southern Methodist University PO Box 750114
Dallas, TX 75275-0114 Phone: 214/768-4947 Fax: 214/768-4313
Email: lkgeller@smu.edu

If you have questions about your rights as a participant or feel you have been placed at risk, you may contact:

Austin Baldwin, Ph.D., IRB Chair
researchcomplaince@smu.edu
214-768-2033

¿A quién debo llamar si tengo preguntas o problemas?
Si su hijo/a participa en el proyecto, puede obtener información sobre el mismo y copias de cualquier encuesta o examen dados a mi hijo/a poniéndose en contacto con:

Leanne Ketterlin Geller, Ph.D.
Texas Instruments Chair in Education Professor, Education Policy & Leadership
Director, Research in Mathematics Education
Simmons School of Education and Human Development

Southern Methodist University PO Box 750114
Dallas, TX 75275-0114 Phone: 214/768-4947 Fax: 214/768-4313
Email: lkgeller@smu.edu

Si tiene preguntas sobre sus derechos como participante de este estudio o siente que usted ha sido expuesto a algún riesgo, puede comunicarse con:

Austin Baldwin, Ph.D., IRB Chair
researchcomplaince@smu.edu
214-768-2033

Confirmation of Consent by Research Subject:
You are making a decision about your child being in this research study. When you sign this form, you are giving your permission for your child to be in the study. By signing this form, you have not given up any of your legal rights or released anyone from liability for negligence, and you are at least 18 years of age.

I have read (or have had read to me) this consent form. I have been given a chance to ask questions about the research study and the procedures involved. I believe that I have enough information to make my decision. I have also been told my other options.

Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to allow your child to participate in this research study. If you later decide to withdraw your consent for participation in the study, you should contact the Project Director/Researcher. You may discontinue participation at any time. The Parent / Legal Guardian should keep a copy of this form for his/her records.

The results of my student's participation in this project will be kept confidential unless I give prior written consent. My consent is optional and voluntary. My decision whether or not to allow my child to participate will not prejudice my present or future relations with Southern Methodist University or my child's school or teacher. If I decide to let my child participate, I am free to discontinue participation at any time without prejudice. To the extent that my child may be identified, if I withdraw my student from the project, my student's information will be removed from the project results. I understand that, while this project has been reviewed by the Dallas Independent School District, Dallas ISD is not conducting the project activities.

I agree to give my consent to take part as a subject in this research project.

Campus _____ **Teacher** _____

Student First Name

Class Period

Student Last Name

Student ID

_____ _____
Name of Parent Date and Time

_____ _____
Signature of Parent Date and Time

IRB Approved: 04/04/2018 SL
Expires: 04/04/2019
Study ID: H17-034-GELL

Confirmación de la autorización por parte del sujeto de la investigación:
Usted está tomando una decisión sobre su estudiante y su participación en este estudio de investigación. Al firmar este formulario, usted está dando su permiso para que su hijo/a forme parte del estudio. Al firmar este formulario, usted no renuncia a ninguno de sus derechos legales ni ha eximido a nadie de su responsabilidad por negligencia, y tiene al menos 18 años de edad.

He leído (o me han leído) este formulario. Se me ha dado la oportunidad de hacer preguntas acerca del estudio de investigación y los procedimientos. Creo que tengo suficiente información para tomar una decisión. También, se me han dicho mis otras opciones.

Su firma a continuación indica que ha leído y entendido la información proporcionada anteriormente, que ha tenido la oportunidad de hacer preguntas y que acepta permitir que su hijo/a participe en este estudio de investigación. Si posteriormente decide retirar su consentimiento para participar en el estudio, debe ponerse en contacto con el Director/Investigador del Proyecto. Usted puede suspender la participación en cualquier momento. El padre/tutor legal debe guardar una copia de este formulario para sus registros.

Los resultados de la participación de mi hijo/a en este proyecto serán confidenciales a menos que yo dé consentimiento previo por escrito. Mi autorización es opcional y voluntaria. Mi decisión de permitir o no que mi hijo/a participe no perjudicará mis relaciones actuales o futuras con la Southern Methodist University o la escuela o maestro de mi hijo. Si decido dejar que mi hijo/a participe, puedo suspender su participación en cualquier momento sin ningún perjuicio. Si decido retirar a mi hijo/a del proyecto, toda información que se haya recogido de él hasta ese momento será eliminada de los resultados del proyecto. Entiendo que, aunque este proyecto ha sido revisado por el Distrito Escolar Independiente de Dallas, el Dallas ISD no está llevando a cabo las actividades del proyecto.

Estoy de acuerdo en dar mi autorización para participar como sujeto en este proyecto de investigación.

Escuela **Maestro/a**

Nombre del estudiante **Clase**

Apellido del estudiante **Identificación**

Nombre de los padres del estudiante Fecha y hora

Firma de los padres del estudiante Fecha y hora

Appendix B – Student Assent

TI-STEM Project: Science Motivation
Student Assent Form

*** To be read to the student by the researcher prior to testing***

Hello, my name is _____, and I work at Southern Methodist University. We are asking you to take part in a research study by Dr. Leanne Ketterlin Geller. I would like your help.

I'd like to know more about what you think and how you feel about your science courses. To do this, all you have to do is complete a short questionnaire. This will take approximately 5 to 10 minutes. You can rest as much as you'd like, and you can stop whenever you want.

If you want to rest, or stop completely, just tell me--you won't get into any trouble.

Your parent(s) have already told me that it is all right with them if you want to help us. Remember, you don't have to, and once you start you can rest or stop whenever you like.

Only the researchers may get a copy of what you've done. Your name will be removed from the data. Your responses to the questionnaire will not impact your science grades.

If you have any questions, let me know. If you have any questions about your rights as a research subject, please call the Office for Human Research Protections at Southern Methodist University. I have the phone numbers and addresses for you.

Do you have any questions?

Will you complete the science questionnaire?

Interviewer: Taylor Cox Anthony Rhone Anthony Sparks Other:_____

Date: _____

Agreement to participate: Yes No

Student signature: _____

Student name: _____

Thank you for your help.

Contact information:
Dr. Leanne Ketterlin-Geller, 214-768-4947, lkgeller@smu.edu, P.O. Box 750114, Dallas, TX 75275

Appendix C – Student Survey 18/19

TI-STEM

Campus

Teacher

Class Period

Student First Name

Grade

Pre-AP? (Y or N)

Student Last Name

Student ID

SCIENCE MOTIVATION QUESTIONNAIRE II (SMQ-II)

In order to better understand what you think and how you feel about your science courses, please respond to each of the following statements from the perspective of "When I am in a science course…"

Statements	Never 0	Rarely 1	Sometimes 2	Often 3	Always 4
01. The science I learn is relevant to my life.	O	O	O	O	O
02. I like to do better than other students on science tests.	O	O	O	O	O
03. Learning science is interesting.	O	O	O	O	O
04. Getting a good science grade is important to me.	O	O	O	O	O
05. I put enough effort into learning science.	O	O	O	O	O
06. I use strategies to learn science well.	O	O	O	O	O
07. Learning science will help me get a good job.	O	O	O	O	O
08. It is important that I get an "A" in science.	O	O	O	O	O
09. I am confident I will do well on science tests.	O	O	O	O	O
10. Knowing science will give me a career advantage.	O	O	O	O	O
11. I spend a lot of time learning science.	O	O	O	O	O
12. Learning science makes my life more meaningful.	O	O	O	O	O

more on back

Statements	Never 0	Rarely 1	Sometimes 2	Often 3	Always 4
13. Understanding science will benefit me in my career.	O	O	O	O	O
14. I am confident I will do well on science labs and projects.	O	O	O	O	O
15. I believe I can master science knowledge and skills.	O	O	O	O	O
16. I prepare well for science tests and labs.	O	O	O	O	O
17. I am curious about discoveries in science.	O	O	O	O	O
18. I believe I can earn a grade of “A” in science.	O	O	O	O	O
19. I enjoy learning science.	O	O	O	O	O
20. I think about the grade I will get in science.	O	O	O	O	O
21. I am sure I can understand science.	O	O	O	O	O
22. I study hard to learn science.	O	O	O	O	O
23. My career will involve science.	O	O	O	O	O
24. Scoring high on science tests and labs matters to me.	O	O	O	O	O
25. I will use science problem-solving skills in my career.	O	O	O	O	O

SMQ-II: Glynn, Brickman, Armstrong, & Taasoobshirazi (2011)

Appendix D – Student Survey Spring 2020

TI-STEM

Campus

Teacher

Class Period

Student First Name

Grade

Pre-AP? (Y or N)

Student Last Name

Student ID

SCIENCE MOTIVATION QUESTIONNAIRE II (SMQ-II)

In order to better understand what you think and how you feel about your science courses, please respond to each of the following statements from the perspective of "When I am in a science course…"

Statements	Never 0	Rarely 1	Sometimes 2	Often 3	Always 4
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02. I like to do better than other students on science tests.	O	O	O	O	O
03. Learning science is interesting.	O	O	O	O	O
04. Getting a good science grade is important to me.	O	O	O	O	O
05. I put enough effort into learning science.	O	O	O	O	O
06. I use strategies to learn science well.	O	O	O	O	O
07. Learning science will help me get a good job.	O	O	O	O	O
08. It is important that I get an "A" in science.	O	O	O	O	O
09. I am confident I will do well on science tests.	O	O	O	O	O
10. Knowing science will give me a career advantage.	O	O	O	O	O
11. I spend a lot of time learning science.	O	O	O	O	O
12. Learning science makes my life more meaningful.	O	O	O	O	O

more on back

Statements	Never 0	Rarely 1	Sometimes 2	Often 3	Always 4
13. Understanding science will benefit me in my career.	O	O	O	O	O
14. I am confident I will do well on science labs and projects.	O	O	O	O	O
15. I believe I can master science knowledge and skills.	O	O	O	O	O
16. I prepare well for science tests and labs.	O	O	O	O	O
17. I am curious about discoveries in science.	O	O	O	O	O
18. I believe I can earn a grade of "A" in science.	O	O	O	O	O
19. I enjoy learning science.	O	O	O	O	O
20. I think about the grade I will get in science.	O	O	O	O	O
21. I am sure I can understand science.	O	O	O	O	O
22. I study hard to learn science.	O	O	O	O	O
23. My career will involve science.	O	O	O	O	O
24. Scoring high on science tests and labs matters to me.	O	O	O	O	O
25. I will use science problem-solving skills in my career.	O	O	O	O	O

SMQ-II: Glynn, Brickman, Armstrong, & Taasoobshirazi (2011)