

EXECUTIVE SUMMARY

The purpose of the science, technology, engineering, and mathematics (STEM) professional development (PD) and PD instructional coordinators program is to provide training to mathematics, science, and wellness teachers, instructional coordinators, and principals on content and instructional practices that will support all students' access to high-quality instruction. The STEM PD and PD Instructional coordinators program aims to provide high-quality, personalized professional development trainings, and to improve mathematics and science content knowledge of teachers, instructional leadership teams, and principals.

The program sought to improve the knowledge of teachers, instructional leadership teams, and principals regarding effective instructional practices that address the needs of students with different learning styles within a mathematics or science classroom, particularly for students with disabilities and students with special needs. Program goals include: 1) increasing student achievement consistent with the challenging state academic standards; 2) improving the quality and effectiveness of teachers, principals and other school leaders; 3) increasing the number of teachers, principals and other school leaders who are effective in improving student academic achievement in schools; and 4) providing low-income and minority students greater access to effective teachers, principals and school leaders. In 2020-21, the STEM PD and PD instructional coordinators program received \$782,317.00 through Title II funding. Measurable program goals for the STEM PD and PD instructional coordinators program in 2020-21 were as follows:

- Two STEM PD sessions will be held during the fall and spring semesters of the 2020-21 school year, and
- STEM PD sessions will cover two-thirds of comprehensive campuses in the district.

On March 13, 2020, in alignment with federal recommendations, the Governor of Texas issued a disaster proclamation certifying that the novel coronavirus COVID-19 posed an imminent threat of disaster for all counties in the state of Texas. In response to the COVID-19 pandemic, Dallas ISD transitioned students to at-home learning on March 23 following spring break (March 16 – 20) until the end of the 2019-20 school year. To help district students and families access the internet during at-home learning, the Dallas ISD launched "Operation Connectivity" in May 2020, which provided 23,000 hotspots to families by October 2020. In 2020-21, Dallas ISD delayed the start of

the 2020-21 school year until September 8, 2020 and implemented at-home learning districtwide for the first four weeks. The district also modified the school calendar from a six-week schedule to a nine-week schedule. On October 22, 2020, the district announced that campuses would provide in-person and virtual learning throughout the rest of the school year, and parents could choose whether their children participated in in-person or virtual instruction. In-person and virtual instruction included both synchronous and asynchronous learning activities. The district also continued to implement the Center for Disease Control (CDC) as well as state and local COVID safety protocols.

PURPOSE AND METHOD

The purpose of this evaluation was to provide an overview of the program's context and process, as well as assess progress towards program goals during the 2020-21 school year¹.

Data on program budget were obtained from program funding workscope. Data on program participants, training sessions, and other program activities were obtained from program managers. Participant data received on 04/12/21 were merged with the district personnel data file dated 04/29/21. Perceptual data were obtained from an evaluator-designed survey administered in late spring. Frequency and crosstab analyses were computed. Open-ended responses were analyzed qualitatively for common themes and patterns.

EVALUATION QUESTIONS/OUTCOMES

What were the characteristics of the STEM PD participants and PD instructional coordinators?

A total of 1,039 mathematics and science teachers, instructional coordinators, and administrators participated in the STEM PD program in 2020-21. Overall, mathematics and science teachers ($n=857$) comprised the largest group (82.5%). Instructional coaches and administrators accounted for 16.2 percent ($n=168$). Of the STEM PD participants, 72.6 percent were female, 36.9 percent were African American, and 35.1 percent were Hispanic. More than twenty-nine percent held a master's-level degree or higher. Over 57 percent had between one to 10 years of experience within the district, and 33.4 percent had 11 or more years of experience within the district (Table 1).

¹ 2020-21 was the first year the STEM PD and PD instructional coordinators program was evaluated.

Table 1: 2020-21 STEM PD Participant Characteristics

	<i>n</i>	%
Job Category		
Mathematics/science teachers	857	82.5
Instructional coaches	87	8.4
Administrators	81	7.8
Other	14	1.3
Gender		
Female	754	72.6
Male	285	27.4
Ethnicity		
African American	383	36.9
Hispanic	365	35.1
White	228	21.9
Asian	49	4.7
Other	14	1.4
Education Level		
Bachelor's	632	60.8
Master's	287	27.6
Doctorate	20	1.9
Other	100	9.6
Years of Local Experience		
<1 year	97	9.3
1-5 years	389	37.4
6-10 year	206	19.8
11-20 years	244	23.5
21+ years	103	9.9

Source: Program participant data received on 04/12/21. District personnel data file dated 04/29/21.

Note: *N*=1,039. "Other" in job category includes teacher assistants (*n*=7), librarians (*n*=4), counselors (*n*=2), and a substitute teacher (*n*=1). Percentages may not add to 100 due to rounding.

To what extent did the program meet outlined goals?

The program goal to hold two STEM PD sessions in 2020-21 was met. The STEM PD science and wellness division provided a total of 66 training sessions to elementary, middle, and high school teachers; instructional coordinators; and principals from August 17, 2020 through May 26, 2021. The training sessions included districtwide curriculum and resources, six-week at-a-glance content professional learning sessions (SWAGs), new teacher academy, and online self-paced courses (Table 2).

The STEM PD science and wellness sessions focused on: 1) locating digital/virtual science curriculum resources on PowerSchool Learning (LMS)², reviewing curriculum resources for use in a synchronous or asynchronous virtual learning environment; 2) learning on connecting science standards to phenomenon, and examining how this interdisciplinary approach was specific, observable, and related to real-world events; and 3) modeling and teaching proper safety procedures and practices as well as planning, implementing, and supervising appropriate science activities. Additionally, the new teacher academy training

session focused on introducing teachers to the science Texas Essential Knowledge and Skills (TEKS).

Table 2: 2020-21 STEM PD Science and Wellness Sessions and Attendance

Description	Session	Participant
Elementary School		
Curriculum and Resources	6	87
SWAG (3rd-6th Six Weeks)	4	115
Out Teach: Anchoring Instruction in Outdoor Phenomena	4	28
Elementary Digital Cut Ups	1	21
Dallas Arboretum: Our Planet & Beyond	4	21
All Elementary Schools	19	272
Middle School		
Curriculum and Resources	6	77
SWAG (3rd-6th Six Weeks)	4	36
Elementary Digital Cut Ups	1	14
Dallas Arboretum: Our Planet & Beyond	4	17
All Middle Schools	15	144
High School		
Curriculum and Resources	12	101
SWAG (3rd-6th Six Weeks)	4	38
PASCO Biology Virtual Workshop	2	21
All High Schools	18	160
New Teacher Academy 2020		
Elementary Science & Wellness	1	5
Middle Science & Wellness	1	28
High School Science and Wellness	2	26
All New Teacher Academy	4	59
Online Self-Paced Course in Cornerstone		
Elementary/middle/high school	10	97
Total	66	732

Source: STEM PD program data 05/25/21.

Note: SWAG=six-week at-a-glance content professional learning.

PASCO=an approved vendor for Science PD.

The STEM PD mathematics division provided a total of 34 sessions to elementary, middle, and high school teachers; instructional coordinators; and principals from August 25, 2020 through April 27, 2021. The training sessions included: six-week at-a-glance content professional learning sessions (SWAGs), STAAR Academy, STAAR EOC Academy, new teacher academy, equity in mathematics & social justice, and online self-paced module (Table 3).

² PowerSchool Learning Management System (LMS) is a platform where science teachers find teacher guides and teacher resources for science teaching.

Table 3: 2020-21 STEM PD Mathematics Sessions and Attendance

Description	Session	Participant
Elementary School		
SWAG (4 th & 5 th Six Weeks)	2	48
STAAR Academy	4	176
Touring around the digital tools	1	87
All Elementary Schools	7	311
Middle School		
SWAG (2nd-6 th Six Weeks)	5	130
STAAR Academy	3	49
Touring around the digital tools	1	87
Data analysis and curriculum talks	2	61
All Middle Schools	11	327
High School		
SWAG (4 th & 5 th Six Weeks)	2	8
STAAR EOC Academy	2	10
All High Schools	4	18
New Teacher Academy 2020		
Elementary/middle/high school	3	60
Equity in Mathematics & Social Justice		
Elementary/middle/high school	3	197
Online Self-Paced Module		
Elementary/middle/high school	6	40
Total	34	953

Source: STEM PD program data 05/26/21.

Note: SWAG=six-week at-a-glance content professional learning.
STAAR=The State of Texas Assessments of Academic Readiness.
EOC=End of Course.

The program goal to provide PD sessions to two-thirds of comprehensive campuses in the district was met in 2020-21. Mathematics teachers, science teachers, instructional coordinators, and principals from 186 out of 189 district comprehensive schools (98.4%) participated in the training sessions during the school year.

What were the participants' perceptions about STEM PD training sessions?

A STEM PD training survey was developed to solicit participants' feedback about the quality and usefulness of training sessions. The survey included 11 close-ended questions and three open-ended questions and was hosted on Qualtrics (an online survey platform) from April 19 through May 17, 2021. The survey used a five-point Likert-type scale ranging from "Strongly Agree" to "Strongly Disagree".

Out of 1,039 STEM PD participants who were invited to complete the survey, 230 (22%) completed the online survey. Mathematics and science teachers comprised the largest group ($n=181$), followed by instructional lead coaches and campus instructional coaches ($n=26$), and administrators ($n=11$) (Table 4). Due to the less than optimal response rate, the reader should be cautious about generalizing survey results.

Table 4: 2020-21 STEM PD Survey Participant Characteristics

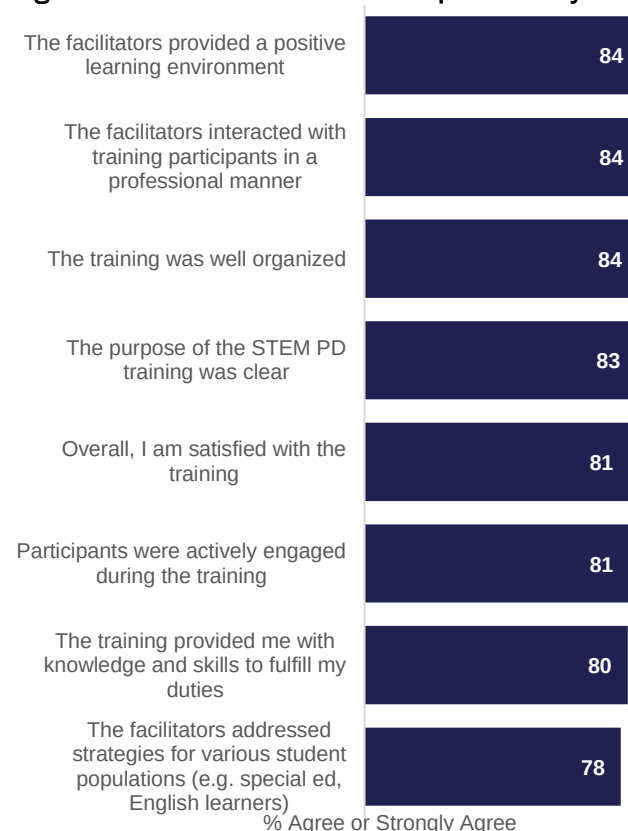
Job Category	<i>n</i>	%
Teacher	181	78.7
Campus Instructional Coach	9	3.9
Instructional Lead Coach	17	7.4
Administrator	11	4.8
Librarian	1	0.4
Other	11	4.8
Total	230	100

Source: STEM PD survey data 05/17/21.

Note: $N=230$.

Respondents "strongly agreed" or "agreed" that facilitators provided a positive learning environment (84%) and interacted with training participants in a professional manner (84%). Respondents also agreed or strongly agreed that the training was well organized (84%), the purpose of the training was clear (83%), and the training provided knowledge and skills to fulfill teachers' duties (80%). However, only 78 percent respondents agreed or strongly agreed that the training addressed strategies for various student populations such as special education and English learners (Figure 1).

Figure 1: 2020-21 STEM PD Participant Survey Results



Source: STEM PD survey file, 05/17/21.

Note: $N=230$.

Participating in virtual PD training sessions during the pandemic could be challenging in many ways. The first open-ended question asked about challenges STEM PD

participants encountered during this time. Participants (total respondents=49) listed several challenges including adjusting to virtual platform ($n=14$), scheduling conflicts with their daily duties ($n=8$), and lack of resources ($n=3$).

Another open-ended question asked STEM PD participants what they like best about the PD training. Survey participants (total respondents=88) indicated they enjoyed presenters' professionalism and knowledge ($n=20$), the fresh and innovative ideas the training provided ($n=17$), active engagement with peers and facilitators ($n=15$), resources provided for teaching ($n=13$), and the entire training sessions ($n=10$). When asked what suggestions they would like to make for future trainings, STEM PD participants (total respondents=54) indicated that they would like to see more options for PD training ($n=8$), continuation of virtual trainings ($n=7$), more PD training sessions throughout the year ($n=6$), and in-person training in the future ($n=5$).

RECOMMENDATIONS

Examine PD content to ensure participants receive training on strategies to address the needs of all student populations in the district. Survey results showed that one of the survey items, "The facilitators addressed strategies for various student populations (e.g. special ed. English learners)," received the lowest positive perception score (78%) in the survey. The STEM department should make sure school staff receive adequate training that addresses the unique needs of all students in the district.

Update STEM PD contact files on an ongoing basis. STEM PD survey invites were sent to all PD participants. However, some teachers indicated the survey was not applicable to them or they never participated in any PD sessions from fall 2020 through spring 2021. STEM PD managers should ensure teacher contact information is updated throughout the school year to improve information accuracy.

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