DEFINING AND MEASURING

DIVERSITY, EQUITY, AND INCLUSION

IN ADVANCED TECHNOLOGICAL EDUCATION (ATE) CONTEXTS

Summer 2020 EvaluATE Evaluator Survey Findings

March 2021

RESEARCH TEAM

Ayesha S. Boyce
Tiffany L. Smith
Tyler Clark

UNC Greensboro
EvaluATE: ATE Evaluation Resource Hub

DATA TRANSLATION AND REPORT DESIGN

Emma Leeburg

Western Michigan University
EvaluATE: ATE Evaluation Resource Hub

INTRODUCTION

On June 25, 2020, EvaluATE sent the annual Advanced Technological Education (ATE) Evaluator Survey via Qualtrics to 210 ATE evaluators[1]. The purpose of the diversity, equity, and inclusion (DEI) subsection of the survey was to examine how evaluators define and measure equity, diversity, and inclusion in their projects funded by the National Science Foundation's ATE program.

QUESTION

The following research question guided this project:

How are ATE evaluators currently defining and measuring diversity, equity, and inclusion (DEI) in their evaluation practices?

The definitions of the three constructs or key terms, according to the National Academies of Sciences, Engineering, and Medicine (NAS) are as follows:

DIVERSITY

Differences among individuals, including demographic differences such as gender, race, ethnicity, and country of origin.

EQUITY

Fair distribution of opportunities to participate and succeed in education for all students.

INCLUSION

Processes through which all students/participants are made to feel welcome and are treated as motivated learners.

---

[1]Three evaluators indicated that they were no longer active ATE evaluators, reducing our initial population to 207 ATE evaluators.

[2]National Academies of Sciences, Engineering, and Medicine. (2018). Indicators for monitoring undergraduate STEM education. The National Academies Press.

METHODS

The survey began by asking evaluators whether they evaluated their ATE projects' work in relation to diversity, equity, and inclusion. If the participant selected no, then they were asked why evaluating diversity, equity, and inclusion had not been part of their ATE project evaluation. If the participant selected yes, then they were asked to identify which construct(s) they evaluated, and for each construct selected, they then identified the type(s) of data they used for evaluating that construct. Participants were also asked, for each construct, to explain why they opted to use the data type(s), and to provide further detail. We asked those who did not identify having evaluated a particular construct why that construct had not been part of their ATE project evaluation. The survey concluded with various demographic questions, including race/ethnicity, gender, and education level.
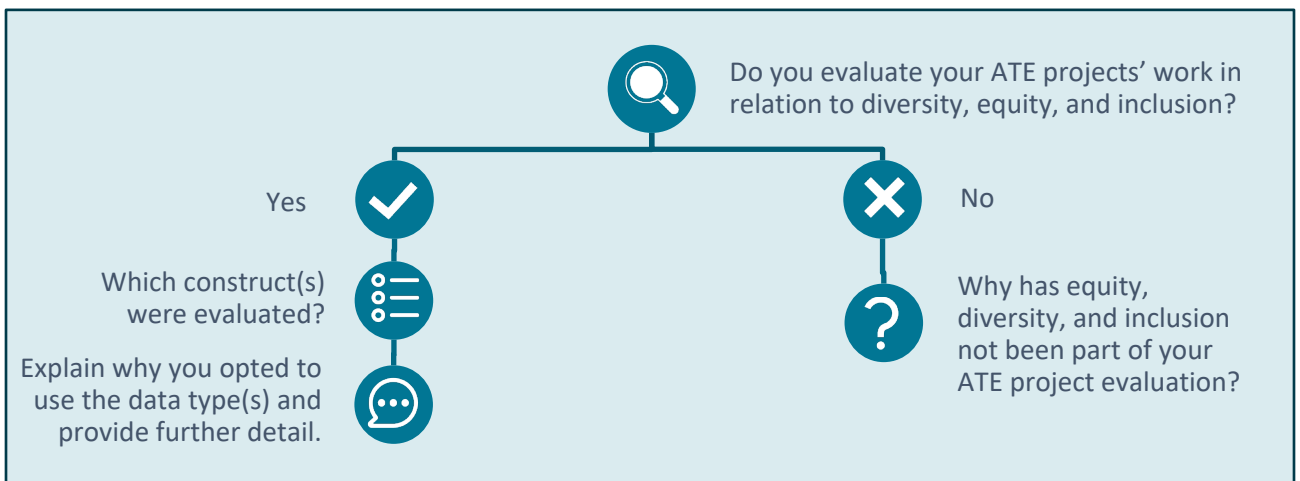
SURVEY DESIGN STRUCTURE:

Figure 1. Survey Design Structure

ANALYSIS

The research team ran frequencies and cross-tabulations in SPSS to understand the quantitative findings. The tables and corresponding charts are in the appendix of this report. The evaluation team then collected the qualitative data and thematically coded the data to identify salient themes among the responses.

DATA ANALYSIS METHODS:

Frequencies   Cross-tabulations   Thematically coded

Figure 2. Data Analysis Methods

PARTICIPANTS

A total of 83 participants completed the survey. The majority of participants (59.5%) reported having doctoral degrees. In addition to STEM education, 43.5% of the respondents reported they evaluate higher education programs (see figure 1 below). Finally, 87.4% of the respondents identified themselves as White/East European.
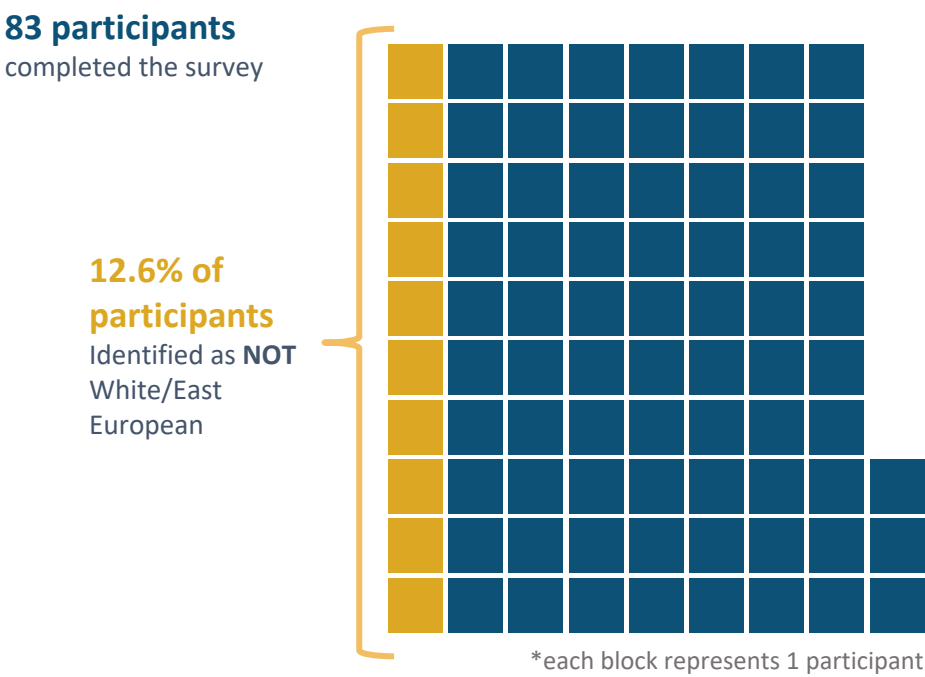
83 participants
completed the survey

12.6% of participants
Identified as **NOT** White/East European

*each block represents 1 participant

Figure 3. Participant demographics

Which of the following best describes your place of employment as an evaluator?

n=83

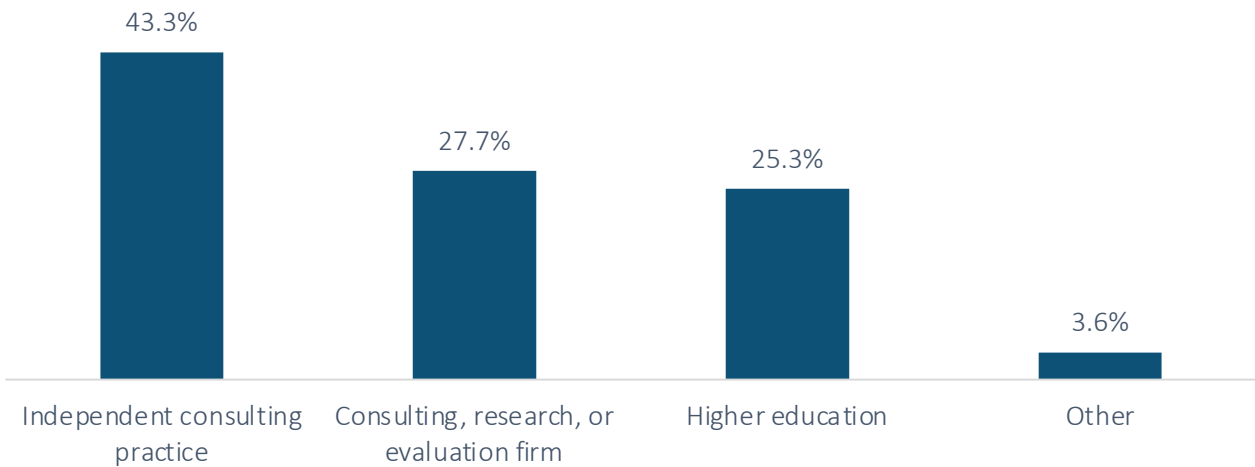| Independent consulting practice	Consulting, research, or evaluation firm	Higher education	Other
43.3%	27.7%	25.3%	3.6%

Figure 4. Place of Employment

KEY FINDINGS

In response to the first question, 86.8% (n = 79) of the participants reported they evaluate their ATE projects' work related to diversity, equity, and/or inclusion.

Do you evaluate your ATE projects' work in relation to diversity, equity, and inclusion?

83

Yes 79   12 No

Figure 5. ATE projects' evaluation status

We asked the 12 individuals (13.2%) who reported they did not evaluate DEI in their projects the question, "Why has evaluating equity, diversity, and inclusion not been part of your ATE project evaluation?" The group's responses varied, with a majority selecting These issues are not relevant to the project or Project personnel have not requested this type of information. Figure 6 gives an overview of their responses.
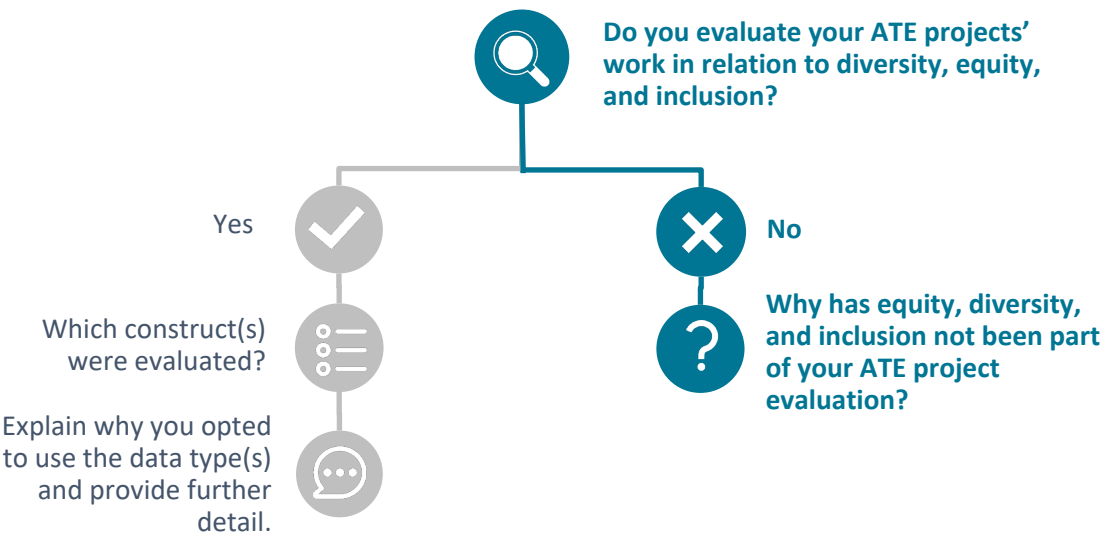
Do you evaluate your ATE projects' work in relation to diversity, equity, and inclusion?

Yes

No

Which construct(s) were evaluated?

Explain why you opted to use the data type(s) and provide further detail.

Why has equity, diversity, and inclusion not been part of your ATE project evaluation?

Figure 6. ATE projects' who do not evaluate diversity, equity, and/or inclusion.

KEY FINDINGS cont.

Why has evaluating equity, diversity, and inclusion not been part of your ATE project evaluation?

36.40%	Project personnel has not requested this type of information. (8)
31.80%	These issues are not relevant to the project. (7)
18.20%	It is too difficult to get good data about these issues. (4)
4.50%	The evaluation budget is not sufficient. (1)
9.10%	Other* (2)

"I work on a research project that focuses on faculty & curriculum issues, not students."

"Was not part of the objectives of this project. I have evaluated it on other projects, just not this one."
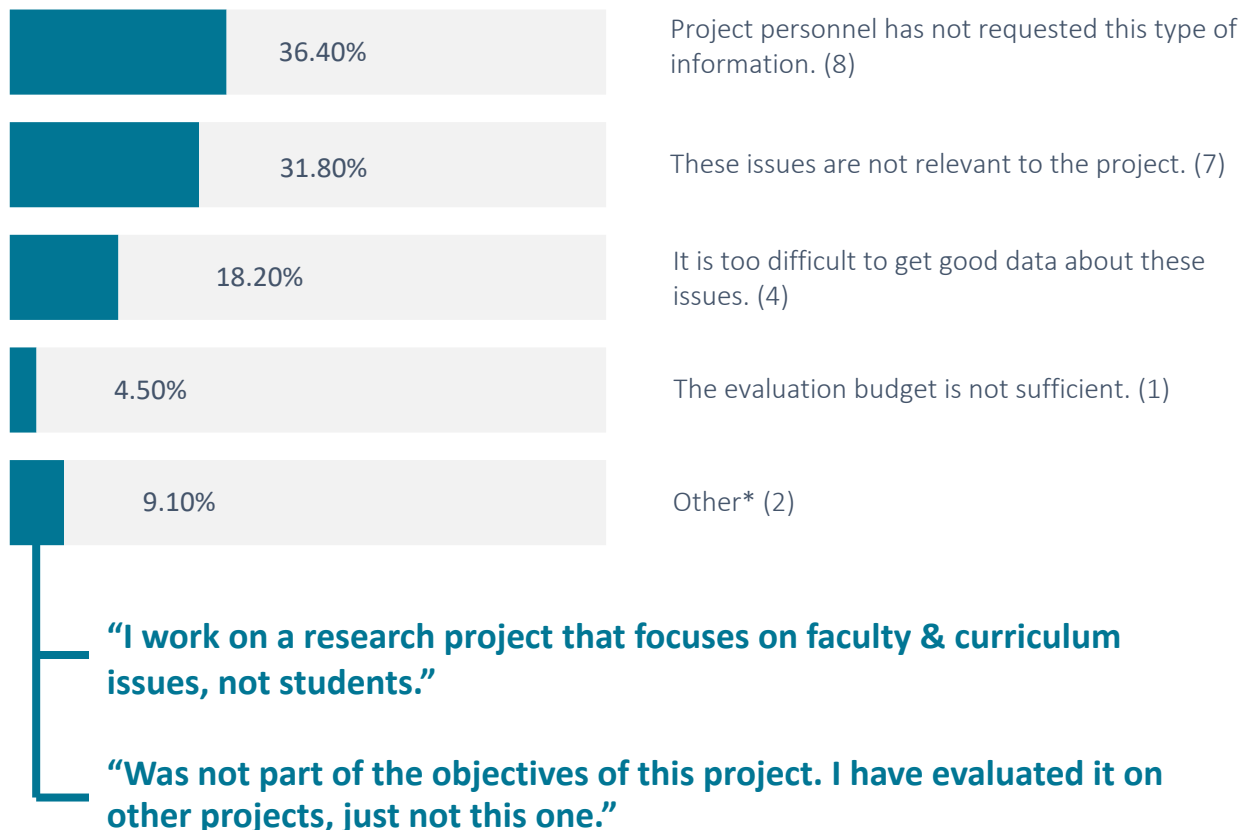
Figure 7. Why ATE projects' do not evaluate diversity, equity, and/or inclusion.

KEY FINDINGS cont.

The remainder of the survey findings describe only those evaluators who indicated that they measured at least one of the three constructs in their ATE projects. Below, we present the findings relevant to each of the three constructs (diversity, equity, and inclusion) in turn.
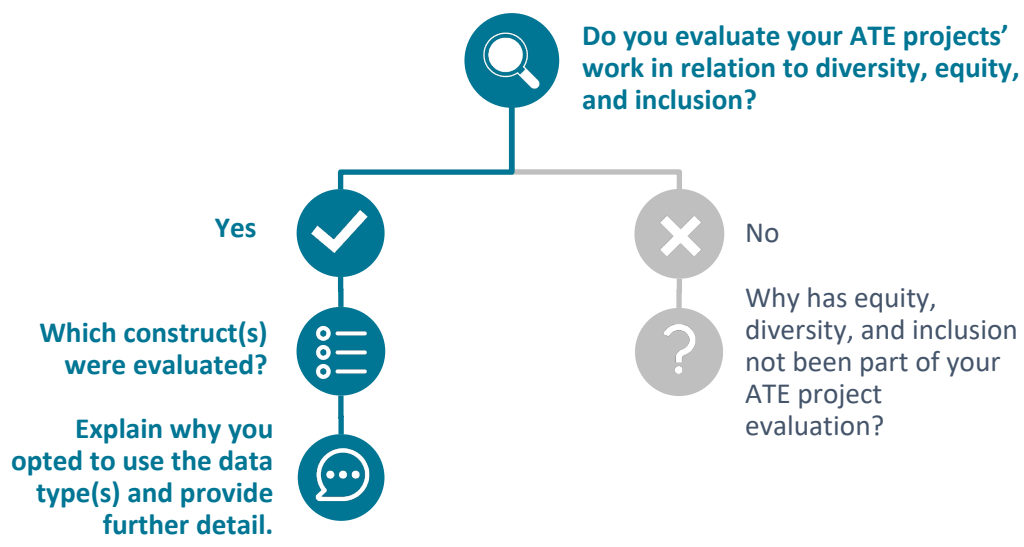

Figure 8. ATE projects' who evaluate diversity, equity, and/or inclusion

Breakdown by percentage of ATE projects' who evaluate Diversity, Equity, and Inclusion
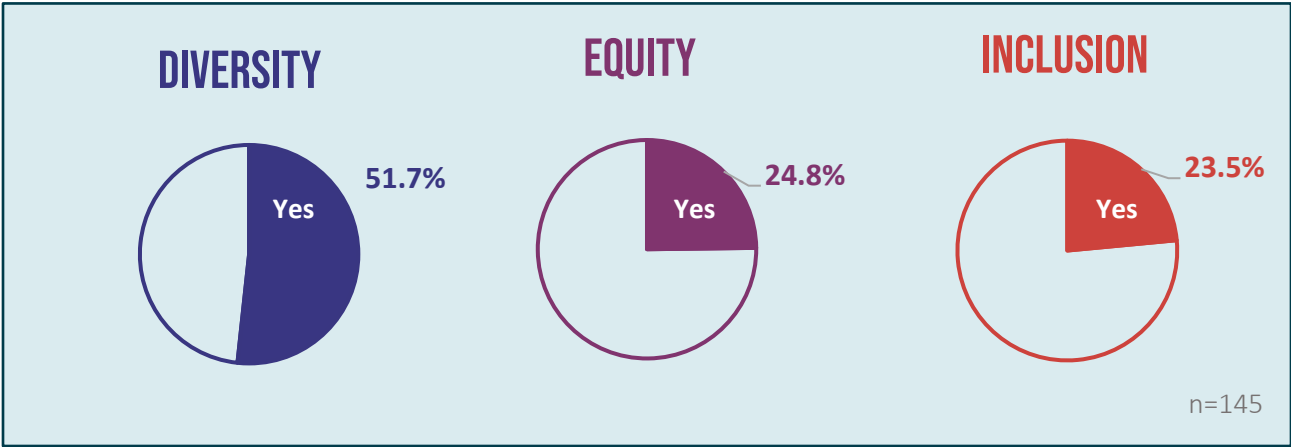

Figure 9. Breakdown by percentage ATE projects' evaluation by diversity, equity, and/or inclusion

DIVERSITY

Of those who measured DEI, diversity was the highest reported construct measured by evaluators, at 51.7% (n = 75). This was further evidenced by the number of responses to the open-ended questions for diversity compared to the other two constructs. The total number of qualitative responses for equity and inclusion was less than half the total responses for diversity. We asked the participants to explain the types of data they selected, and the qualitative responses regarding the diversity construct showed a common theme of demographics, with a focus on gender, ethnicity, and race. The participants highlighted gender 27 times out of the total 60 qualitative responses. Ethnicity appeared 14 times, and race appeared 10 times in the open-ended responses. A respondent stated:

For diversity I think of gender and under-represented minority presence which requires very little to verify.

Participants identified gender, ethnicity, and race when asked about types of data they selected.
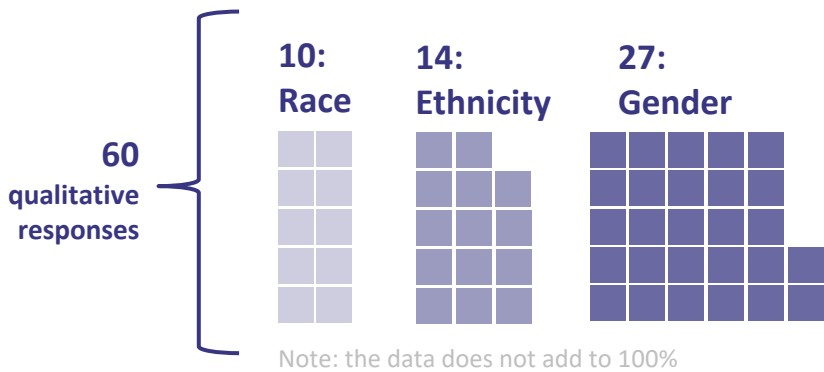

Figure 10. Types of data selected by ATE projects

Of the respondents who measured diversity, the highest reported data collection tool used was surveys at 20.1% (n=52). One participant explained the rationale for measuring diversity with surveys as a way to:

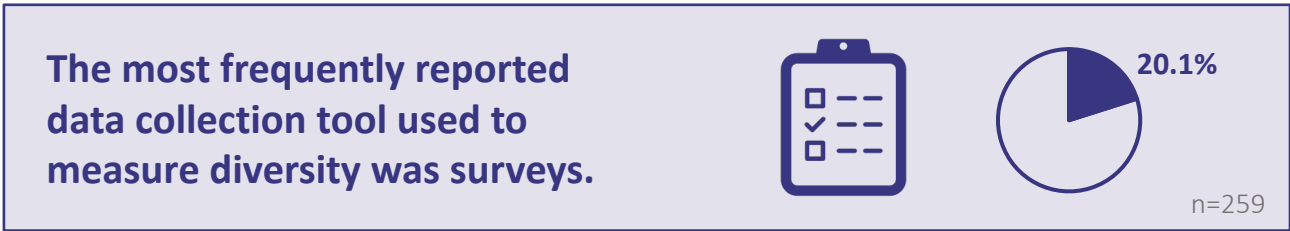*...ascertain the extent to which participants across diverse groups are represented.*

The most frequently reported data collection tool used to measure diversity was surveys.

20.1%

n=259

Figure 11. Most frequently reported data collection for diversity

DIVERSITY cont.

Several other participants reported that surveys help understand the "how" and the "why" of topics concerning diversity. One noted:

> *I collected survey data from students to capture how students self-identify in various diversity categories. When there is something more specific in the project goals and objectives, survey questions are designed to explore attitudes, perceptions, experiences, etc. in greater depth.*

Institutional data was the second most frequently reported data collection tool used to measure diversity, at 18.9% (n=49). Many of the respondents argued that institutional data was reliable and served as a catalyst for foundational knowledge. One respondent even reported that, without that knowledge, measuring diversity would be difficult:

> *The challenge for me is that measuring progress on diversity takes having baseline data/information, which is sometimes difficult to get. However, I find that the use of institutional data and surveys tends to give me the best approach to measuring changes in diversity over time.*
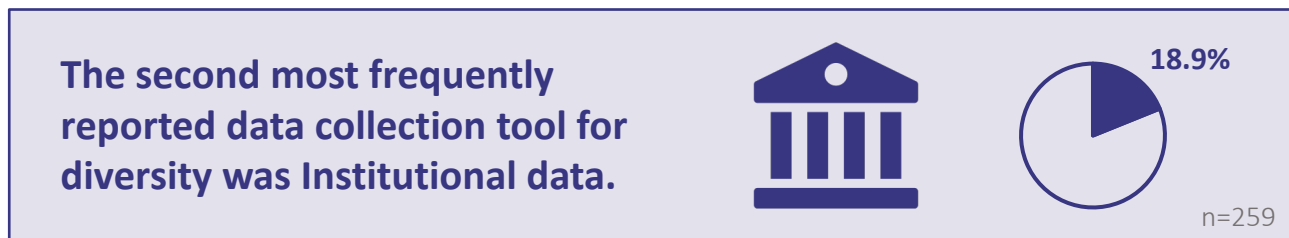
The second most frequently reported data collection tool for diversity was Institutional data.

18.9%

n=259

Figure 12. Second most frequently reported data collection for diversity

Another respondent confirmed the need for baseline/foundational knowledge:

> *If a goal of the project is to increase the number of underrepresented students, I need to have baseline data and data collected over subsequent years of the project. Data includes enrollment and completion of degrees and certificates.*

Other respondents highlighted the rationale for the use of institutional data. One said:

> *Institutional data provides information about student populations being served by the ATE projects, and whether projects are on target to reach students, especially underrepresented students in STEM.*

DIVERSITY cont.

Respondents' selection of data collection tools to measure diversity may have been impacted by the resources available to them. Surveys and institutional data are typically inexpensive compared to other types of data, like case studies. One respondent stated:

> *Surveys and institutional data are the only types of data that I am able to collect and analyze with the small amount of money available for the evaluation.*

Fifty percent (n=4) of the total respondents stated that diversity has not been a part of their ATE project evaluations because the project personnel have not requested this type of information.

Project personnel have not requested this type of information in evaluations.
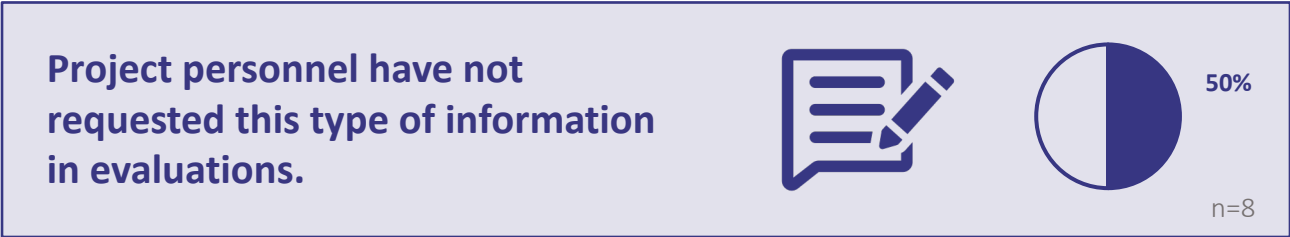
50%

n=8

Figure 13. Respondents statement on why diversity has not been a part of their ATE project evaluations

However, even some of the respondents who reported that they do measure diversity are having trouble utilizing the information to its fullest potential. A respondent stated that:

> *We collect the data, but we really haven't done much else with it yet. This is an area of interest that will be explored during this grant award.*

EQUITY

Of those who measure DEI, 24.8% expressed that they measure equity in their ATE projects. According to the survey's quantitative results, the respondents selected surveys as the highest reported data collection tool used to measure equity at 16.3%. The evaluation team asked the respondents to elaborate on the types of data they selected to measure equity. The word "survey" appeared in the open-ended responses a total of 17 times out of 28 responses. The respondents elaborated that those surveys include student surveys, professional development surveys, opt-out surveys, and post-surveys. As one of the respondents reported:

Surveys are administered to participants, educators, and project partners. These data are used to determine who the program is reaching and to help the project team ensure that it's reaching all potential participants (rather than a select few).

The most frequently reported data collection tool to measure equity used was surveys.
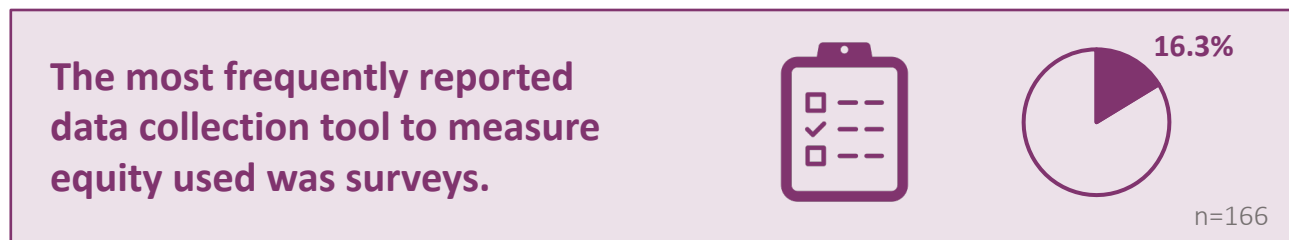
16.3%

n=166

Figure 14. Most frequently reported data collection for equity

The respondents reported institutional data as the second most commonly used data source (15.1%) for measuring equity. Those who mentioned institutional data also discussed other types of data they used to measure equity. Many of the respondents who reported using institutional data selected more than one method of data collection. One particular respondent emphasized the importance of incorporating several types of data to measure equity.

The rationale for taking a multi-faceted approach to data collection is to be comprehensive and inclusive. The people being served by the program—students, as well as program implementers and PIs—are included.
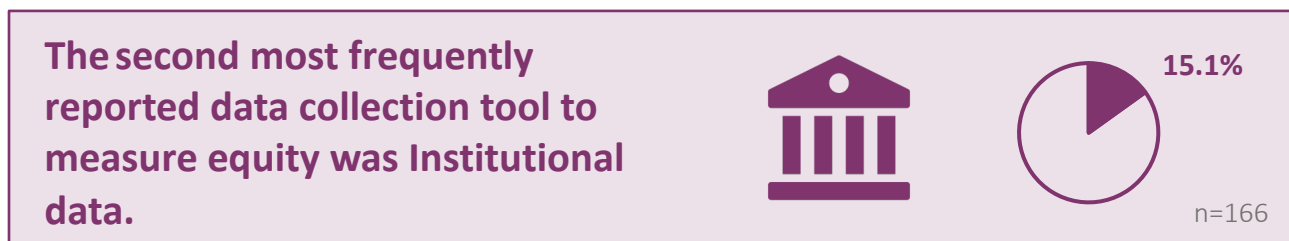
The second most frequently reported data collection tool to measure equity was Institutional data.

15.1%

n=166

Figure 15. Second most frequently reported data collection for equity

EQUITY cont.

In addition to surveys and institutional data, 13.9% of the respondents found interviews important in measuring equity. One of the respondents highlighted the focus of gender equity in their particular ATE project and stated:

Interviews, or rather conversations, with the Co-PIs about what they are doing and why is important as a check on their awareness of equity concerns especially in relation to gender equity, since most students are Latinx (as are the two co-PIs).

Interviews were found to be important in measuring equity by some projects.

13.9%

n=166

Figure 16. Participants that indicated interviews were important for measuring equity

Of those who reported not measuring equity in their various ATE projects, 37.2% stated that their project personnel had not requested information about equity.
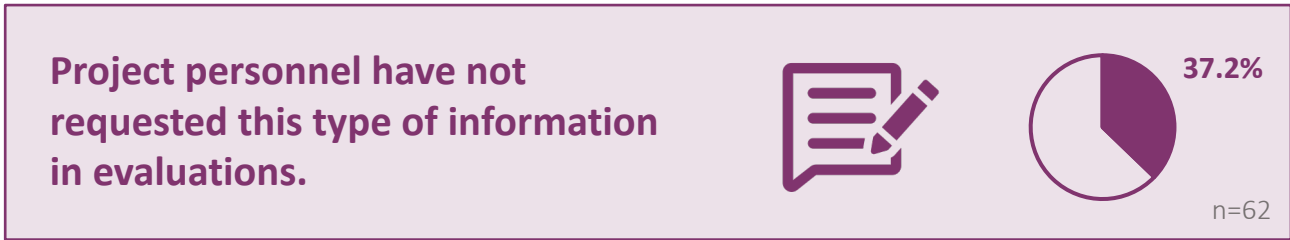
Project personnel have not requested this type of information in evaluations.

37.2%

n=62

Figure 17. Respondents statement on why equity has not been a part of their ATE project evaluations

INCLUSION

Of those who measure DEI, 23.5% expressed that they measure inclusion in their ATE projects. Fourteen of the 24 responses (a response rate of 58.3%) stated the overall importance of measuring inclusion was to better understand the students' perspectives, feelings, and opinions about their ATE programs. Three respondents also mentioned triangulation of the data.

Participants stated the overall importance of measuring inclusion was to better understand the students' perspectives, feelings, and opinions about their ATE program.

24 responses

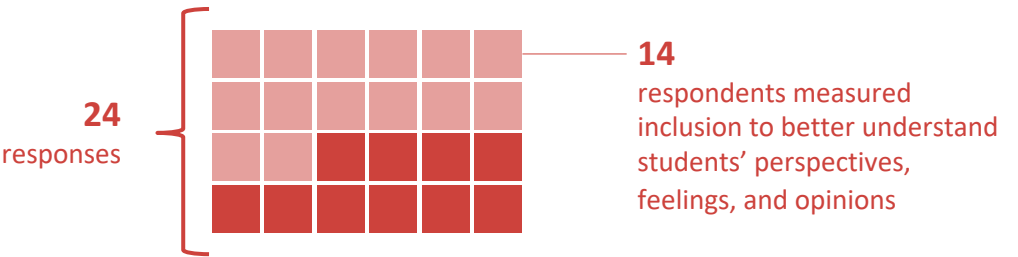**14** respondents measured inclusion to better understand students' perspectives, feelings, and opinions

Figure 18. Participants responses on why they measure inclusion

Several respondents discussed the types of data used to measure inclusion in their qualitative responses. Surveys were the most frequently reported type of data, at 20.7%. One of the respondents stated:

...Administering surveys to students allows us to learn more about the backgrounds and characteristics of students participating in the field of STEM. Project documents help us triangulate this information.

Another respondent stated:

The surveys are designed to measure changes in students' sense of belonging and science identity, in other words, to what extent is the project impacting (increasing) students' beliefs about how inclusive the STEM experiences are.

The most frequently reported data collection tool used to measure inclusion was surveys.

20.7%

n=66

Figure 19. Most frequently reported data collection for inclusion

INCLUSION cont.

The second and third most reported types of data used to measure inclusion were interviews (15.7%) and focus groups (14.1%), respectively. Respondents felt that interviews enabled the evaluators to interpret the program participants' feelings and perceptions regarding their perceived inclusion. One respondent stated:

I find inclusion is more a perception, so we tend to use interviews and surveys. The results are subjective, of course, but provide some insight into how folks perceive inclusion from a personal level.

Interviews and focus groups were used to measure inclusion in some projects.

15.7%

n=121

Figure 20. Additional data collection tools to measure inclusion

Of those who reported not measuring inclusion in their ATE projects, 33.3% noted that their project personnel had not requested information about inclusion.
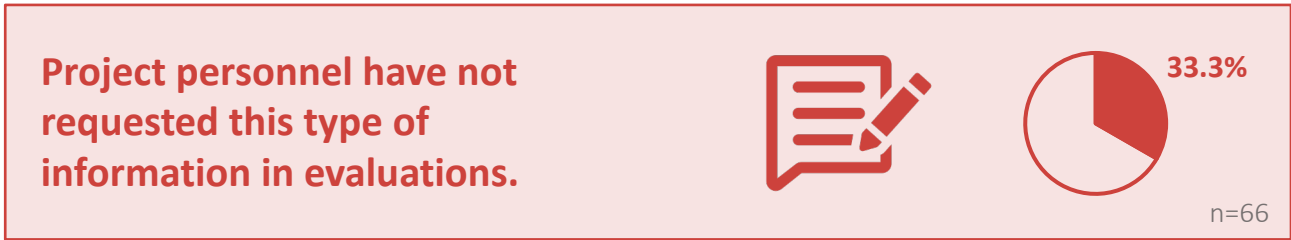
Project personnel have not requested this type of information in evaluations.

33.3%

n=66

Figure 21. Respondents statement on why equity has not been a part of their ATE project evaluations

CONCLUSIONS & LIMITATIONS

Overall, many more participants indicated that they measured diversity than equity and inclusion. Surveys were the most frequently reported data collection tool used across all constructs, which may be due to their budget-friendliness or the opportunity they present for a mixed-method approach, as mentioned by participants. For all three constructs, interviews were the second- or third-most-frequently reported data collection tool used. The respondents commented that the conversational nature of interviews was a beneficial component for measuring these various constructs.

Although the survey listed the three constructs' definitions according to NAS, we noted a possible concern about the participants' comprehension of diversity, equity, and inclusion. When asked to elaborate on the type(s) of data used to measure each construct, there were n = 4 occurrences of the phrase "please see previous comment." This quote is important to highlight because the participants were using the same explanation for more than one construct. This could indicate that the participants did not clearly understand the definitions of the three constructs, or this could mean they mistakenly think that they can all be evaluated in the same way. Thus, the participants could be subconsciously grouping the terms together, thinking they are interchangeable.

Surveys were the most frequently reported data collection tool used across all constructs. For all three constructs, interviews were the second- or third-most-frequently reported data collection tool.

	DIVERSITY	EQUITY	INCLUSION
SURVEYS	✔	✔	✔
INSTITUTIONAL DATA	✔	✔	
INTERVIEWS	✔	✔	✔
FOCUS GROUPS			✔

Figure 22. Data collection tools used to collect information on diversity, equity, and inclusion