Using the DELTA Survey

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Overview

The DELTA Survey was developed to characterize departmental culture related to undergraduate education. It includes three parts:

- **Instructional Climate** - investigates the departmental climate related to instructional practices and the department chair's role in undergraduate education. These questions come from the Survey of Climate of Instructional Improvement (SCII; Walter et al., 2015).
- **Social network** - collects information that can be used to characterize the social network that discusses undergraduate education in the department.
- **Core Principles** - asks participants to provide their perceptions on how their department is enacting the Core Principles and compares that to participants' perceptions of how an ideal department would enact the Core Principles.

The DELTA Survey can be used for researchers investigating culture and organizational change. Facilitators can use it to understand the landscape of a department, including:

- To assess whether a department is prepared to successfully support a DAT
- To collect data that can be used to inform the DAT's work
- To collect data that can be used as a baseline before an intervention has taken place
- To collect data that can be compared to a baseline to determine the impact of an intervention

For more information about the development of the DELTA Survey and other ways in which it can be used, please refer to Ngai, et al. (2020).

Implementing the DELTA Survey

SECURING SUPPORT

You must receive permission from the department chair to administer the DELTA Survey in their department. If you are implementing the survey before a DAT begins, explain to the department chair how the survey responses will help the DAT and the department. Send the chair a .pdf of the DELTA Survey questions along with some example results (see Figures 1 and 2 in section "Processing DELTA Survey responses").

If you are implementing the survey after the DAT has formed, consider discussing with DAT members about how the DELTA Survey can be used to advance their work, and include their reasoning in communicating about the DELTA. If you have support from both the department chair and the DAT, you can ask them to encourage their colleagues to fill out the survey, which leads to a greater response rate and more holistic understanding of the department.

In some cases, the department chair and/or the DAT will be reluctant to implement the DELTA Survey. Resistance sometimes stems from an excess of requests to take surveys. Many times, surveys are given at an institutional or nationwide level, and it can be hard for participants to feel like their responses make a difference. Sometimes resistance can be overcome when you provide concrete ways that the DELTA Survey can inform the department chair and the DAT. Some examples can be found in Ngai et al. (2020). It is especially powerful to give examples of how other departments or DATs on campus have utilized the DELTA Survey, if available.

It is possible that the department may not want to administer the DELTA Survey for reasons not outlined here. It is important to respect the wishes of the department chair and DAT. Once you have established more legitimacy and trust, it may be possible to gain permission to administer the DELTA Survey at a later date. Alternatively, you may collect data about the department in other ways that are approved by the chair and the DAT.

TIMING

Several factors can be considered around determining when to administer the DELTA Survey. If you are interested in using responses from the DELTA Survey to inform the DAT's work, distribute the survey before the DAT begins ("pre-DAT") or while it is in the early stages of work. If you would like to characterize the impact a DAT has on the department's culture, administer the DELTA Survey pre-DAT (or during early stages) and post-DAT for comparison. When you administer the DELTA Survey post-DAT can also vary based on your interests; if you would like to track the sustainability or longevity of the impacts the DAT has on the department, consider administering the survey immediately after the DAT ends and then again several semesters later. Also take into account timing related to academic activities; for example, it is unlikely department members will have time to complete a survey during periods of high academic activity, such as the start and end of a semester. Distributing the survey as part of a department meeting or retreat and integrating response time into the agenda is one way to ensure a high response rate and demonstrates the value placed on insights gained from the survey.

DISTRIBUTION

Implementing the DELTA Survey virtually is the most efficient way to collect data. You can use an online survey platform like Google Forms, Qualtrics, or SurveyMonkey. The best way to ensure a high response rate is to ask the DAT's department chair to send out the DELTA Survey from their email account. A sample introductory email is included in the following box. Alternately, a faculty member on the DAT could email it to the other faculty. Provide the person sending the email a sample they can modify. Make sure it includes ways the DELTA Survey will serve the department. One or two reminder emails are essential, and should be spaced out 3-7 days after the initial distribution. The survey can be left open for as long as you like, but it is unlikely you will receive responses after two weeks' time.

Sample DELTA Survey Introductory Email from Department Chair

Dear Colleagues,

As many of you are aware, a departmental action team (DAT) has been formed in our department with the goal of improving some aspect of our department's undergraduate education activities. This DAT is one of several on campus, all of which are enacting positive change in their undergraduate program.

As part of its plan, the DAT would like to collect data to better understand the department and how it changes in response to the DAT's work. Part of this data collection includes a survey to ascertain department members' perspectives related to undergraduate education and change within the department. They are asking that all department members complete this survey, which should take no longer than 15 minutes. The survey is entirely confidential and in no way evaluative, and will help inform and serve as an assessment of the DAT's work. If anyone from the department (including me) sees the survey data, it would only be in an aggregated, anonymized form.

In the coming week, please take 15 minutes to fill out the survey by following this link:

<<survey link here>>

The external facilitators for the DAT are collecting these responses on behalf of the DAT, and are happy to respond to questions or concerns and can be contacted at (contact email here).

Thank you for joining in this effort.

Sincerely,

Department chair

CONFIDENTIALITY

Another source of resistance is fear that responses will not be kept confidential. It is your responsibility to ensure that all responses are de-identified before sharing any results. In many cases, aggregating the responses so that the individual responses cannot be linked will safeguard participant identities. Showing examples of how data are presented can help alleviate concerns (e.g., the box and whisker plots for the Core Principle questions). For some data, such as the Social Network Analysis questions and the demographic data, it may not be possible to completely de-identify the responses, and thus you should carefully consider when and how to share those data, and be transparent with the chair and/or DAT about what you plan to do.

USING SURVEY QUESTIONS

We have provided the questions in such a way that you can copy them into the survey platform of your choice. You may also modify the questions. However, keep in mind that the validation process for this survey involved the full set of questions as they are currently written. A new section of the survey is indicated by the heading "Block" followed by a number and the title of that section. We have kept the headings in place in this guide so that you can clearly see how we grouped questions. When using Qualtrics as the online survey platform, these headings do not appear to participants, and the next section is simply indicated by moving on to the next page of the survey.

The DELTA Survey

The DELTA Survey was originally designed and distributed in Qualtrics. Because the responses we collected were used for research purposes, we included a consent form, information about the study, and a question designed to check that the participant is aware that their responses would be used for research. If you are not intending to share these responses outside of the department from which they are collected, then you can remove these items.

BLOCK 1: INTRODUCTION

This survey is a part of the Departmental Action Team (DAT) project at CU Boulder and CSU Fort Collins. This research project deals with institutional goals and institutional change. This brief survey will help us understand where your department is and where it would like to be regarding education. The survey will take approximately 15 minutes to complete. Your candid responses are sincerely appreciated and important to the success of this project. The first set of questions focuses on teaching in your department. The second set focuses on how you interact with your colleagues about issues of change in the department. The third (and final) set of questions asks you to compare your current (actual) department and your ideal (imagined) department in terms of education and governance. All responses are strictly confidential. Your name will not be shared with anyone outside of the research team. Any information shared with the department or elsewhere will be provided in aggregate form only.

Use these links to access the <<consent form>> and <<additional information>> about our study.

Q1. I am willing for my anonymized data to be used for research purposes.

○ Yes

○ No

If respondent selects "No," exit the survey.

BLOCK 2: ABOUT YOU

Please provide your name, department, role in the department, and email address. We will not share your responses linked to your name with anyone outside of the research team. This information will allow us to contact you if we need to for any reason, and it will also allow us to relate your responses on this survey to potential follow-up surveys. Finally, this information is required for social network analysis, in which we consider the interactions between different members of the department.

Q2. Your full name:

Q3. Your current department:

Q4. Your role in the department (e.g., assistant professor, academic advisor, graduate student):

Q5. Your email address:

BLOCK 3: INSTRUCTIONAL CLIMATE (SCII)

Q6. Instructors in my department…

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Frequently talk with one another.	○	○	○	○	○	○
Discuss the challenges they face in the classroom with colleagues.	○	○	○	○	○	○

Share resources (ideas, materials, sources, technology, etc.) about how to improve teaching with colleagues.	○	○	○	○	○	○
Aspire to become better teachers.	○	○	○	○	○	○
Use teaching observations to improve their teaching.	○	○	○	○	○	○
Value teaching development services available on campus as a way to improve their teaching.	○	○	○	○	○	○
Are assigned a mentor for advice about teaching.	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Are "ahead of the curve" when it comes to implementing innovative teaching strategies.	○	○	○	○	○	○

Q7. The following statements refer to the "department chair." Please respond to these statements in reference to the individual who is the formal leader of your department.

The department chair…

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Encourages instructors to go beyond traditional approaches to teaching.	○	○	○	○	○	○
Has a clear vision of how to improve teaching in the department.	○	○	○	○	○	○
Implements teaching-related policies in a consistent and transparent manner.	○	○	○	○	○	○

Inspires respect for his/her ability as a teacher.	○	○	○	○	○	○
Is receptive to ideas about how to improve teaching in the department.	○	○	○	○	○	○
Is tolerant of fluctuations in student evaluations when instructors are trying to improve their teaching.	○	○	○	○	○	○
Is willing to seek creative solutions to budgetary constraints in order to maintain adequate support for teaching improvements.	○	○	○	○	○	○

Q8. If you could change ONE element of your department to better support teaching improvement, what would it be?

BLOCK 4: SOCIAL NETWORKS

The following questions will ask you about interactions with others in your department. The purpose of these questions is to understand how members of the department interact with one another (e.g., what subgroups exist). All names will be removed in final representations of the data, so each member of the network will not be identifiable.

For each question, please list the full names of all relevant department members (e.g., faculty, staff, students), separated by commas.

Why are we asking for names? (click to expand)

> *This text goes in a collapsible "click to expand" box:* We are asking for names as they are required for Social Network Analysis (SNA). SNA produces representations of individuals in a community (points) and connections between them (lines). This analysis will help us understand the structure of connections within a department and make comparisons across departments. SNA is now becoming a common method in the study of academic departments. While names are required to construct network graphs, once the graphs are generated, they are independent of the individual names provided, and thus become anonymous.

Q9. I discuss making changes about undergraduate education in the department with the following department members (list full names):

Q10. I also discuss making changes about undergraduate education with the following people outside of the department [list full name, role (e.g., spouse, mentor/advisor), and institution (e.g., MIT)]:

Q11. I consider the following department members to be influential in the department (list full names):

Q12. You may use the space provided to elaborate on your answers or to make any additional comments.

BLOCK 5: CORE PRINCIPLES

The following statements focus on undergraduate education and governance in your department. For each statement, first think about how well the prompt characterizes the current state of the department you work in. Then, think about how well the prompt characterizes your ideal department (i.e. the one that you think would be most effective for undergraduate education).

Q13. Students actively contribute to departmental decision-making around undergraduate education.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q14. Faculty and staff actively seek out student input about the department on an ongoing basis.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q15. Students see themselves as having a say in how departmental decisions are made.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q16. Department members use a shared vision to guide work aimed at achieving change.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q17. The process of developing the department's vision includes a diversity of relevant stakeholders.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q18. The department revisits and updates its vision over time.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q19. The department collects multiple forms of evidence about undergraduate education on an ongoing basis.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q20. Data collection, analysis, and interpretation inform departmental decision-making about undergraduate education.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q21. Department members actively and regularly identify and avoid bias (e.g., confirmation bias, relying on anecdote) when interpreting data about undergraduate education.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q22. All department members are collaborators with equitable access to contribute to decision-making.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q23. The department develops community through activities such as eating together and having celebrations.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q24. Department members interact with one another in functional and productive ways.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q25. Department members view change as an ongoing process rather than an event (e.g., they believe that complex problems require continued attention to stay solved).

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q26. When making changes to the department, department members explicitly attend to the long-term sustainability of those changes.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q27. Department members regularly reflect on how the department can be improved.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q28. The department intentionally recruits a diverse membership (e.g., with respect to gender identity, race, ethnicity).

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q29. Department members consider the impact of their decisions on underrepresented populations.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q30. Department members feel a sense of personal responsibility toward improving inclusion in the department.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Current department	○	○	○	○	○	○
Ideal Department	○	○	○	○	○	○

Q31. You may use the space provided to elaborate on your answers or to make any additional comments.

BLOCK 6: DEMOGRAPHICS

Why are we asking for demographic information? (click to expand)

> *This text goes in a collapsible "click to expand" box:* Within our project, we plan to report aggregated demographic information. In the future, this will enable comparisons between our study and other contexts with different demographics. This will also enable meta-studies of research contexts and participant populations in the education literature. We choose to allow participants to self-identify their demographic information, to allow for a broader range of responses than would be available from a pre-selected set of options.

Q32. What is your gender?

Q33. What is your ethnicity?

Q34. Do you identify as LGBT+? (If you are comfortable, please specify)

Q35. Do you have a disability? (If you are comfortable, please specify)

Q36. Are you a veteran? (If you are comfortable, please specify)

Q37. Are there other aspects of your identity that you wish to share?

Q38. Would you feel comfortable participating in an interview about your experiences in the department?

○ Yes

○ No

Processing DELTA Survey responses

We have found that box and whisker plots are one useful way to visualize the SCII (Instructional Climate) responses and the Core Principle responses. Figure 1 is an example of one department's responses to these questions formatted as a box and whisker plot. These plots can be created using programs such as R and SPSS.
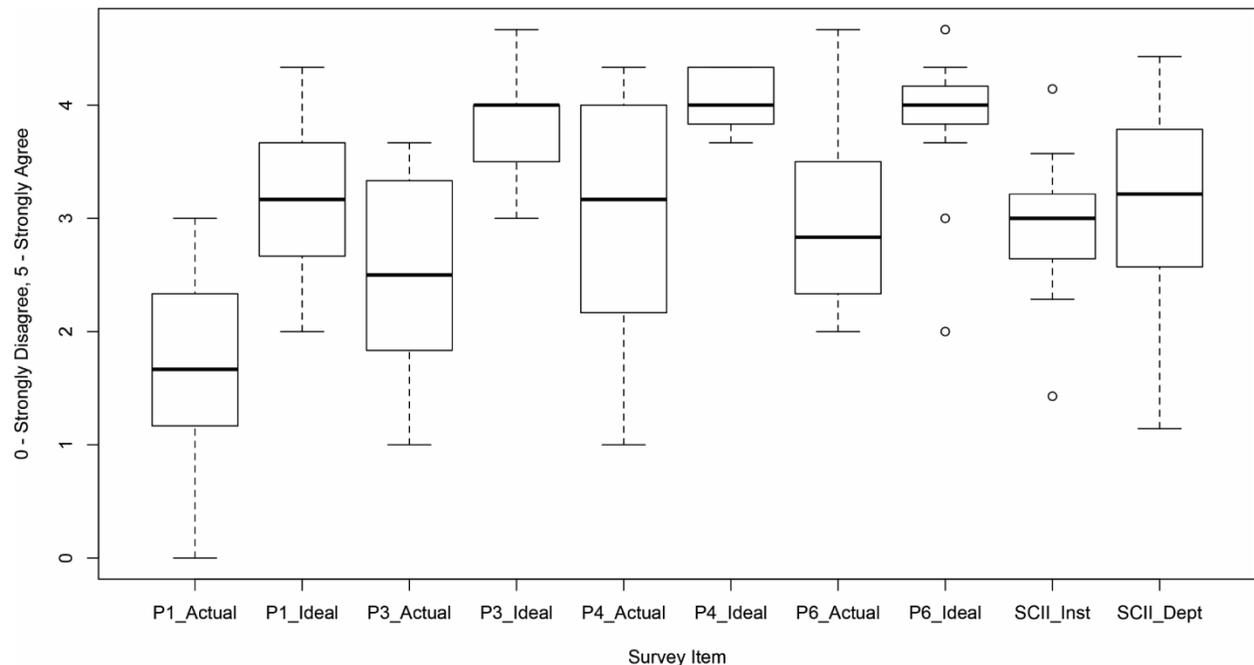

Figure 1. Plot of responses to Instructional Climate (SCII) and Core Principle questions.

Responses to the social network questions can be visualized using a program such as R or NodeXL. The information that is presented in a social network can vary based on the program that is used. Figure 2 is an example of a social network chart that was created using NodeXL Basic. The network in Figure 2 includes information on the role of the person in the department who was identified in the social network, as well as their relationship. For example, a senior instructor who was not a DAT member (white box) identified an advisor who was not on the DAT (white circle) as someone they talk to about undergraduate education. This relationship is indicated by the directionality of the arrow.
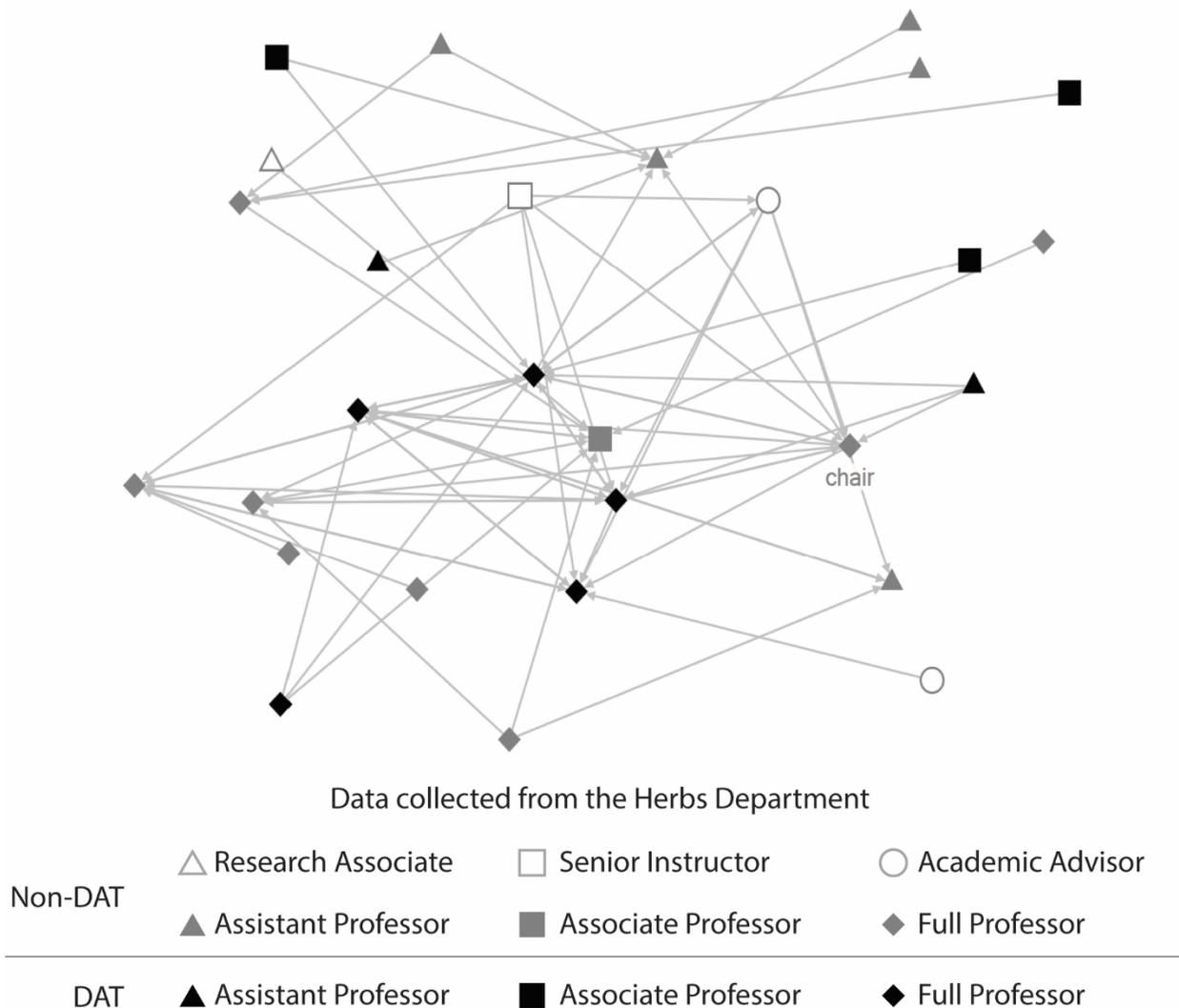
Figure 2. Social network for one department based on responses to the item: "I discuss making changes about undergraduate education in the department with the following department members."

Interpreting DELTA Survey responses

The responses to the DELTA Survey can provide a variety of information. We recommend that the DELTA Survey be used in its entirety to create a more holistic picture of departmental culture related to undergraduate education. We provide more detailed information here on interpreting each component. If you choose to collect demographic data, you can also use that data to group responses and inform your interpretation. As always when interpreting data, take steps to mitigate biases. For example, if you collect demographic data, first analyze responses without knowledge of the reported

demographics. If possible, two or more people should be involved in the analysis to check interpretations.

INSTRUCTIONAL CLIMATE

The climate questions originate from the Survey of Climate for Instructional Improvement (SCII). The DELTA Survey incorporates questions for two of the SCII constructs:

- **Collegiality** - Opportunities for instructors to feel they belong to a mutually respectful community of colleagues who value their contributions, and to feel concern for their colleagues' wellbeing.
- **Leadership** - Policies, actions, or expectations established by the formal leader of the department that communicate the value of teaching and instructional improvement.

You should interpret responses to these questions with respect to the definitions given above and within the context of climate for instructional improvement. The authors of the SCII recommend that responses to these constructs can be used to identify levers for change in a department. For the complete SCII and more information on its development, please see Walter et al. (2015).

SOCIAL NETWORKS

The social networks component provides information about who participates in conversations about undergraduate education in the department and who is considered influential in the department. When analyzing these data, you can note the diversity of those included in the networks as well as the frequency of their inclusion. This can inform who may be willing to participate in a DAT or who may be necessary to recruit as a DAT ally. You can also use these responses to measure changes in undergraduate education networks over time.

CORE PRINCIPLES

Responses to the Core Principles questions can be used in two ways. If you are interested in aggregating responses to this component and comparing averages for different departments or for one department over time, then you should group the questions in accordance with the factors that emerged from the validation process of the DELTA Survey (Ngai et al., 2020). These factors, their interpretation, and the questions associated with them are listed in Table 1.

Alternatively, you can interpret the Core Principle questions individually for insight on a department's culture. Each question provides information on how participants perceive aspects of departmental culture related to the Core Principles and whether the current culture matches participants' vision of ideal culture. Responses to these questions can be tracked over time to better understand impacts of departmental change efforts.

Table 1. Core Principle factors from the DELTA Survey

Factor and interpretation	(Item #) DELTA Item Stem
Factor 1: Students are partners in the educational process Students are given decision-making power and agency in their own education, and viewed as an equal partner rather than a client.	(Q13) Students actively contribute to departmental decision-making around undergraduate education.
	(Q14) Faculty and staff actively seek out student input about the department on an ongoing basis.
	(Q15) Students see themselves as having a say in how departmental decisions are made.
Factor 2: The department is continuously working to improve undergraduate education This factor considers the department's efforts to improve education in an evidence-based manner. As data are collected to inform changes, the department's vision for undergraduate education is subsequently updated.	(Q18) The department revisits and updates its vision over time.
	(Q19) The department collects multiple forms of evidence about undergraduate education on an ongoing basis.
	(Q20) Data collection, analysis, and interpretation inform departmental decision-making about undergraduate education.
Factor 3: Collaboration between department members promotes change. In order to make change, department members must work together, and ongoing collaboration is necessary for change.	(Q22) All department members are collaborators with equitable access to contribute to decision-making.
	(Q24) Department members interact with one another in functional and productive ways.
	(Q25) Department members view change as an ongoing process rather than an event (e.g., they believe that complex problems require continued attention to stay solved).
Factor 4: Work is grounded in a commitment to equity, inclusion, and social justice. Department members take action regarding equity, diversity, and inclusion. This can include considering the impact of decisions on underrepresented populations and deliberately recruiting diverse membership.	(Q28) The department intentionally recruits a diverse membership (e.g., with respect to gender identity, race, ethnicity).
	(Q29) Department members consider the impact of their decisions on underrepresented populations.
	(Q30) Department members feel a sense of personal responsibility toward improving inclusion in the department.

Applying DELTA Survey responses to DATs

The following table includes recommendations on how to use the information you learn from the different components of the DELTA Survey to inform your work with DATs.

Table 2. Applying DELTA Survey responses to DATs

DELTA Survey component	Information you can use for DATs
Climate related to instructional practices and role of the department chair	- Whether department members are satisfied with the support they are receiving for instruction, and if instruction is an area a DAT could focus their project work on. - If department members perceive that leadership values and supports instruction, this may indicate potential support for a DAT.
Social networks	- Who is perceived as influencers in the department for education, which can inform who facilitators recruit as DAT members and DAT allies. - Whether a diverse group is already included in conversations about education or if that is something a facilitator will need to support.
Core Principles	- Which Core Principles are being enacted in a department and to what extent, which can help facilitators decide if there is potential for departmental culture to align with the Core Principles. - If there are discrepancies between how Core Principles are enacted currently in the department vs. how participants think they would be enacted in an ideal department, this could inform what DAT projects would be supported by the department.

Sharing DELTA Survey responses

Carefully consider how you will share the responses to the DELTA Survey. Anonymize the responses before sharing them, and if sharing the demographic data might identify any of the participants (e.g., the department only has a few instructors and one instructor responded to the survey) then do not include the demographic data in your reports. One way you might share the responses to the DELTA Survey with department leadership and the DAT is to create a report that summarizes responses to the DELTA Survey and makes recommendations grounded in the responses. Alternatively, you can present DAT members with the aggregated responses to individual questions from the survey and work with them on interpreting the responses and coming up with a plan of action.

References

Ngai, C., Pilgrim, M. E., Reinholz, D. L., Corbo, J. C., & Quan, G. M. (2020). Developing the DELTA: Capturing cultural changes in STEM departments. *CBE-Life Sciences,19*(2), DOI:10.1187/cbe.19-09-0180

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