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Survey Data Analysis

This event will start at 4:00 pm EDT.

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Welcome to Today's Webinar

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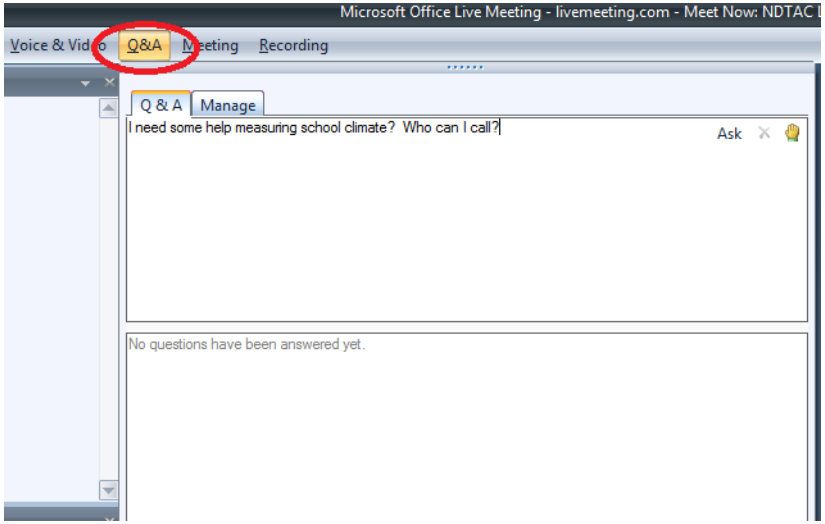
Q&A



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Evaluation

An event evaluation will appear as the last slide in the presentation. Please input your answers *directly* into the slide. All answers are *completely anonymous* and are not visible to other participants.

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The Safe and Supportive Schools Technical Assistance Center

- Funded by the U.S. Department of Education's Office of Safe and Drug-Free Schools.
- Provides training and support to states, including 11 grantees funded under the Safe and Supportive Schools Program and other state administrators; administrators of districts and schools; teachers; support staff at schools; communities and families; and students.
- Goal is to improve schools' conditions for learning through measurement and program implementation, so that all students have the opportunity to realize academic success in safe and supportive environments.

*The content of this presentation was prepared under a contract from the U.S. Department of Education, Office of Safe and Drug-Free Schools to the American Institutes for Research (AIR). This presentation does not necessarily represent the policy or views of the U.S. Department of Education, nor do they imply endorsement by the U.S. Department of Education.

Safe and Supportive Schools Website

http://safesupportiveschools.ed.gov

Survey Data Analysis

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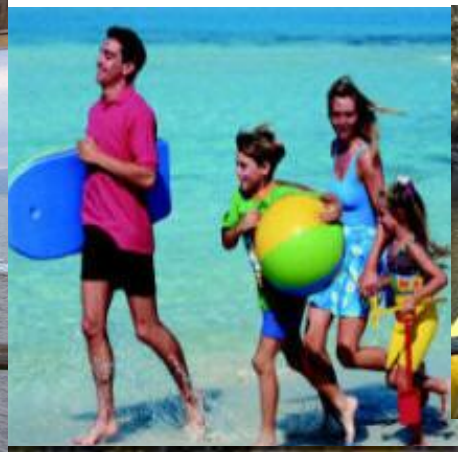
What Makes A Good Vacation?



Good Time?

The Data Analysis to Vacation Analogy

Vacation	Data Analysis
▪ We invest time and resources into a vacation and we want it to be memorable.	▪ We invest time and resources into data analysis and we want it to be meaningful.
▪ We plan for a vacation and we want it to go as planned.	▪ We plan for data collection and analysis and we want it to go as planned.
▪ We want to be able to share with others our vacation experience.	▪ We want to be able to share with stakeholders the results of our data analysis.
▪ We look forward to vacations!	▪ We look forward to finishing our data analysis!

The Data Analysis to Vacation Analogy

- Throughout this presentation we will make comparisons to how the data analysis process is much like vacationing.
- For those of us on the Curriculum and Instruction side, we might recognize this instructional technique as a “Synectics” lesson where we compare two unrelated ideas via an analogy.
- This being said, let’s see who we are traveling with on this data analysis vacation.

Polling Question #1

Which of the following best describes your current role?

- ❑ State Education Personnel
- ❑ District or School Administrator
- ❑ Teacher or School Support Staff
- ❑ Community or Family Representative
- ❑ Student
- ❑ Researcher
- ❑ Other

A Quick Review: Places We Have Been Before

- In order to ensure we will have good data, did we…
  - Provide an administration protocol to standardize the administration of surveys across multiple sites?
  - Establish a timeline and possible incentives to allow for good response rates?
  - Notice any circumstances that might lead us to question the quality of the survey data we collected (i.e., tornados, fire drill, early dismissal, low response rates, etc.)?
  - Follow an administration process that will lead others to believe in the quality of our data analysis?

Session Overview

1. Preparing for Analysis NOT Paralysis
2. Levels of Analysis
3. Capturing Analysis
4. Communicating the Analysis

Introduction: Planning for the Vacation

- Keep the end in mind: put data in the hands of stakeholders who will find it meaningful and useable.
- Keep the barriers in mind.
  - Organization of the data → Planning the trip
  - Capacity of the user of the data → Picking the right activities
  - Fear of the data → Traveling someplace safe

Introduction: Planning for the Vacation

- Planning for data analysis by mapping out our data
  - Creating a system for data entry or relying on a vendor
  - Treatment of paper surveys, scannable documents, online data capture, and/or data needing transcription
- Making sure the data get to the right cell
  - Making sure we create or provide a coding document
  - Conducting some preliminary analysis to assure the data are accurate
    - Do basic demographics verify the sample?
    - Are all schools present in the file?
    - Is the number of students reflective of the sample surveyed?

Preparing for Analysis NOT Paralysis: Vacation Management

- Clean data
  - Treatment of missing data
    - Code data as missing
    - Elimination of the observation
    - Imputation (i.e., mean replacement, regression imputation, mode replacement, median replacement)
    - Consistent treatment item-by-item
  - Item and scale coding
    - Coding negatively worded items correctly (i.e., “I like this vacation.” versus “I do not like this vacation.”)
    - Coding items according to the scale structure (i.e., variable values are directional (higher or lower) within scales; see next slide)
    - Correct item and scale coding leads to less user confusion.

Preparing for Analysis NOT Paralysis: Vacation Management

A real life example:

1=Strongly Disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree

Items for School Liking Scale	Location	Coding
I enjoy spending time at this school.	S3 Q14 Pg.3	1-5
I find myself bored in this school.	S3 Q15 Pg.3	1-5 [R]
I look forward to coming to school.	S3 Q16 Pg.3	1-5
I hate coming to this school.	S3 Q17 Pg.3	1-5 [R]
I like this school.	S3 Q18 Pg.3	1-5

Preparing for Analysis NOT Paralysis: Vacation Management

- *Less is More* or *More is Less* → *The Must See* or *The Might See*
- A few facts to include in summary about the data
  - Brief explanation of how the data were collected (i.e., paper survey, online, interview)
  - Brief explanation of who was surveyed and if a sampling technique was used (i.e., all student sampled, a random sample of students, all student who were consented to participate)
  - An explanation of why the data were collected (i.e., school improvement efforts, grant evaluation, Title I reporting)
  - Response Rates
    - What was the sample size we attempt to obtain and how many did we actually get?
  - Demographics showing a representative sample
    - Does our sample actually look like the overall sample of the population?

Polling Question #2

Where would you say you are on this year's data analysis vacation?

- ❑ We do not yet have data collected for this year.
- ❑ We have data, but no analyses yet.
- ❑ We have data and have done some analyses.
- ❑ We have done a lot of analyses.

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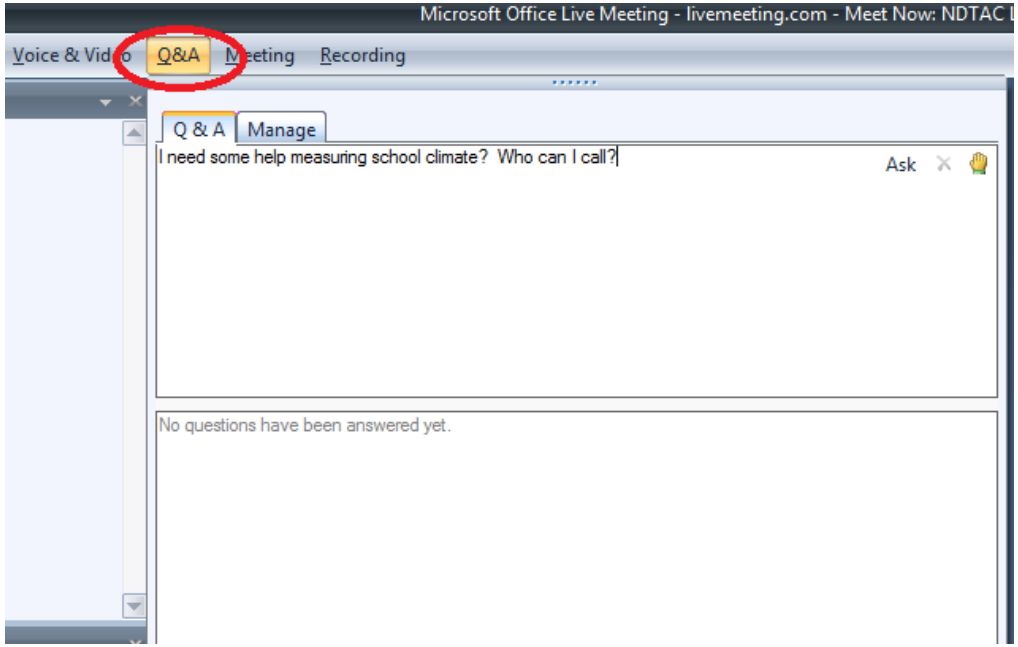

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Item Analysis and Scale Analysis: Following the Right Map or GPS

- Relationship between items and scales
  - Reliability of scale analysis
    - If borrowed from another study, what was the reported reliability?
      An alpha of .80 is great. An alpha below .60 is not great.
  - Concerns of item analysis
    - Is it appropriate to look at a single item?
      There are often too many individual items and items are less reliable than scales.
  - Conditions for item analysis
    - Can we look at single items related to self-reported behaviors?
      Student self-reports of alcohol use and drug use and similar incident reporting items are acceptable.
- Rationale for scales: One is the loneliest number

Item Analysis and Scale Analysis: Following the Right Map or GPS

- Consulting an expert → Hiring a tour guide
  - Cronbach's Alpha
    - Known as the measure of internal consistency. How well do the items in a scale hold together? Previous slide: .80 great and .60 not so great.
  - Factor Analysis
    - Describes the variability in items and how they relate to other items. Helps to determine if items in a scale are highly related. Also used as a method to shorten scales or create new scales.
  - Item Response Theory
    - Takes into account the difficulty of the items and that some items may be of more important value than others (e.g., Graduate Record Examination).
  - Rasch Models
    - Helps to measure how well the criterion of a measure (variable) is consistent across different groups.

Item Analysis and Scale Analysis: Following the Right Map or GPS

- Picking the right number → Sightseeing
  - The context of scores
    - Sum scores (5 + 5 + 5 + 5 + 5 = 25)
      - Appropriate to items and scales that are mostly self-reports
      - Reflects a larger number and may vary depending on the number of items in a scale (i.e., 7 items worth 5 points each =35 versus 5 items worth 5 points each =25).
    - Average scores (5 + 5 + 5 + 5 + 5 / 5 = 5)
      - Appropriate to items and scales that are mostly self-reports
      - Reflects a smaller number average to the highest value of each item or total scale. (i.e., 7 items worth 5 points each=5 and 5 items worth 5 points each =5).
    - Percent
      - Less appropriate to scales and more appropriate to certain kinds of items (i.e., How did participants' responses distribute across the response options?).

Levels of Analysis: How Many Activities Can We Plan

- Level of analysis
  - Rules of thumb when traveling abroad
    - Maintain a minimum sample size of 30 for disaggregated groups.
      - Sampling is considered most effective when we obtain at least 10 to 20 percent of the population.
    - Use caution when considering what the data mean for sample sizes under 30.
      - The smaller the sample size, the more variation is accounted for by each individual respondent.
    - Be aware of the response rate in consideration of what the data mean (i.e., who is missing from the sample?).

Levels of Analysis: How Many Activities Can We Plan

- Levels of analysis
  - School level analysis (i.e., overall scores for the entire sample at the school level)
    - Grade level analysis (i.e., comparing scores across grade level)
    - Participant: student, parent, educator (i.e., comparing scores across participants by school level, grade level, and other characteristics)
  - Classroom level analysis
    - Identifying trends across classrooms (i.e., Do some classrooms appear to get higher climate scores than others?)
    - Caution- Are the data appropriate to classroom level analysis?
      - Issues of student privacy and the value of the data for helping us at the classroom level.
  - Student level analysis
    - We can disaggregate at the student level by gender, race, SES, etc.
  - To what level do we disaggregate or do we need to disaggregate?

Levels of Analysis: How Many Activities Can We Plan

- Level of analysis related to working with the data
  - Who is the end user of the data?
    - Leadership teams will need school level analysis and disaggregated groups
    - Teacher teams will need less school level analysis and more grade level or classroom level analysis including disaggregated groups
    - Other stakeholders such as parents will need school level analysis and possibly grade level analysis

Level of Analysis: How Many Activities Can We Plan

- A Moment for Reflection
  - Who comes to mind as the initial users of your data?
  - What level of analysis will be your focus (could be more than one)?
  - What is the problem with making decisions on a single item within a scale?

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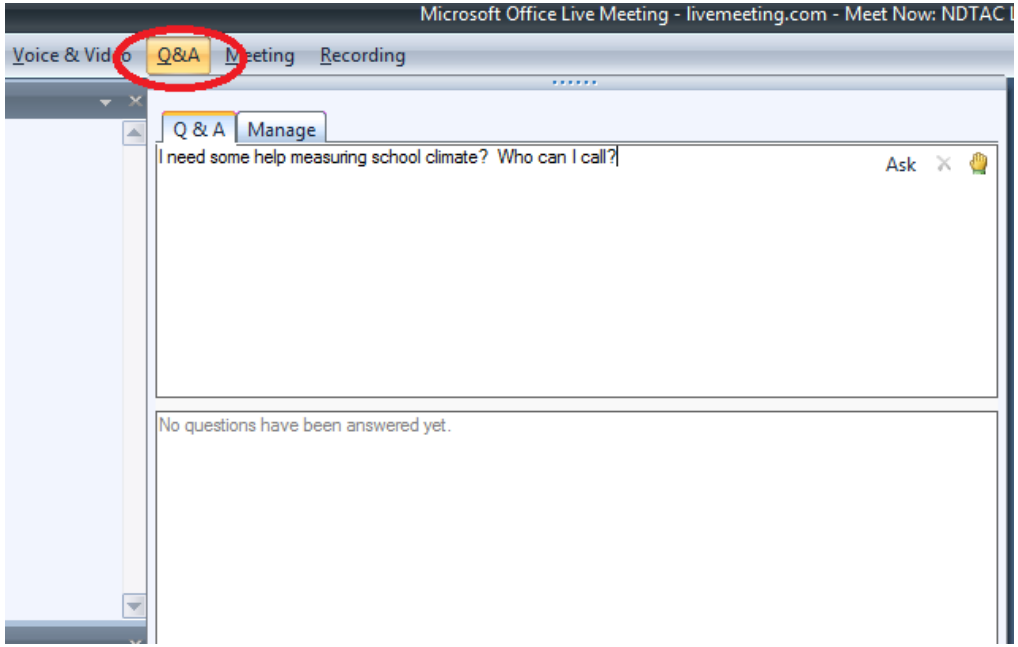

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Preparing Analysis for Stakeholders: Capturing the Right Vacation Pictures

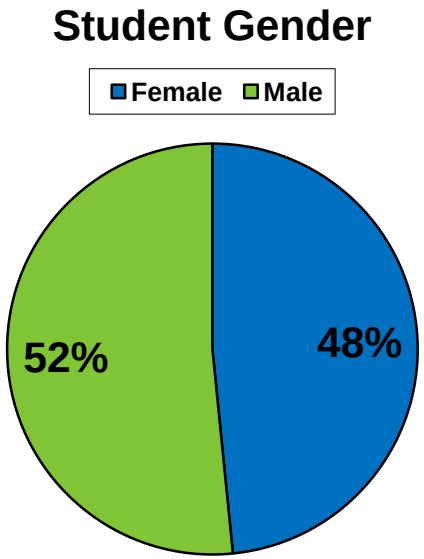
- Making data useable
  - Provide a consistent representation of data.
    - Be consistent about the use of charts, graphs, and tables to represent data. Using all different kinds of pictorial representations may add to confusion about the data being reviewed.
    - Be consistent with the scaling used on data (i.e., for bar charts, set the scale at the maximum number possible so charts are consistent).
  - Provide templates that allow for a discussion of data.
    - Structured questions, time limits on discussion, and a process for the discussion are important to meaningful use of the data.
  - Allow the dialogue to be an opportunity to test our intuition.
    - Help those involved in the data dialogue understand this is an opportunity to review data and learn together. These data can provide us with new insights!

Preparing Analysis for Stakeholders: Capturing the Right Vacation Pictures

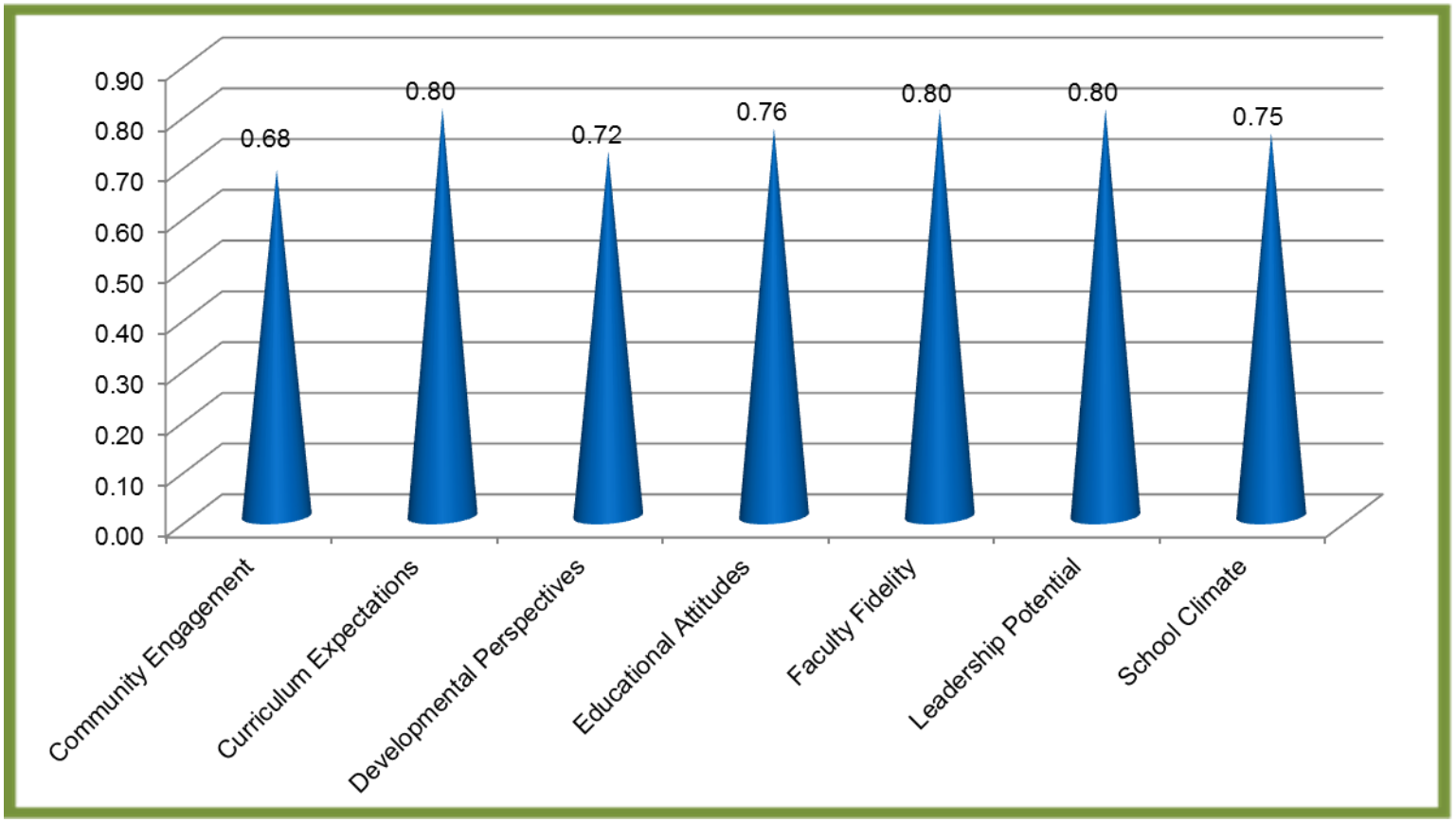
- The many options of representing data
  - Charts
  - Graphs
  - Tables
  - Cross Tabs
  - Other

Preparing Analysis for Stakeholders: Capturing the Right Vacation Pictures

Student Gender		
	Frequency	Percent
Female	972	48
Male	1036	52
Total	2008	100



Preparing Analysis for Stakeholders: Capturing the Right Vacation Pictures



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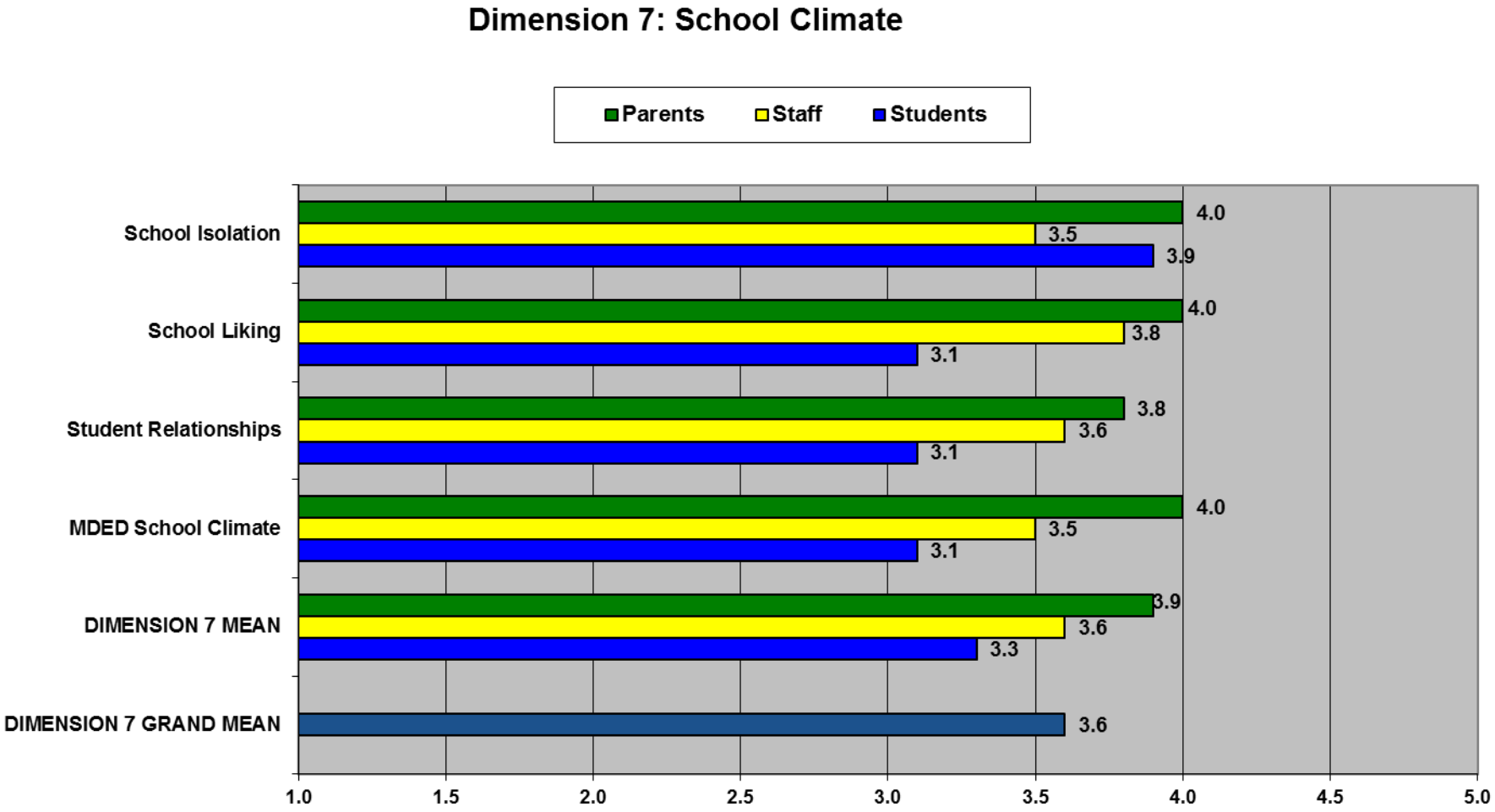

Polling Question #3

Who comes to mind as the initial users of the data you will produce?

- ❑ Students
- ❑ Parents
- ❑ Teachers
- ❑ School teams
- ❑ School districts
- ❑ Other

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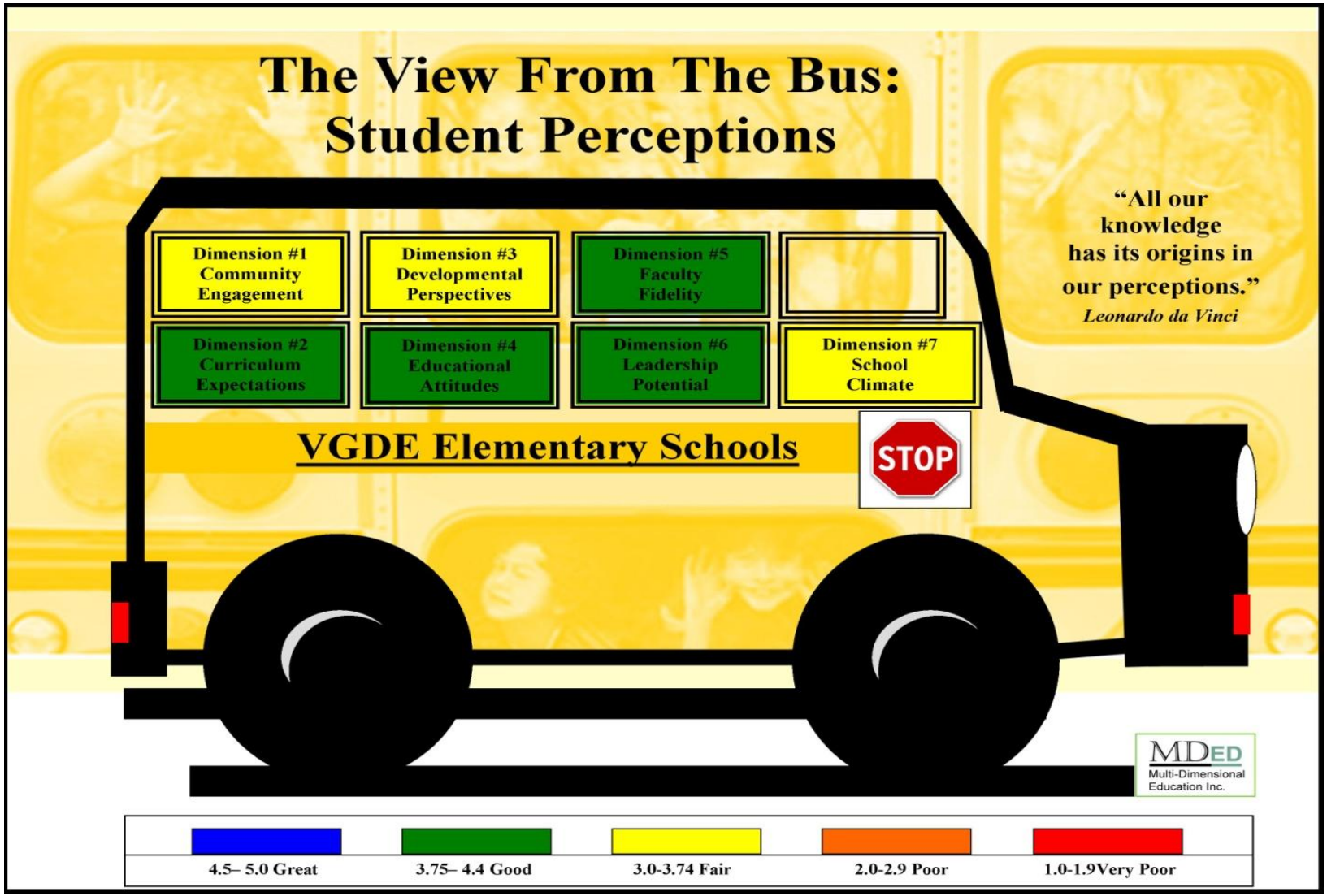
Preparing Analysis for Stakeholders: Capturing the Right Vacation Pictures

Mean Scores for each Dimensional Scale			
	Students	Staff	Parents
Interpersonal Community Engagement	2.9	3.0	3.0
Parent Involvement	3.4	2.8	3.8
Service to Community	3.1	2.9	3.3
Community Engagement	3.2	2.9	3.4
Instructional Curriculum	3.7	4.2	4.1
Educational Rigor	3.9	4.3	4.2
Instructional Creativity	3.5	3.9	3.8
Academic Support	3.8	4.2	4.0
Curriculum Expectations	3.7	4.1	4.0

Preparing Analysis for Stakeholders: Capturing the Right Vacation Pictures



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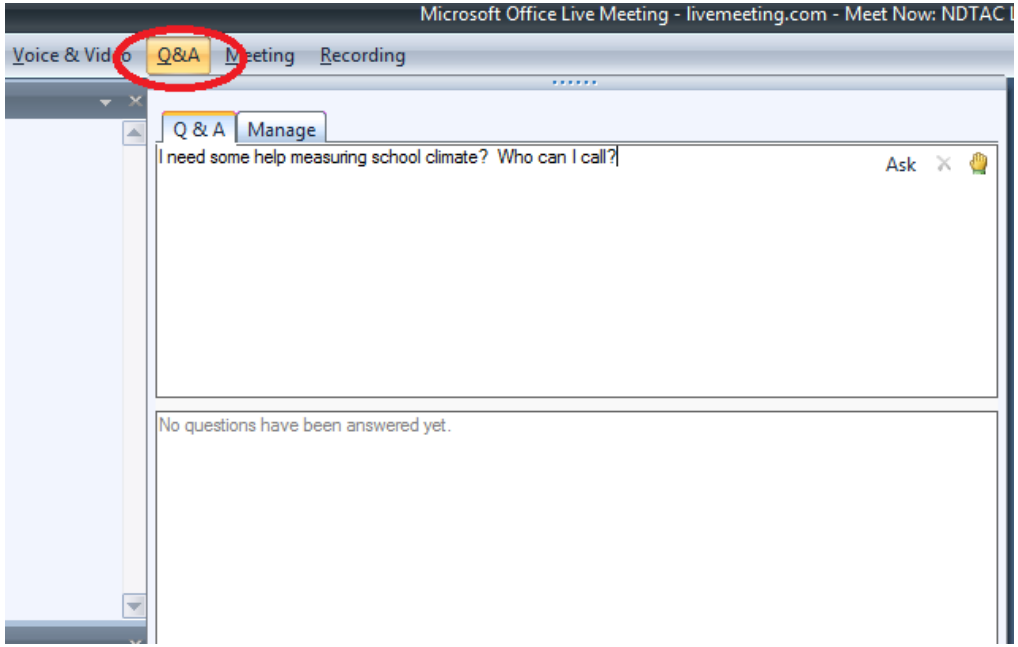

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Polling Question #4

Rate your progress on developing a School Safety Score:

- ❑ Very little progress
- ❑ Average progress
- ❑ Great progress
- ❑ We are not intending to develop a School Safety Score.

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School Safety Scores: Rating Your Vacation Experience

- Defining a school safety score

What + What + What / What = A School Safety Score

- Composite variables-scaling
  - Composite can be created by adding a number of scales or items together (i.e., we might create a student composite student achievement in ELA by adding their grade point average and proficiency level score together).
- Index options
  - We use indexes for the economy like the Consumer Prices Index (CPI), which contains a variety of data related to the health of the economy.
- Testing more than one composite/index
  - In the development of a school safety score we might want to test a few different definitions.
- Making a Meaningful School Safety Score
  - We want to create something that is reliable.
  - We might need an expert to help us with the statistical procedures that will need to be used.
  - If the measure will have consequences (e.g., newspaper reports school has a low school safety score) then we have to ensure the accuracy of the score.

School Safety Scores: Rating Your Vacation Experience

- Consumer understanding
  - Developing a measure all stakeholders will understand
    - Can we explain how the measure is calculated in laymen's terms?
  - Developing a measure that will have stable data year after year
    - Are we confident the data we used will be collected for years to follow or is the data subject to policy change?
  - Developing a measure that could be used in school improvement planning
    - Are the data robust enough to inform users that might need to make changes based on the data?
  - Establishing a score we can expect schools to work toward
    - Is the score based on a growth model? (e.g., Many states seek to meet a proficiency level, which is a status model not a growth model.)
  - Determining if the score can discriminate between safe schools and unsafe schools
    - Do we see differences in scores that reflect what we know about schools being safe or unsafe?

Reporting and Data Value: Telling Others About Your Vacation

- Preparing for a meaningful data-driven dialogue
  - Who is the data consumer? (i.e., teachers, administration, parents, students)
  - How much time and how much data are needed?
    - We want to carefully balance the amount of time we have with the amount of data we provide.
- Pitfalls to using data
  - Some will be afraid of what the data might reveal.
    - Ensure participants the data are about having a dialogue and not pointing fingers.
    - Ensure you can make the case that the data are accurate (i.e., some folks may not believe the data).
  - Some will feel they lack the capacity to analyze data.
    - Ensure participants that the data were formatted for easy review and there will be time for explaining how to review the data.

Reporting and Data Value: Telling Others About Your Vacation

- Templates and strategies for discussion
  - Wellman, B., & Lipton, L. (2003). *Data-driven dialogues: A facilitator's guide to collaborative inquiry*. Sherman, CT: Mira Via.
    - A valuable resource for planning the data-driven dialogue that includes discussion formats, question sets, and templates to guide participants through data analysis.
  - Holcomb, E. L. (2004). *Getting excited about data: Combining people, passion, and proof to maximize student achievement* (2nd ed.). Thousand Oaks, CA: Corwin.
    - A valuable resource that helps to focus on ways to make data analysis meaningful and fun. This text focuses on the collaboration of teams looking at data for school improvement.
  - Bernhardt, V. (2004). *Data analysis for continuous school improvement* (2nd ed.). Larchmont, NY: Eye on Education.
    - This resource is especially good for the use of data for leadership teams that are making school level decisions based on data.

Reporting and Data Value: Telling Others About Your Vacation

- Example 1: Key questions in a data-driven dialogue
  - What appear to be our strengths?
  - How do the stakeholders differ on scores?
  - What appear to be our concerns?
  - How are we presently addressing our concerns?
  - How might we address our concerns in a school-wide focus?
    - Grade , classroom, or student level focus?

Reporting and Data Value: Telling Others About Your Vacation

- Example 2: A goal and objective setting template

Climate Goal: By _____ of 2010, strategies will be implemented to improve the overall school climate of the school as reported by students, parents, and teachers. The measure(s) for achievement of this goal is/are _____ (list scale or dimension). The current scores is/are_____ (list mean(s)) and the desired score is _____ (list mean(s).

Objective :	Strategies	Professional Development	Resources	Timeline	Tasks	Monitoring
1.)Improve student relationships:						
2.)Improve student school bonding:						

Reporting and Data Value: Telling Others About Your Vacation

- Example 3: Immediate Priority Template

Prioritizing Objectives

It is important to address the objectives under each of your goals. This does not mean that you will address all of the objectives immediately. But you can prioritize the one(s) that you feel would be achievable and make a difference. Therefore, prioritize what you will do in the coming months to meet these goals.

1st Priority:

_____

2nd Priority:

_____

3rd Priority:

_____

4th Priority:

_____

Reporting and Data Value: Telling Others About Your Vacation

- Steps for a successful data dialogue
  - Orient the user to the data provided.
    "What you are looking at is…"
  - Test assumptions.
    "What do you think the data will tell us?"
  - Explain the goal in reviewing the data.
    "We are going to review these data in order to create…"
    - School wide goals, grade level goals, student population goals, or understanding our community
  - Create norms for dialogue.
    "When we discuss data, we should…"
    - Make sure everyone gets to talk
    - Value others' opinions

Additional Thoughts and Topics: Needing Another Vacation

- Comparison groups vs. experimental groups
  - If there is an intervention taking place it can improve our understanding of the data if we have groups getting the intervention and groups not getting the intervention.
- Across-time analysis
  - If possible we will want to consider tracking students across time on certain variables that might be important to our understanding of school safety.
- Low parent response rates
  - Low parent response rates are sure to be an issue. We can get higher parent response rates by getting the help of the local PTA, sending home a letter from the principal, incentivizing students to get parents to take the survey, and doing an "all call," letting parents know the survey is coming home and is important.
- Creating a data-driven culture/climate
  - We want to be data-driven and not driven by data. This can happen when we create an environment where looking at data is a valued and accepted practice.

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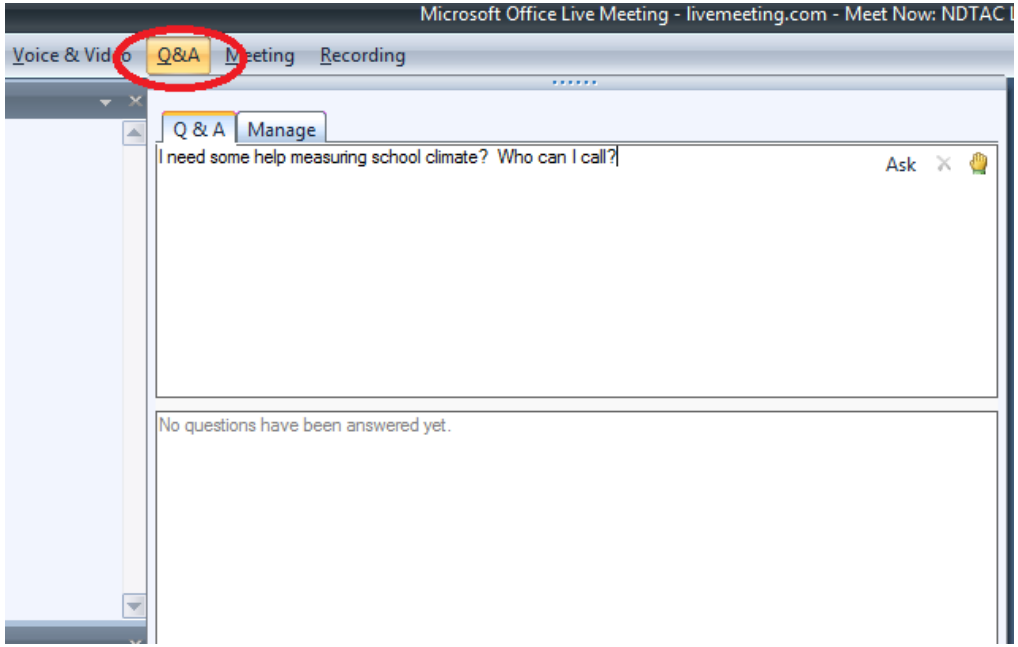

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Upcoming Webinars

- **Violence Prevention**
  June 8, 2011 4:00 pm – 5:30 pm ET
  June 9, 2011 11:00 – 12:30 pm ET

- Reporting and Dissemination
  June 29, 2011 4:00 pm – 5:30 pm ET
  June 30, 2011 11:00 – 12:30 pm ET

- **Student Engagement**
  July 13, 2011 4:00 pm – 5:30 pm ET
  July 14, 2011 11:00 – 12:30 pm ET

Upcoming Webinars (cont.)

- **Substance Abuse Prevention**
  August 24, 2011 4:00 pm – 5:30 pm ET
  August 25, 2011 11:00 am – 12:30 pm ET

- School Based Climate Teams (Part 2)
  September 14, 2011 4:00 pm – 5:30 pm ET
  September 15, 2011 11:00 am – 12:30 pm ET

Citations

1. Joyce, B., Weil, M., & Calhoun, E. (2003). Models of teaching (7th ed.). Englewood Cliffs, NJ: Prentice-Hall
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6. Holcomb, E. L. (2004). *Getting excited about data: Combining people, passion, and proof to maximize student achievement* (2nd ed.). Thousand Oaks, CA: Corwin.
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