

**Technical Report # 1112**

**Instrument and Survey Analysis Technical Report:**

**Program Implementation Survey**

*Revised December 2011*

Julie Alonzo

Gerald Tindal

University of Oregon



behavioral research & teaching

Published by

Behavioral Research and Teaching  
University of Oregon • 175 Education  
5262 University of Oregon • Eugene, OR 97403-5262  
Phone: 541-346-3535 • Fax: 541-346-5689  
<http://brt.uoregon.edu>

Note: Funds for this data set used to generate this report come from Oregon Department of Education Contract No. 8777 as part of Project OFAR (Oregon Formative Assessment Resources) Statewide Longitudinal Data System (SLDS), CFDA 84.372A Grant Program that is authorized by the Educational Technical Assistance Act of 2002.

Copyright © 2011. Behavioral Research and Teaching. All rights reserved. This publication, or parts thereof, may not be used or reproduced in any manner without written permission.

The University of Oregon is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. This document is available in alternative formats upon request.

## **Abstract**

This technical document provides guidance to educators on the creation and interpretation of survey instruments, particularly as they relate to an analysis of program implementation.

Illustrative examples are drawn from a survey of educators related to the use of the easyCBM learning system. This document includes specific sections on considerations related to sampling plans; instrument creation; and gathering, analyzing, and reporting of survey results.

**SLDS Technical Document #4:****Instrument and Survey Analysis Technical Report: Program Implementation Survey**

We begin this technical document with a brief definition of key terms and then provide more in-depth discussion of considerations related to sampling plans; instrument creation; and gathering, analyzing, and reporting of survey results.

**Key Terms**

Please note: These terms are defined in relation to surveys, here, but they may also have additional meaning when used in different contexts. Definitions provided here are not intended to be exhaustive.

**Instrument:** A testing device for measuring a given phenomenon. Instruments may include paper/pencil or computer-based tests, interviews, and surveys, among others.

**Survey:** A data collection tool used to gather information from individuals.

**Respondent:** A person responding to a survey.

**Population:** The group of people whose input on a topic one is trying to obtain through surveying. If the population is small enough, it might be possible to include everyone in the population in one's sample. Otherwise, one uses a **sampling plan** to identify in advance the people who will be included in the sample, and how they will be selected for inclusion.

**Sample:** The group of people to whom the survey is sent.

**Selected Response Item:** A question where respondents select their response from a pre-determined set of possible answer choices (aka "multiple choice").

**Constructed Response Item:** A question where respondents answer a question using their own wording, typically in a short-answer or essay-type format (aka "open ended question").

### Considerations in Sampling

One of the first decisions one must make before conducting a survey is whom to include. Typically, this is done through the creation of a written sampling plan, whereby one specifies the population of interest and describes whether everyone in the population will be included (*exhaustive* or *census sampling*) or a smaller sub-set of the population. In schools, it is not uncommon to solicit input from every member of the population of interest. In large districts, however, the sheer number of potential respondents may make a smaller sample more manageable. Knowing in advance how the results will be compiled and analyzed can help in making decisions about sampling plan. For instance, if one is going to be using a paper/pencil survey and hand-entering all the results prior to analysis, then a smaller, more selective, planned sample may be in order. In contrast, if one is using one of the many online survey tools where the results are tabulated by the computer as they come in, a larger sample may be feasible.

If one decides to sample (rather than send a survey to every member of the population in question), the next decision is what sampling method to use. Generally speaking, sampling methods can take either a *probability* or *nonprobability* approach.

***Probability Sampling.*** In probability sampling, each member of the population has a chance of being selected, and one either samples randomly or systematically. In a random sample, each member of the population has an equal opportunity to be selected. In a systematic sample, one selects people to include in the survey using a systematic, planned approach. For instance, one might select every  $n^{\text{th}}$  name to survey. One danger of this approach, of course, is that names are not randomly distributed across the population. Another systematic sampling technique *stratified sampling* first requires one to identify relevant clusters, or stratifications, into which members of the population might be grouped. Once these groups are identified, and the

population is organized by the stratifications, one selects a sufficient number of people from each of the groups to enable generalization to the population in question. In a school district this approach might be taken, for instance, if educators wanted to ensure that they had attempted to include input from a representative sample of people from each ethnic group enrolled in the school.

***Nonprobability sampling.*** Nonprobability sampling involves selecting people to survey in a nonrandom manner. Often, one will see such sampling plans referred to as convenience, judgment, or snowball sampling. As the name implies, convenience sampling refers to a situation whereby people are selected to participate in the survey because they are convenient. For example, a school might conduct a survey of parents in attendance at back-to-school night using convenience sampling. One danger of convenience sampling, of course, is that the people included may not truly represent the larger population to which one is hoping to generalize. In the example of sampling parents at a back-to-school night, for instance, this approach might result in an inability to gather input from parents who work nights. To the extent that their views might differ from the views of the parents in attendance at the evening event, the sample results would be biased. Judgment sampling is typically an extension of convenience sampling whereby participants are selected based on the judgment of the person conducting the survey that they will be a good representation of the population as a whole. For instance, a school might opt to survey students in one classroom per grade, selecting those classrooms that appear to best represent the school population as a whole. The biggest concern with this approach, of course, is the degree to which the sample was selected wisely. To the extent that the sample differs from the population as a whole, the results may not be generalizable.

A final survey technique, most often used with hard-to-identify samples, is called snowball sampling. In this approach, one uses referrals from others to identify and recruit additional people to include in the sample. For instance, a school district may want to solicit information about how they might better provide assistance and support to homeless students and their families, but it is unlikely that school records will enable the easy and accurate identification of which parents should be surveyed. Using a snowball sampling technique, one would identify one or more homeless family in the district and would then request that person's assistance in passing along the survey to other families in similar circumstances. A caution when using this approach is that the final sample may well be biased, as the people surveyed may end up sharing characteristics, through their associations with one another, other than the one that originally led to their identification.

***What to Look for in Reference to Sampling Design in Research.*** Because the approach used to gather the sample can impact the generalizability of the results considerably, it is important to examine the sampling plan and sample characteristics carefully when reading the results of a survey. Things to notice include how the sample was generated, the demographic characteristics of the sample (especially as they compare to your own population of interest), and the size of the sample compared to the identified population. Generally speaking, the closer the sample is in size and characteristics to the population as a whole, the more confident one can be in the results being reported.

### **Considerations in Instrument Creation**

Surveys vary widely in their construction and intended use. Knowing in advance what one will do with the results can help ensure that the survey is useful and focused (Fowler, 2009). Keep in mind that if the survey is too long, it is likely that fewer people will complete it.

Generally speaking, responses to selected-response items are easier to analyze (many of the online survey tools provide a way to download results directly to an Excel file). Oftentimes, though, one may want to include constructed-response items or places where respondents may add more detail to explain their responses. Such responses can provide interesting insight into patterns in the results. It is important to keep in mind, however, the potential that a well-crafted constructed response might unduly sway one's interpretation of the results.

***Creating selected-response items.*** In designing a survey, it is important to keep in mind that well-written questions will help respondents provide accurate and reliable answers. If your survey includes questions related to a sensitive topic, it may be wise to ensure that responses remain anonymous and to make sure that respondents are aware of this before they begin the survey. To avoid the situation where people select the 'safe' middle option choice rather than taking a stand on a topic with a more definitive answer, it is generally recommended to have an even number of response options when asking about people's opinions on a topic. The following guidelines can help ensure that questions solicit useful responses:

Table 1

*Selected-Response Item Writing Guidelines*

Guideline	Example of a Poorly-Written Question	Example of a Better-Written Question
Limit each question to one dimension	How fair and appropriate are the tests in this class? a) extremely b) somewhat c) not very d) not at all	How appropriate are the tests in this class: a) extremely b) somewhat c) not very d) not at all

Table 1

*Selected-Response Item Writing Guidelines (Continued)*

<p>Minimize the repetition across answer choices ~ include words that might repeat in the question stem so they do not need to be included in the responses.</p>	<p>How would you describe the campus?</p> <ul style="list-style-type: none"> <li>a) I feel very safe on campus.</li> <li>b) I feel somewhat safe on campus.</li> <li>c) I do not feel very safe on campus</li> <li>d) I do not feel safe at all on campus.</li> </ul>	<p>How safe do you feel on campus?</p> <ul style="list-style-type: none"> <li>a) very</li> <li>b) somewhat</li> <li>c) not very</li> <li>d) not at all</li> </ul>
<p>Keep the grammar structure parallel in each of the possible response choices.</p>	<p>How useful are the student behavior reports during parent conferences?</p> <ul style="list-style-type: none"> <li>a) best ever!</li> <li>b) they are quite useful</li> <li>c) somewhat useful</li> <li>d) not at all</li> </ul>	<p>How useful are the student behavior reports during parent conferences?</p> <ul style="list-style-type: none"> <li>a) extremely</li> <li>b) quite</li> <li>c) somewhat</li> <li>d) not at all</li> </ul>
<p>Make sure that the answer choices cover all possible responses. If people might feasibly be able to select two options, be sure they are given that choice.</p>	<p>Which class do you most enjoy? (select one)</p> <ul style="list-style-type: none"> <li>a) English</li> <li>b) Mathematics</li> <li>c) Spanish</li> <li>d) PE</li> </ul>	<p>Which class(es) do you most enjoy? (select all that apply)</p> <ul style="list-style-type: none"> <li>a) English</li> <li>b) Mathematics</li> <li>c) Spanish</li> <li>d) PE</li> <li>e) Other (explain)</li> </ul>
<p>Make sure that the answer choices are mutually exclusive. If they are not, then respondents might not know how to give an accurate answer.</p>	<p>Where do you usually do your homework?</p> <ul style="list-style-type: none"> <li>a) In the kitchen</li> <li>b) In front of the TV</li> <li>c) In my bedroom</li> </ul>	<p>Where do you usually do your homework?</p> <ul style="list-style-type: none"> <li>a) In a quiet place at home</li> <li>b) In a noisy place at home</li> <li>c) In a quiet place away from home</li> <li>d) In a noisy place away from home</li> <li>e) Other (explain)</li> </ul>

<p>Ensure that the questions flow smoothly from one to the next. Grouping questions that are similar can help make it easier for respondents to complete the survey.</p>	<p>How long have you lived in the district?</p> <p>a) &gt; 5 years b) &lt; or = 5 years</p> <p>What is your GPA</p> <p>a) 4.0 – 3.5 b) 3.49 – 3.0 c) &lt; 3.0</p> <p>Where did you live before you lived here?</p> <p>a) in a neighboring district b) in a different state c) NA: I have always lived here</p>	<p>How long have you lived in the district?</p> <p>a) &gt; 5 years b) &lt; or = 5 years</p> <p>Where did you live before you lived here?</p> <p>a) in a neighboring district b) in a different state</p> <p>NA: I have always lived here</p> <p>What is your GPA</p> <p>a) 4.0 3.5 b) 3.49 – 3.0 c) &lt; 3.0</p>
<p>If there is a chance that a respondent will not be able to answer a question, include a “don’t know” answer option. Otherwise, respondents may guess, reducing the reliability of your results.</p>	<p>What proportion of your waking hours do you typically spend reading?</p> <p>a) Less than 25% b) More than 25%</p>	<p>What proportion of your waking hours do you typically spend reading?</p> <p>a) Less than 25% b) More than 25% c) I don’t know</p>
<p>Write questions and responses in such a way that they do not “lead” to a particular response.</p>	<p>Do you agree that reading for pleasure outside of school is extremely important?</p> <p>a) Yes b) No c) I’m not sure</p>	<p>How important is reading for pleasure outside of school?</p> <p>a) Extremely b) Somewhat c) Not very d) Not at all</p>
<p>Avoid the use of unfamiliar words, abbreviations, and technical jargon.</p>	<p>How satisfied are you with the district’s efforts to support work toward AYP?</p> <p>a) Extremely b) Somewhat c) Not very d) Not at all</p>	<p>How satisfied are you with the district’s efforts to support improvement in student performance on statewide large-scale assessments?</p> <p>a) Extremely b) Somewhat c) Not at all d) I’m not sure</p>

Table 1

*Selected-Response Item Writing Guidelines (Continued)*

Limit questions that ask respondents to rank order a series of items to no more than 5 items.	Rank the following in their order of importance: (1 = most important; 10 = least important)  a) healthy cafeteria food b) tasty cafeteria food c) inexpensive cafeteria food d) a variety of cafeteria food e) large servings of cafeteria food f) easily-recognizable cafeteria food g) ethnically-diverse cafeteria food h) warm cafeteria food i) etc.	Rank the following characteristics of cafeteria food in their order of importance: (1 = most important; 5 = least important)  a) healthy b) tasty c) inexpensive d) a variety e) large servings
---	---	---

***Creating constructed-response items.*** A great deal of attention must be paid to the way in which constructed-response items are phrased if one is to get a lot of information from them. A good rule of thumb to remember is that the best constructed-response questions will solicit more elaborate responses. Avoid phrasing a question in a way that might lead a respondent to answer with a single word response (eg., “yes” or “no”). Phrasing a question the same way you might if you were going to be conducting an interview can sometimes help. For instance, asking people to *Describe the most useful aspects of today’s professional development workshop* may elicit more detailed responses than asking people *What made today’s professional development workshop useful?* Likewise, one might decide to phrase a question in a neutral way that would enable respondents to share insights either negative or positive as a means of ascertaining their true feelings on a topic. For instance, a question phrased as *Describe your opinion of today’s professional development workshop* could elicit either negative or positive responses, which might provide a more accurate gauge of how people viewed the event than responses that specifically solicit feedback about positive aspects of the workshop.

***What to Look for in Reference to Item Type in Research.*** Often, survey designers will include a mix of selected- and constructed-response items on the survey instrument. It is important to remember, however, that not all respondents will have the same ability to express themselves well in writing. There is always the danger that a well-written constructed-response will skew one's interpretation of the results as a whole. For this reason, it may be wise to use the results of selected-response items to help balance the opinions shared in open-ended answers. When reading the results of survey research, look for examples of the questions themselves and evaluate them for lack of bias and appropriate phrasing, keeping in mind that poorly-written questions reduce the reliability and validity of conclusions drawn from the survey.

### **Considerations in Administering Surveys**

Coming up with a sampling plan and creating a survey instrument are critical first steps. It is also important, however, to make plans to increase the response rate. The following steps may help increase people's willingness to respond to a survey.

- If mailing the survey, use an envelope that will help your survey stand out in the mailbox. Generally speaking, colored, hand-addressed envelopes with postage stamps affixed (rather than bulk mail postage or printed address labels) may help reduce the chance that the survey is discarded as "junk mail" prior to being opened.
- Include a brief but well-written cover letter, introducing the survey and emphasizing the importance of receiving a response from the person. If an online survey instrument is being used rather than a mailing, a short well-written e-mail takes the place of the printed cover letter.
- Include a title for your survey that is short and meaningful.

- Include short, easy-to-understand directions for completing and returning the survey. If the survey is being distributed through the mail, include the return address on the survey itself as well as on the reply envelope.
- Begin the survey with a few interesting and non-threatening questions, and organize the survey such that the most important questions appear within the first half of the survey. That way, even if people do not complete the entire survey, the responses to the most important questions will be captured.
- If the survey will be administered paper/pencil, leave plenty of white space. This helps give the impression that the survey will be easy to complete.
- Consider incentives to encourage people to return completed surveys. For mailed surveys, attaching a dollar bill may help improve the response rate. Offering to send a summary report of the results to everyone who completes the survey may also help encourage people to respond.
- Piloting the survey with a few people who represent the target population prior to distributing it more widely can help identify points of confusion to be corrected before the survey is administered more formally.

***Online versus Paper / Pencil Surveys.*** Widely-accessible technology in the form of internet-based survey tools has opened new avenues for collecting survey data. Online surveys may help reduce time and costs associated with gathering and analyzing survey data (Clayton & Werking, 1998; Gjestland, 1996; Schmidt, 1997). One of the most appealing characteristics of online survey engines is the way in which they facilitate data entry. Each respondent's input is tallied as it is entered, enabling instantaneous download of the data for rapid analysis as soon as the survey is closed. They may also include built-in features to enhance response rates, such as

the ability to provide feedback and/or summaries of responses upon completion and simple-to-use tracking of who has responded, enabling the person conducting the survey to send out multiple invitations to participate without an increase in mailing costs (Dillman, 2000; Schmidt, 1997), although some research suggests that paper/pencil surveys result in higher response rates (Sax, Gilmartin, & Bryant, 2003). Online survey engines are not without problems. One of the biggest challenges of using online survey engines is sampling bias that might favor higher-income households, where computer access might be more readily available (Sax et al., 2003).

Paper/pencil surveys may have some distinct advantages for school-based applications, where potential respondents are likely to be physically present in a room (such as a parent or faculty meeting or student class). Distributing, completing, and collecting surveys in the same sitting, can improve response rates significantly. Likewise, some respondents may find a paper/pencil survey less intimidating to complete than one that is delivered via computer. Knowledge of the potential sample to be surveyed can help in selecting the most appropriate method to use.

### **Analyzing Survey Results**

Survey results are generally reported for the whole sample as well as for specific subgroups. To make such analyses possible, one must collect the data in such a way that it is possible to link the responses to the demographic information collected in earlier questions. For instance, if one is interested in comparing the opinions of freshmen students with the opinions of juniors, the survey instrument must include a question that will prompt students to select their class in school so that the responses can later be disaggregated or different surveys must be administered to students in the different groups. One of the most common mistakes made by people who have less experience with constructing and analyzing surveys is failure to include

questions that will enable thorough analysis of the results. Taking steps to ensure that all responses on a given survey can be tracked back to the individual responding to the survey does not mean breaching confidentiality. One can assign code numbers to each survey instrument and use the numbers to link individuals' responses to different questions. Such an approach is particularly important for surveys that extend beyond a single sheet of paper; printing the person's code number on each sheet of paper can help ensure that responses are tracked even if the individual pieces of paper become separated.

### **Reporting Survey Results**

When reporting the results of a survey, provide a summary of the process used including the method of distribution and how the survey was introduced. Include information about how surveys were distributed and how many were completed, calculating a response rate (usually reported as a %) for the survey as a whole. If some questions elicited significantly fewer responses than the overall completion rate for the survey, report this information as well. Provide a frequency count, with raw numbers as well as percentage of respondents, for items that use a Likert-type scale. Including descriptive statistics (mean, standard deviation, and total number of respondents) may also help in interpreting results. Sometimes, other measures of central tendency such as which option elicited the most responses (mode) provide useful insight. If the survey includes constructed response items, one may either analyze the responses given for patterns and report findings with a few illustrative quotations or provide all responses given, allowing others to draw their own conclusions. Of these two approaches, the first may help reduce the potential for the qualitative responses to overpower the trends captured in the quantitative items on the survey.

**Illustrative Example of Survey Creation, Administration, Analysis, and Reporting**

The section that follows provides an annotated technical report describing a survey created in the mid-2000s to collect information about teacher self-efficacy. It is included in its entirety, in the same form in which it was published, with one exception: the addition of annotations intended to call attention to features in the manuscript discussed in this technical document.

Measuring Teachers' Efficacy Working with Diverse Student Needs:  
Testing a Measurement Model

Julie Alonzo and Gerald Tindal

University of Oregon

Jan McCoy

Learning Point

ABSTRACT.....3

MEASURING TEACHERS’ EFFICACY WORKING WITH DIVERSE STUDENT NEEDS: .....4

TESTING A MEASUREMENT MODEL .....4

    PURPOSE .....8

METHODS .....8

    DEVELOPING THE SURVEY INSTRUMENT .....8

    PILOTING THE SURVEY INSTRUMENT .....9

    EVALUATING THE STABILITY OF THE SURVEY INSTRUMENT .....12

    ANALYZING THE MODEL FIT .....13

RESULTS .....13

    PART 1: TECHNICAL ADEQUACY .....14

    TESTING OF A MEASUREMENT MODEL.....24

    RESULTS ON SURVEY DURING PILOT TESTING: HOW TEACHERS RESPONDED.....33

    TEACHERS’ ESTIMATION OF THE LIKELIHOOD OF THEIR STUDENTS FAILING THE STATE TEST.....37

DISCUSSION .....40

APPENDIX A: FEEDBACK FORM USED DURING CONTENT REVIEW.....41

APPENDIX B: TECHNICAL SPECIFICATIONS OF SURVEY .....46

APPENDIX C: SURVEY USED IN PILOT STUDY .....49

APPENDIX D: MPLUS OUTPUT FILES FOR MEASUREMENT MODEL.....60

APPENDIX E: REVISED SURVEY (POST PILOT STUDY) .....88

REFERENCES .....95

### Abstract

This technical report describes the development, pilot testing, and revision of a survey instrument designed to measure secondary school teachers' perceptions of their efficacy working with students from diverse backgrounds. A brief review of relevant literature frames the current study in the context of survey development that is technically adequate. Exploratory factor analysis is used to identify factors within each of four hypothesized latent constructs (alignment, inclusivity, organization, and general efficacy), and the measurement model fit is evaluated to explain their representation. Results suggest that the survey instrument (once revised) is reliable and that the measurement model may adequately fit the data.

## Measuring Teachers' Efficacy Working with Diverse Student

## Testing a Measurement Model

School improvement, as mandated by the federal government and implemented by all state education agencies, is a continuing effort on the part of school staff to

improve student achievement on standardized measures (Buttram & Waters, 1997). The past 25 years has seen a growing movement toward school improvement throughout the United States. Beginning with *A Nation at Risk* (National Commission on Educational Excellence, 1983), continuing through the President's Education Summit in 1996 (Buttram & Waters, 1997), and, more recently, the *No Child Left Behind Act of 2001* (2002) significant public resources have been dedicated to improving school effectiveness through standards-based accountability.

In the case of school improvement and accountability, the construct under investigation may be improving student achievement, but efforts toward that end generally take the form of interventions, not with the students, but with the teachers (Barth, 1990, Rosenholz, 1989). This approach reflects the broadly held position that improving student achievement relies on changing what happens in the classroom (Rudy & Conrad, 2004).

Researchers at the University of Oregon have undertaken an effort to identify, and to subsequently measure, elements of teacher attitudes and competencies that have an impact on the effectiveness of staff development efforts in school improvement. The elements described here were identified as consequential to a staff development effort targeting instructional change toward concept-based instruction (CBI) as opposed to more common fact-based instruction (Carnine, 2002; McCoy & Ketterlin-Geller, 2004; Twyman, Ketterlin-Geller, McCoy, & Tindal, 2003). Our focus has been in the secondary school content areas.

The technical report begins with a synthesis of the literature which forms the theoretical / conceptual framework for this work.

Briefly, concept-based instruction attempts to identify concepts common across large portions of the curriculum and to explicitly address these concepts rather than to focus upon the facts of individual and independent instances throughout curricula. We focus on four constructs of school improvement as reported by teachers in conversation following training and implementation of concept-based instruction in the classroom. Teachers participating in staff development in the use of concept-based instruction anecdotally report improvement in their self-efficacy in these areas and often see associated improvement in student academic achievement. The challenge, then, is to identify or create an instrument that can measure teachers' self-efficacy in these areas before and after their involvement in staff development so that the change might be more easily identified and its relationship to student academic achievement more explicitly described. This technical report describes the survey instrument developed to measure these four latent constructs.

*Alignment.* As a result of the push toward academic achievement as measured by standardized assessments, it is critical to establish alignment among state standards, curriculum, instruction, and assessment. To improve student outcomes we must evaluate student performance (American Educational Research Association (AERA), 2003; Rudy & Conrad, 2004). Alignment of these four constructs provides an assurance, first, that the tests appropriately measure student knowledge and, second, that the results of those tests can be used to modify both curriculum and instruction to better address the standards and improve student achievement (AERA, 2003). Without alignment among these elements of schooling, data may be suspect as school and district staff modify their practices to facilitate improvement. Although responsibility for aligning statewide testing to state standards falls reasonably to state department of education staff (AERA, 2003), aligning the curriculum and associated instruction must occur at the local

level and focus on curriculum and instruction to standards and associated assessments. Raising a teacher's perception of efficacy in alignment would enhance student instruction toward the standards and therefore toward statewide assessments.

By aligning the curriculum to standards, teachers can better support the learning of all students relative to these standards. Despite efforts at mandating content standards as the basis for curriculum-design decisions, textbooks often dictate the curriculum rather than these standards (DiegmueLLer, 1995). Exacerbating matters, the content in these textbooks typically is not aligned to the standards, nor do textbooks present information on an intellectual level called for by state standards (Tomlinson, 2000; Ketterlin-Geller, McCoy, Twyman, & Tindal, 2003).

*Inclusivity.* The *No Child Left Behind Act of 2001* (NCLB) (2002) presents schools with the challenge of helping all students, regardless of special needs status, to meet the same high standards of academic performance. This challenge has been educators' concern for some time and is reflected in the trend toward inclusion of special needs students in regular education classrooms (Alper, Schloss, Etscheidt, & Macfarlane, 1995). Inclusion is intended to provide students with a functional instructional environment that is based on their needs (e.g. classified special needs, at risk, homeless, or gifted) (Stainback, Stainback, & Jackson, 1992).

Unfortunately, teachers not yet comfortable with their inclusive classroom now are confronted with the demands of NCLB.

Inclusivity, then, is influenced by teacher's propensity to manage their classrooms in an encompassing manner based on curriculum adaptation and instructional scaffolds rather than mere presence of students from various groups (like disabilities and second language). Some might argue that unlike placement, inclusivity cannot be mandated but must be the result of a change in teacher attitude and behavior. Corbett (2001) argues that past practices in inclusion

that relied simply on placement in the general education classroom in defining success are outdated and inadequate. This attitude of “dump and hope” (Corbett, 2001, p 58) cannot, however, be replaced by a more openly inclusive instructional model without the full participation of the classroom teacher. A change in the teacher’s perception of self-efficacy in addressing the needs of a broader spectrum of student abilities seems critical to development of an attitude of inclusivity.

*Organization.* Such focus on teachers is unlikely to be productive without concurrent consideration of the classroom and school demands. The scope and sequencing of most courses from middle through high school levels is largely dependent upon and driven by the textbook that is used (Bean & Zigmond, 1994; Schug, Western, & Enochs, 1997). The difficulty is that textbooks do not present information with clear connections among various topics. In the case of American history texts, for example, information is typically presented in chronological order with one segment of the book only loosely connected to another and without regard to the concepts presented in each segment. While chronology seems to be reasonable (though potentially ineffective) as an organizing principle in a history text, other content areas have no inherent organizational principles. For example, organization in English and science texts as well as other areas, is often quite idiosyncratic. Often such materials move from one topic to an unrelated topic with little more to organize them than the general content topic (narrative fiction, poetry in English or chemistry and then earth science in science texts).

Organization, then, is the use of structural linkages of topics among units of instruction in a single course, across multiple courses within a grade, or across multiple grades. In concept-based instruction, organization results directly from the use of complex concepts across multiple instances or example sets. By organizing instruction in this way, teachers can provide students

with an opportunity to associate instructional outcomes from various units into a cogent whole. In our explanatory views, then, with appropriate manipulation of organization to include students with disabilities and English language learners, the net effect is likely to be unsustainable.

*Purpose*

The purpose of the survey is clearly identified

The goal of this study was to develop a survey instrument for use with secondary school teachers. This survey is to be used in conjunction with other data gathering methods to measure teacher attitude towards working with students, in particular those students with special needs. Specifically, the survey is designed to sample from four broad areas that the literature suggests play important roles in teacher effectiveness: (a) teachers' attitude towards aligning their curriculum, instruction, and assessment with state content standards (*alignment*), (b) their attitude towards working with students having diverse needs (*inclusivity*), (c) their ability to explicitly identify the most important concepts in the content they teach (*organization*), and (d) their feeling of efficacy in being able to address these three areas (*efficacy*).

### Methods

In this section, we first describe the process we used in developing the survey instrument: writing items, conducting a content review, and revising the survey. We then describe the process we used to test the adequacy of the hypothesized measurement model to describe the data we gathered during the piloting of the instrument.

*Developing the Survey Instrument*

As part of the development process, a draft of the survey instrument was reviewed by a small number (n=6) of people representative of the intended audience for the survey.

Content Review took place during a two-week window in October. Invitations to review the survey were sent to six local teachers representing a variety of content areas and a range of experience (See Table 1). All teachers who were invited to review the survey agreed to participate. All reviewers were sent a copy of the Feedback Form (See Appendix A) as an email

attachment and then provided with a link to the on-line survey itself. Once they had completed the review of the survey and responded to the questions on the Feedback Form, teachers emailed their reviews to the lead author, who compiled the results and used them to inform revision of the survey instrument.

Table 1

*Demographic Information on Teachers Who Participated in Content Review of Survey*

Reviewer #	Level Taught	Content Area	Years Teaching Experience
Reviewer #1	middle school	math	5
Reviewer #2	middle school	science	5
Reviewer #3	high school	science	3
Reviewer #4	high school	language arts	1

Once content reviewers had provided their feedback, we revised the survey to reflect their suggestions. The final survey that we administered can be found in Appendix C.

*Piloting the Survey Instrument*

← Steps used to recruit participants are described in detail

We piloted the survey with 104 secondary school teachers in schools across Oregon. Teachers were self-selected through a several step process. We sent requests for assistance in sending the email invitation to participate in the survey to every secondary school principal with a valid email address in the Oregon State Public School Directory. In the request, we asked principals to forward the invitation to participate in the survey research to all teachers on their staff. We asked teachers to reply directly to the lead researcher by email if they were interested in participating in the study. The lead researcher compiled a list of teacher emails for three weeks, until she had sufficient numbers of participants to begin the survey. In all, 128 middle

and high school teachers from schools across the state of Oregon indicated their interest in participating by emailing the lead researcher. Surveys were initially sent out to all teachers who had indicated interest in participating on November 19. Weekly email reminders were sent to all participants who had not yet responded, and the final surveys were completed on December 17. During the four-week window in which responses were accepted, 105 teachers completed the survey (a response rate of 82%). Teachers were paid \$10 for their participation in the survey research.

Survey participants are described including response rate and timeframe during which survey took place

*Description of our pilot study sample.* Survey respondents represent a wide range of demographics, Almost twice as many women participated in the survey as men (68 and 35, respectively). Tables 2 - 10 list additional demographic information for the teachers who participated in the survey.

Demographic information of respondents is provided

Table 2

*Self-Reported Ethnicity/Race of Survey Respondents*

Caucasian	Asian	Black	Hispanic	Chinese/Latina	Native American	Decline to state
97	1	1	2	1	1	2

Table 3

*Self-Reported Age of Survey Respondents*

21 – 30	31 – 40	41 – 50	51 +	Decline to state
23	21	28	28	1

Table 4

*Self-Reported Highest Level of Education Obtained of Survey Respondents*

BA/BS	MA/MS/MEd	DEd/PhD
22	81	1

Table 5

*Self-Reported Number of Years Teaching, Including Current Year, of Survey Respondents*

0 – 5	6 – 10	11 – 20	21+	Decline to state
33	25	28	15	2

Table 6

*Self-Reported Subject Area Taught of Survey Respondents (Grouped by Tested by State Assessment, Not Tested by State Assessment, and Special Education)*

Tested by State Assessment	Not Tested By State Assessment	Special Education
72	26	5

Table 7

*Self-Reported Grade Level Taught of Survey Respondents*

Middle School	High School	Both Middle and High School
71	25	8

Table 8

*Self-Reported Size of School of Survey Respondents*

Fewer than 250 students	251 – 500 students	501 – 1000 students	1001 – 1500 students	More than 1500 students
7	19	42	30	6

Table 9

*Self-Reported Type of School of Survey Respondents*

Rural	Small Town	Suburban	Urban	Decline to state
24	34	41	4	1

Table 10

*Percentage of Students at Survey-Respondents' Schools Receiving Free/Reduced Priced Meals*

Less than 10%	11% - 20%	21% - 30%	31% - 40%	41% - 50%	51% +	Decline to state
11	12	20				

The level of detail with which we analyzed the survey in this study exceeds what is typically required of surveys administered in school settings, where the purpose is primarily on collecting information about people's thoughts / experiences

*Evaluating the Stability of the Survey Instrument*

To evaluate the reliability of the survey instrument, we drew a random sample of 20 respondents (approximately 20%) from the original participants and sent a duplicate survey 2 – 4 weeks after they had completed the survey initially. In all, 16 teachers completed the duplicate survey, a response rate of 80%. We calculated the degree of consistency between teachers' responses to the first survey and the duplicate survey using a partial credit-scoring model. Because each question on the survey had 4 possible responses, we calculated consistency between the initial and duplicate surveys by awarding 100% to each response that was an exact

match, 75% to each response that varied by only one response category (such as changing from a *strongly agree* to *agree* or from a *disagree* to an *agree*), 50% to each response that varied by 2 response categories, and 0% to each response that varied by 3 or more response categories.

### *Analyzing the Model Fit*

Our main concern in this study was the creation of a survey instrument to measure teachers' attitudes and perceptions toward a variety of topics that the literature suggested as relevant to teacher effectiveness in working with students with diverse needs. To this end, we began by running exploratory factor analyses searching for items that appeared to be uncorrelated with other items grouped within the four areas we hypothesized would emerge as latent factors (alignment, inclusivity, organization, and general efficacy)<sup>1</sup>. For these analyses, we used principal component analysis with Quartimax rotation and retained factors with Eigenvalues of 1.0 or greater. Once we had determined which items to remove from the survey and had a rough idea of the number of factors underlying each construct of interest, we constructed a measurement model to test (see Figure 1). Because we had a limited number of cases (ranging from 80 on some items to 104 on others), we decided to test each factor separately, evaluate model fit, modify the items used in the measurement model as needed, and then run the complete model.

## Results

The next section is organized into two parts. Part 1 presents results evaluating the technical adequacy of the survey instrument, in which we evaluate both the reliability and adequacy of the survey instrument and the degree to which the hypothesized measurement model

---

<sup>1</sup> We included questions about state testing on the survey to answer other research questions, but they are not part of the measurement model

fit the data. Part 2 presents teachers' responses to the items on the survey during the administration of the pilot test.

*Part 1: Technical Adequacy*

Content review and revision of the survey. The compiled results from the content review process are presented below. Where appropriate we present feedback from reviewers in tabular form (see Tables 11 – 15). The rest of the time, responses are presented in full in the reviewers' exact wording.

*Feedback on the survey instrument.*

1. What changes, if any, would you recommend be

- There needs to be some kind of introduction as to what the survey is about. Also, the e-mail that I got with the link was not titled “U of O Research,” it was titled “Survey from Infocounts.” [Reviewer #1]
- Maybe a short introduction explaining what the survey is about (people may have forgotten that they signed up to take this survey). [Reviewer #2]
- Take off this part: “InfoCounts is now available for free to the general public! This simple, easy to use, online survey tool can collect data from anyone with an email address. Use the free InfoCounts system to increase productivity, conserve resources, and find out what really counts! <http://www.infocounts.com>”. This seems to add more confusion than help. [Reviewer #3]
- The email seems very clear. I'm not sure if you want to say that the answers will remain anonymous. I may be out to lunch on this one, but can answers remain anonymous? Would confidential be more accurate? [Reviewer #4]

Here, we elected to provide the constructed responses in full, to provide as complete a picture as possible about the feedback received during the survey creation process

Table 11

*Reviewers' Feedback on Question: "How easy is it to understand what you are expected to do?"*

Reviewer #	not at all easy	somewhat easy	easy	very easy
1			x	
2			x	
3		x		
4			x	

Survey Questions 1 - 9

Table 12

*Reviewers' Feedback on Question: "How easy to understand were the directions?"*

Reviewer #	not at all easy	somewhat easy	easy	very easy
1				x
2		x		
3				x
4			x	

2. What changes, if any, would you recommend be made to the directions at the start of this section?
  - None [Reviewer #1, #2, #3]
3. Which questions, if any, did you find confusing? Why?
  - Question 6, says *only text value*, but an answer requires a numeric part as well as a text part. Again on Question 9, it asks for *only text value*, but the answer would be a numeric answer. [Reviewer #1]

- Question #6 and #9 ask for a number, but the directions say to enter “only text value.”

I may misunderstand, but it seems like you are asking for a number but want it written out (i.e. you want the number “8”, but you want the person to respond with “eight.” This is confusing. [Reviewer #2]

- None [Reviewer #3]
- Just the possible semantic tweaking with “anonymous” [Reviewer #4]

4. On which questions, if any, would you recommend changing the wording?

- See answer to #3 [Reviewer #2]
- None [Reviewer #3, #4]
  - a. How should the wording be changed?

- See answer to #3 [Reviewer #2]

5. Are there any other demographic questions that you think we should add to this section?

- I don’t know how you are planning to use this information, but some other areas to consider would be family structure, sexual orientation, and income level. [Reviewer #2]
- None [Reviewer #3, #4]

6. Approximately how long would it take you to complete this section of the survey itself?

- A couple of minutes [Reviewer #1]
- One minute [Reviewer #2]
- A couple minutes [Reviewer #3, #4]

## Survey, Question 10

Table 13

*Reviewers' Feedback on Question: "How easy to understand were the directions in Question 10?"*

Reviewer #	not at all easy	somewhat easy	easy	very easy
1				x
2			x	
3	x			
4			x	

## 7. What changes, if any, would you recommend to the wording of Question 10?

- This almost seems unnecessary to include as a question, maybe just a button that says "next." [Reviewer #2]
- This question totally confused me because nothing happened when I checked/unchecked the box. I first checked it thinking it was going to go to another page or something, but then nothing happened. It was confusing to see that I needed to check "next" when all the questions I was going to be answering were right there on the same page. [Reviewer #3]
- You might explain the purpose of the question. [Reviewer #4]

## Survey, Questions 11 - 20

## 8. Which questions, if any, did you find confusing? Why?

- #11 – does "well prepared" mean that you have the formal training to teach it, that you have the experience to teach it, that there are resources at the school that help prepare you to teach it, etc? Maybe this could be specified [Reviewer #2]

- #20 – this is actually asking two different questions. Maybe break it up into two questions or get rid of one of the statements. [Reviewer #2]
  - #13. Not confusing, but bothered me. I understood what the question was getting at, but it was hard for me to answer honestly. I do feel like I “try really hard,” but sometimes there are some students that just can not be reached for whatever reason. Answering this question with the options given was difficult. I felt like I needed to be able to write in text to support my answer. Maybe a text box could be added or the wording of the question could be changed. [Reviewer #3]
  - This section seems to be effectively worded. [Reviewer #4]
9. On which questions, if any, would you recommend changing the wording?
- See answer to #8 [Reviewer #2]
  - #13 [Reviewer #3]
  - None [Reviewer #4]
    - a. How should the wording be changed?
      - See answer to #8 [Reviewer #2]
      - Changing the part about “If I try really hard.” Maybe clarifying what “trying really hard” means by adding something about “by using various teaching strategies all of my educational knowledge” or “to the best of my ability.” [Reviewer #3]
10. Which questions, if any, did you find redundant in this section?
- None [Reviewer #1, #2, #3, #4]
11. Approximately how long would it take you to complete this section of the survey itself?
- A couple of minutes. [Reviewer #1]
  - One minute [Reviewer #2]

- Couple minutes [Reviewer #3]
- Approximately 4 minutes [Reviewer #4]

Survey, Questions 21-30

12. Which questions, if any, did you find confusing? Why?

- #22 – “water down” might not be a universally known phrase...maybe use something like “simplify” or “not make as complex.” [Reviewer #2]
- None [Reviewer #3]
- I found this section to be extremely reassuring. It made me feel like I planned my curriculum well. [Reviewer #4]

13. On which questions, if any, would you recommend changing the wording?

- See answer to #12 [Reviewer #2]
  - a. How should the wording be changed?
    - See answer to #12 [Reviewer #2]
    - You might consider asking about specific challenges i.e. autism, dyslexia, etc. [Reviewer #4]

14. Which questions, if any, did you find redundant in this section?

- None [Reviewer #1, #2, #3, #4]

15. Approximately how long would it take you to complete this section of the survey itself?

- A couple of minutes. [Reviewer #1]
- Two minutes [Reviewer #2]
- Couple minutes [Reviewer #3]
- Three minutes [Reviewer #4]

Survey, Questions 31 - 40

16. Which questions, if any, did you find confusing? Why?

- On question 38, there was only one option for an answer, which was *strongly disagree*. Also, question 39 is exactly the same as 38. [Reviewer #1]
- Question #38 only has one choice for an answer: strongly disagree...change by giving all four available responses just like the other questions [Reviewer #2]
- Question #38 only gives you one option to choose from. [Reviewer #3]
- Question thirty two is a bit vague in its reference to “text”. What if you do not have a traditional textbook. [reviewer #4]

17. On which questions, if any, would you recommend changing the wording?

- See answer to #16 [Reviewer #2]
- #32 [Reviewer #4]
  - a. How should the wording be changed?
    - See answer to #16 [Reviewer #2]
    - Throw #38 out? [Reviewer #3]

18. Which questions, if any, did you find redundant in this section?

- Question 33 seems to be asking the same question as 38. The same question seems to be asked again in question 40. [Reviewer #1]
- #32 and #35 and #40 are all asking different questions, but they seem redundant. Maybe by placing them one after another it would be easier to see the differences. Also, #38 and #39 are the same questions [Reviewer #2]
- #38 and #39 [Reviewer #3, #4]

19. Approximately how long would it take you to complete this section of the survey itself?

- 4 or 5 minutes [Reviewer #1]
- Two minutes [Reviewer #2]
- Couple of minutes [Reviewer #3]

- Two minutes [Reviewer #4]

Survey, Questions 41 - 50

20. Which questions, if any, did you find confusing? Why?

- #48 – it is posed as a DOES NOT question, so disagreeing with it is confusing...maybe make it a DOES question. [Reviewer #2]
- None [Reviewer #3]

21. On which questions, if any, would you recommend changing the wording?

- See answer to #20 [Reviewer #2]
- #49 [Reviewer #3]
- Teachers may not have all of the information to answer question 42. How might they communicate this? [Reviewer #4]
  - a. How should the wording be changed?
    - See answer to #20 [Reviewer #2]
    - Clarify option “improved materials selection”. Is this referring to more/better texts, etc.? [Reviewer #3]

22. Which questions, if any, did you find redundant in this section?

- None [Reviewer #2, #3]
- Questions 41 and 44 may be redundant. [Reviewer #4]

23. Approximately how long would it take you to complete this section of the survey itself?

- Two minutes [Reviewer #2, #4]
- Couple minutes [Reviewer #3]

Overall Feedback

Table 14

*Reviewers' Feedback on Question: "How easy was it to use the on-line survey?"*

Reviewer #	not at all easy	somewhat easy	easy	very easy
1				x
2		x		
3		x		
4			x	

Table 15

*Reviewers' Feedback on Question: "How appropriate is the survey to use with middle and high school teachers?"*

Reviewer #	not at all appropriate	somewhat appropriate	appropriate	very appropriate
1				x
2			x	
3			x	
4			x	

24. What changes in formatting/ appearance, etc. would improve the on-line survey?

- I thought the appearance and formatting was easy to read, and user-friendly.  
[Reviewer #1]
- Maybe make a space between questions and a space between the question and its possible answers [Reviewer #2]

- The end piece when you click “reply.” There is nothing instructing you to do so, and when you do (click reply) you are left unsure if you did the right thing. It seems that you are done, but are not quite sure about it. Maybe a screen that says “Thank you for completing the survey. Your survey is now complete and accounted for. You may exit this screen.” Something like that would be helpful. [Reviewer #3]

25. What changes in the directions would improve the on-line survey?

- None different than the suggestions already given [Reviewer #2]
- Perhaps you should say “If you do not have the information or experience to answer a question, leave it blank.” [Reviewer #4]

26. Please note any additional suggestions you have for us. Thanks!

- Thanks for your patience in my responding! I did eventually figure out what you were asking me to do! I think with some changes to better clarify the survey, it will be a keeper! [Reviewer #3]

Provide as much direct, contextual information as possible in the survey. For instance, it might be worth it to clarify that the results may be used to existing programs at the University of Oregon School of Ed. [Reviewer #4]

*Stability of the survey instrument.* In all, 16 teachers completed the duplicate survey, a response rate of 80%. We calculated the degree of consistency between teachers’ responses to the first survey and their responses to the duplicate survey using a partial credit scoring model. The majority of responses on the two survey administrations were exact matches, but three teachers’ responses varied by one response category in about one quarter of the possible 53 responses. In all, the survey was found to have a test/re-test reliability of 91% for the 16 teachers who completed both the original and duplicate survey.

*Testing of a Measurement Model*

In this section, we first present the results of our initial principal component analyses and then present the results of our path analyses as we move into evaluation of the full measurement model

*Results of exploratory factor analysis.* Only 6 items (of the n items) were identified as not functioning well in our survey: one each in the efficacy (item 11) and inclusivity (item 15) sections of the survey, and one in the alignment (items 25 and 28) section. In addition, two items from the questions on state standards / state testing (items 32 and 33) were dropped because they did not appear to be functioning well.

Principal component analysis with Quartimax rotation resulted in the identification of three underlying factors that together comprised the *efficacy* construct (see Table 16), one underlying factor that comprised the *inclusivity* construct (see Table 17), two underlying factors that together comprised the *organization* construct (see Table 18), one underlying factor that comprised the *alignment* construct (see Table 19), and three underlying factors that together comprised the *state standards/ state testing* construct (see Table 20). All analyses converged in four iterations. In all cases, we only retained factors with initial Eigenvalues of at least 1.00. Eigenvalues for the individual factors are indicated in Tables 16 - 20.

Table 16

*Principal Component Analysis, Efficacy*

Survey Item	Component (Initial EigenValues)		
	1 (2.76)	2 (1.63)	3 (1.09)
Overall, I am comfortable teaching the curriculum in my assigned classes. (v3)	.93	.16	-8.84E-03
I am well prepared to teach my assigned content classes. (v4)	.91	.16	-1.08E-02
The amount a student can learn is primarily related to family background. (v5) (reverse scored)	.19	.61	.15
If I try really hard I can get through to even the most difficult or unmotivated students. (v6)	1.92E-02	.79	.16
If a student in my class becomes disruptive and noisy I know effective techniques to redirect him/her quickly. (v7)	Poorly fitting item. Cut from Survey.		
When one of my students gets a better grade than he/she typically gets it is usually because I found a better way of teaching that student. (v8)	.16	.71	-8.72E-02
If a student did not remember information I gave in a previous lesson I would know how to increase his/her retention in the next lesson. (v9)	.16	-3.01E-02	.81
When a student is having difficulty with an assignment I am able to adjust it to his/her level of skill. (v10)	-.11	.26	.73
When it comes right down to it a student's motivation and performance depends on his/her home environment not on the teacher. (v11) (reverse scored)	Poorly fitting item. Cut from Survey.		

Table 17

*Principal Component Analysis, Inclusivity*

Survey Item	Component (Initial Eigenvalue)
	1 (1.98)
Some students in my classes would be better placed with a teacher who has additional training in meeting the needs of students with learning disabilities. (v12) (reverse scored)	.50
I need additional support (e.g. classroom aides) to address the needs of all students in my classes. (v13) (reverse scored)	.70
Having students with special needs in my classroom has negative consequences for other students. (v14) (reverse scored)	.81
All my students can learn the main ideas in my curriculum. (v15)	Poorly fitted item. Cut from survey.
For students with special needs to succeed I have to take instructional time away from other students. (v16) (reverse scored)	.76

Table 18

*Principal Component Analysis, Organization*

Survey Item	Component (Initial Eigenvalues)	
	1 (2.76)	2 (1.34)
The main ideas of the curriculum in my content area(s) are addressed across the units in my class. (v17)	.71	-4.67E-.03
I review the big picture of my curriculum to ensure that there is coherence across lessons in my class. (v18)	.82	.19
I teach my students to look for the same main ideas across multiple lessons. (v19)	.68	7.06E-02
My lessons are designed to explicitly support the broader goals within my curriculum. (v20)	.77	.28
I make sure that my tests measure the main ideas that I want students to master. (v22)	5.41E-02	.67
I use specific techniques (e.g. outlines graphic organizers note taking) to make the main ideas obvious in my class. (v23)	.17	.73
I provide my students with multiple opportunities to practice using the main ideas of the curriculum in my content area. (v24)	.11	.77

Table 19

*Principal Component Analysis, Alignment*

Survey Item	Component (Initial Eigenvalues)
	1 (4.28)
I modify the curriculum in my classes to match the state standards. (v21)	.80
I primarily use a textbook to identify what it important to teach in my classes. (v25) (reverse scored).	Poorly fitted item. Cut from survey.
I primarily use the state standards to identify what is important to teach in my classes. (v26)	.87
My curriculum, instruction, and assessments are aligned to the main ideas in the state standards. (v27)	.72
I am quite familiar with the main ideas in the state standards for my assigned content area(s). (v28)	Poorly fitted item. Cut from survey.
I develop lesson plans to teach students the main ideas in the state standards. (v29)	.90
I plan assessments to measure student mastery of main ideas relative to the state standards. (v30)	.87
I use the state standards to identify what is important to assess in my classes. (v31)	.90

Table 20

*Principal Component Analysis, State Standards / State Testing*

Survey Item	Component (Initial Eigenvalues)		
	1 (2.04)	2 (1.53)	3 (1.26)
For students in my classes, improvement on state tests is extremely difficult to accomplish. (v36) (reverse scored).	.89	2.74E-02	-3.55E-02
The state's expectations are unreasonable for students at my school (reverse scored). (v37))	.84	1.34E-02	.18
I know how students at my school compare to students at other schools in my state on state tests. (v38)	.12	.85	9.35E-.02
I know how students at my school compare to students across the nation in terms of their performance on standardized tests. (39)	-7.51E-02	.87	-.10
State testing appropriately measures my students' strengths and weaknesses. (v40)	.15	.11	.80
The statewide assessment addresses the main ideas of state content standards. (v41)	-1.16E-02	-.12	.86
The state's expectations are reasonable for students in my assigned content area. (v32)	Poorly fitting item. Cut from survey.		
I think students at my school are doing as well as ever academically. (v33)	Poorly fitting item. Cut from survey.		

*Results of measurement model analyses.* For the *alignment* construct, we achieved the best model fit ( $\chi^2 = 19.24, p < .05$ ; CFI = .97; RMSEA = .12) when we let the residual from v26 covary with the residual from v29. For the *inclusivity* construct, we achieved the best model fit ( $\chi^2 = 2.56, p > .05$ ; CFI = .99; RMSEA = .05) when we used all four measured variables. For the *organization* construct, we achieved the best model fit ( $\chi^2 = 4.20, p > .05$ ; CFI = 1.0; RMSEA < .001) when we let two sets of residuals covary (v17 with v18 and v19 with v20), and dropped one measured variable (v22) from the second factor. For the *efficacy* construct, we achieved a

good model fit ( $\chi^2 = 8.85, p > .05$ ; CFI = .97; RMSEA = .11) when we used just five measured variables (v3 – v6 and v8), dropping the two measured variables that loaded on the third factor (v9, v10) and one measured variable that didn't have a single strong factor loading. Although we gathered data on teachers' opinions of state testing, we did not include them in analyses because they were not part of our measurement model.

When we combined all latent constructs into one model, the fit indices went down considerably ( $\chi^2 = 238.07, p < .05$ ; CFI = .91; RMSEA = .07), as would be expected given the relatively small sample size being used to estimate a rather complicated model. Figure 2 shows the empirical path diagram illustrating the relationship between measured variables in our model. We have included the output files for all relevant Mplus analyses as Appendix D.

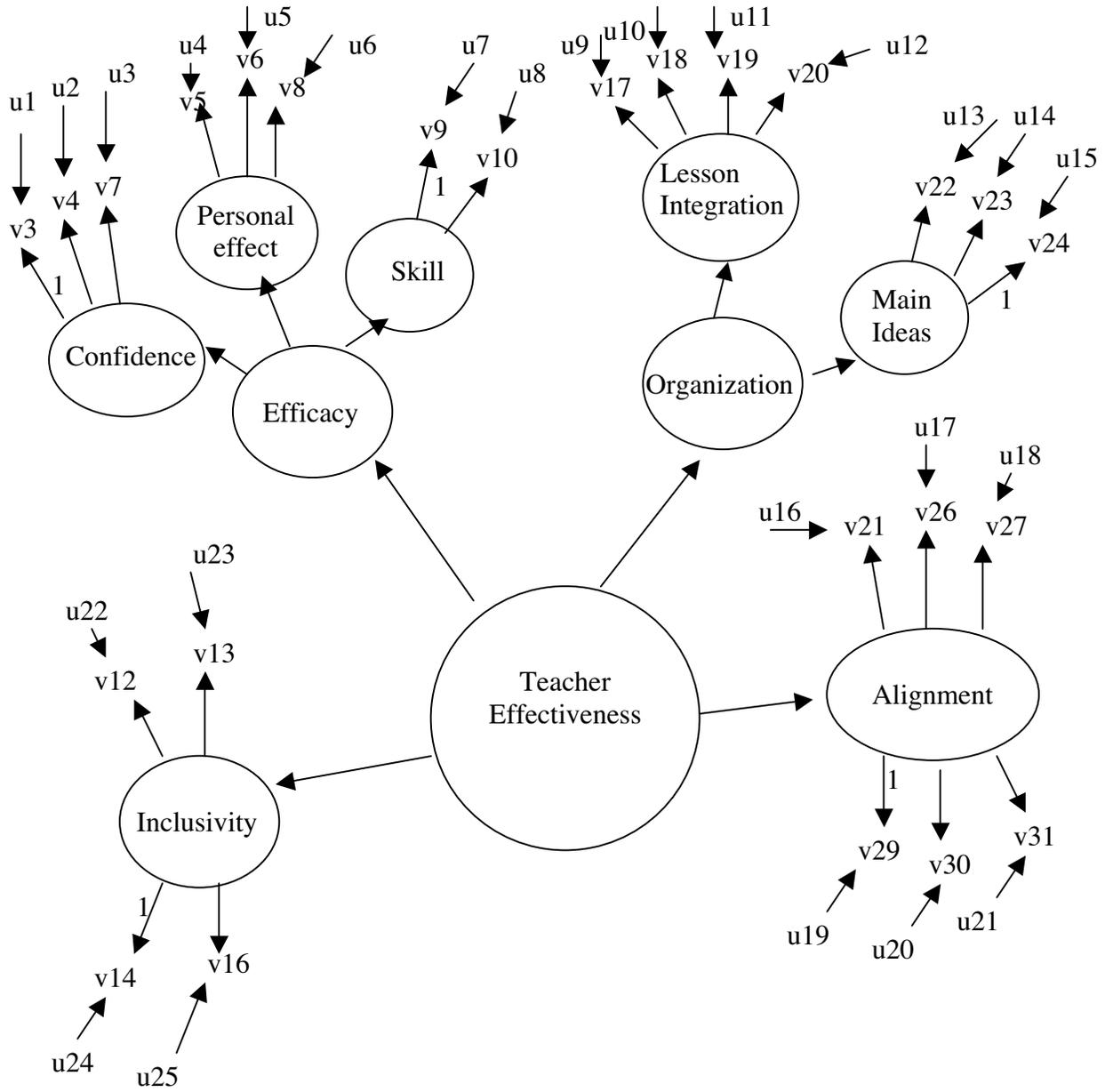


Figure 1. Hypothesized Measurement Model

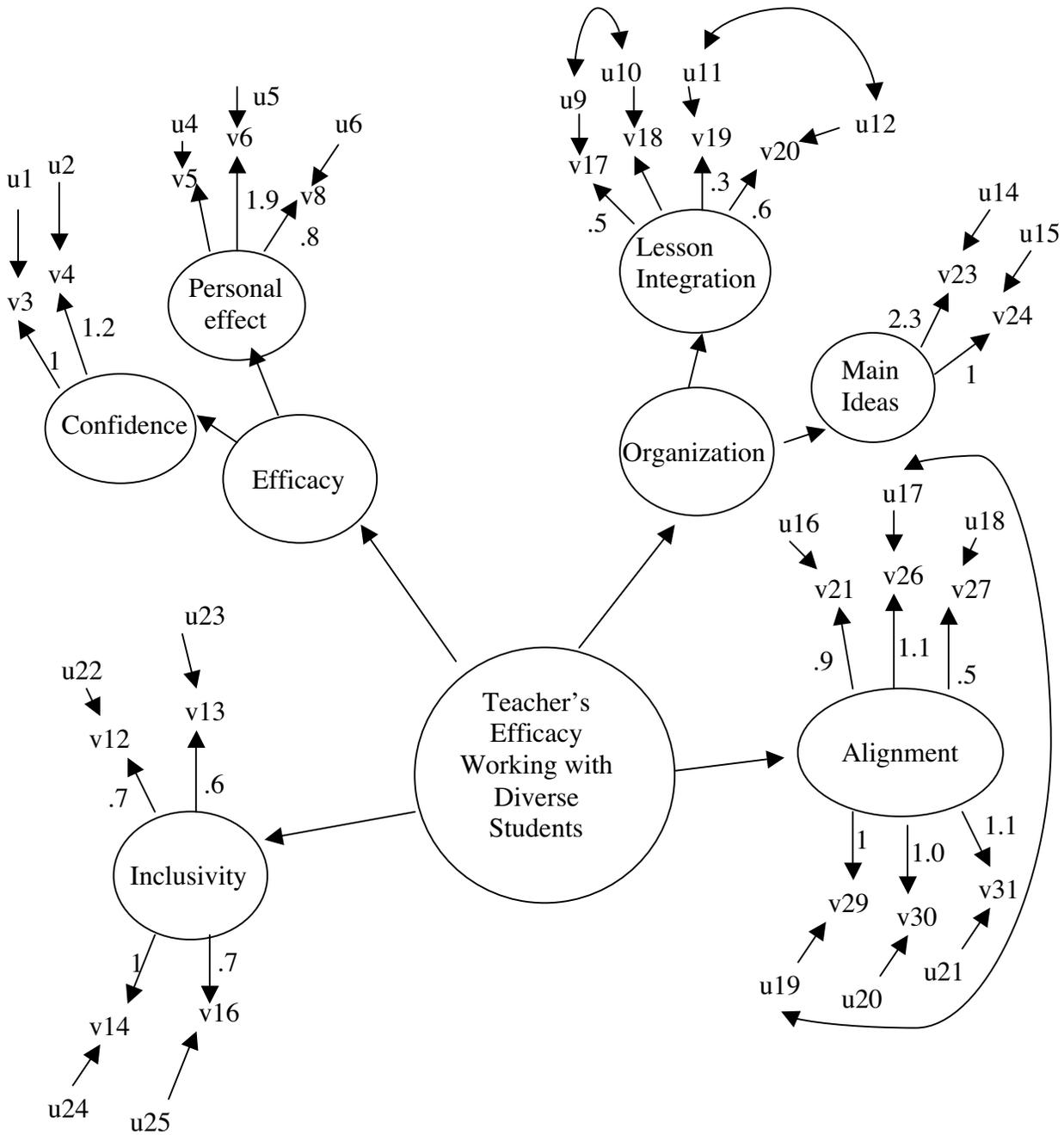


Figure 2.  
Empirical Path Diagram

*Results on Survey During Pilot Testing: How Teachers Responded*

Teachers in the sample provided a range of responses on almost all items on the survey (see Table 21).

Here, results are reported from the survey administration, with both raw numbers and percentages of respondents per response category, as suggested. Note, too, the use of four possible response options for these Likert-scale type items

Table 21

*Teachers' Responses to Survey Questions, Numbers and Percentages Per Response Category*

Survey Item	Strongly Disagree	Disagree	Agree	Strongly Agree
Overall, I am comfortable teaching the curriculum in my assigned classes. (v3)	6 (6%)	2 (2%)	29 (28%)	67 (64%)
I am well prepared to teach my assigned content classes. (v4)	6 (6%)	4 (4%)	35 (34%)	58 (56%)
The amount a student can learn is primarily related to family background. (v5)	4 (4%)	21 (20%)	63 (61%)	16 (15%)
	< 25% of the time	26 – 50% of the time	51 – 75% of the time	> 75% of the time
If I try really hard I can get through to even the most difficult or unmotivated students. (v6)	12 (12%)	32 (31%)	34 (33%)	26 (25%)
	Strongly Disagree	Disagree	Agree	Strongly Agree
If a student in my class becomes disruptive and noisy I know effective techniques to redirect him/her quickly. (v7)	1 (1%)	10 (10%)	55 (53%)	38 (37%)
When one of my students gets a better grade than he/she typically gets it is usually because I found a better way of teaching that student. (v8)	3 (3%)	37 (36%)	59 (57%)	3 (3%)
If a student did not remember information I gave in a previous lesson I would know how to increase his/her retention in the next lesson. (v9)	—	18 (17%)	78 (75%)	7 (7%)

Table 21, Cont.

*Teachers' Responses to Survey Questions, Numbers and Percentages Per Response Category*

	< 25% of the time	26 – 50% of the time	51 – 75% of the time	> 75% of the time
When a student is having difficulty with an assignment I am able to adjust it to his/her level of skill. (v10)	5 (5%)	21 (20%)	36 (35%)	42 (40%)
	Strongly Disagree	Disagree	Agree	Strongly Agree
When it comes right down to it a student's motivation and performance depends on his/her home environment not on the teacher. (v11)	6 (6%)	62 (60%)	29 (28%)	4 (4%)
Some students in my classes would be better placed with a teacher who has additional training in meeting the needs of students with learning disabilities. (v12)	11 (11%)	36 (35%)	41 (39%)	14 (14%)
I need additional support (e.g. classroom aides) to address the needs of all students in my classes. (v13)	19 (18%)	53 (51%)	26 (25%)	5 (5%)
Having students with special needs in my classroom has negative consequences for other students. (v14)	3 (3%)	27 (26%)	55 (53%)	19 (18%)
All my students can learn the main ideas in my curriculum. (v15)	2 (2%)	7 (7%)	58 (56%)	35 (34%)
For students with special needs to succeed I have to take instructional time away from other students. (v16)	9 (9%)	57 (55%)	30 (29%)	7 (7%)

Table 21, Cont.

*Teachers' Responses to Survey Questions, Numbers and Percentages Per Response Category*

	< 25% of the time	26 – 50% of the time	51 – 75% of the time	> 75% of the time
The main ideas of the curriculum in my content area(s) are addressed across the units in my class. (v17)	2 (2%)	11 (11%)	31 (30%)	58 (56%)
I review the big picture of my curriculum to ensure that there is coherence across lessons in my class. (v18)	8 (8%)	13 (13%)	33 (32%)	50 (48%)
	Strongly Disagree	Disagree	Agree	Strongly Agree
I teach my students to look for the same main ideas across multiple lessons. (v19)	—	12 (12%)	58 (56%)	29 (28%)
	< 25% of the time	26 – 50% of the time	51 – 75% of the time	> 75% of the time
My lessons are designed to explicitly support the broader goals within my curriculum. (v20)	1 (1%)	14 (14%)	35 (34%)	52 (50%)
I modify the curriculum in my classes to match the state standards. (v21)	16 (15%)	14 (14%)	36 (35%)	32 (31%)
I make sure that my tests measure the main ideas that I want students to master. (v22)	—	—	14 (14%)	85 (82%)
I use specific techniques (e.g. outlines graphic organizers note taking) to make the main ideas obvious in my class. (v23)	3 (3%)	12 (12%)	28 (27%)	56 (54%)
I provide my students with multiple opportunities to practice using the main ideas of the curriculum in my content area. (v24)	3 (3%)	3 (3%)	30 (29%)	66 (64%)
I primarily use a textbook to identify what it important to teach in my classes. (v25)	9 (9%)	17 (16%)	27 (26%)	48 (46%)

Table 21, Cont.

*Teachers' Responses to Survey Questions, Numbers and Percentages Per Response Category*

	< 25% of the time	26 – 50% of the time	51 – 75% of the time	> 75% of the time
I primarily use the state standards to identify what is important to teach in my classes. (v26)	21 (20%)	18 (17%)	33 (32%)	29 (28%)
My curriculum, instruction, and assessments are aligned to the main ideas in the state standards. (v27)	3 (3%)	10 (10%)	39 (38%)	47 (45%)
	Strongly Disagree	Disagree	Agree	Strongly Agree
I am quite familiar with the main ideas in the state standards for my assigned content area(s). (v28)	2 (2%)	6 (6%)	46 (44%)	47 (45%)
	< 25% of the time	26 – 50% of the time	51 – 75% of the time	> 75% of the time
I develop lesson plans to teach students the main ideas in the state standards. (v29)	11 (11%)	16 (15%)	36 (35%)	37 (36%)
I plan assessments to measure student mastery of main ideas relative to the state standards. (v30)	11 (11%)	28 (27%)	34 (33%)	28 (27%)
I use the state standards to identify what is important to assess in my classes. (v31)	18 (17%)	21 (20%)	36 (35%)	25 (24%)
	Strongly Disagree	Disagree	Agree	Strongly Agree
The state's expectations are reasonable for students in my assigned content area. (v32)	6 (6%)	18 (17%)	62 (60%)	14 (14%)
I think students at my school are doing as well as ever academically. (v33)	3 (3%)	30 (29%)	55 (53%)	12 (12%)
For students in my classes, improvement on state tests is extremely difficult to accomplish. (v36)	5 (5%)	32 (31%)	53 (51%)	5 (5%)

Table 21, Cont.

*Teachers' Responses to Survey Questions, Numbers and Percentages Per Response Category*

	Strongly Disagree	Disagree	Agree	Strongly Agree
The state's expectations are unreasonable for students at my school (reverse scored). (v37))	5 (5%)	22 (21%)	60 (58%)	8 (8%)
I know how students at my school compare to students at other schools in my state on state tests. (v38)	6 (6%)	10 (10%)	70 (67%)	16 (15%)
I know how students at my school compare to students across the nation in terms of their performance on standardized tests. (39)	12 (12%)	41 (39%)	41 (39%)	6 (6%)
State testing appropriately measures my students' strengths and weaknesses. (v40)	26 (25%)	55 (53%)	21 (20%)	—
The statewide assessment addresses the main ideas of state content standards. (v41)	3 (3%)	24 (23%)	61 (59%)	1 (1%)

*Teachers' Estimation of The Likelihood of Their Students Failing the State Test*

We also asked teachers to estimate the percentage of their students whom they believe would fail the state large-scale assessment in spite of everything they did as teachers (see Table 22). Responses ranged from a low of 0 to a high of 75% ( $M=28.11$ ,  $SD = 17.98$ ).

Table 22

*Percentage of Students Whom Teachers Believe Will Fail the State Test, Irrespective of Teachers' Efforts*

Percentage of Students Who Will Fail	Number of Teachers with This Response	% of Teachers with This Response	Cumulative %
< 5	7	8.2	8
Between 5 and 10	14	16.5	24.7
Between 11% and 15%	10	11.8	36.5
Between 16% and 20%	5	5.9	42.4
Between 21% and 25%	7	8.2	50.6
Between 26% and 30%	11	12.9	63.5
Between 31% and 35%	5	5.9	69.4
Between 36% and 40%	6	7.1	75.5
Between 41% and 45%	3	3.5	79.0
Between 46% and 50%	10	11.8	90.8
Between 51% and 55%	0	0	90.8
Between 56% and 60%	5	5.9	96.7
Between 61% and 65%	1	1.2	97.9
Between 66% and 70%	0	0	97.9
Between 71% and 75%	1	1.2	99.1 <sup>a</sup>
> 75%	0		

Here, you see an example of analysis of patterns of responses by specific demographic characteristics of respondents

<sup>a</sup>Less than 100% due to rounding errors.

Interestingly, responses to this question varied by type of district in which the teachers worked, with teachers working in rural ( $n = 19$ ) and small town ( $n = 30$ ) districts on average expressing the least optimism ( $M = 37.37, SD = 15.93$  and  $M = 31.67, SD = 20.32$ , respectively,

$p < .05$ ). On average, teachers working in suburban ( $n = 33$ ) districts estimated the smallest percentage of students would fail the state test in spite of everything they do ( $M = 19.82$ ,  $SD = 12.93$ ,  $p < .05$ ). We found no statistically significant differences in teachers' estimation of the percentage of their students who would fail the state test regardless of teacher efforts with regards to years of teaching or size of school ( $p > .05$ ).

Perhaps not surprisingly, however, given the research indicating a consistent relationship between SES and achievement on standardized tests, there was a trend in our sample for teachers who worked at schools with greater proportion of students receiving free or reduced price meals to indicate less optimism about the percentage of their students who would pass the state test ( $p < .05$ ). On average, teachers who reported they worked at schools with fewer than 10% of their students receiving free or reduced price meals estimated that 15% of their students would fail the state test. In contrast, teachers who reported working at schools with more than 50% of their students receiving subsidized meals estimated that 35% of their students would fail the state test. Full results are presented in Table 23

Table 23

*Teachers' Estimations of the Percentage of Their Students Who Will Fail the State Test in Spite of Everything [They] Do*

Approximate percentage of students receiving free or reduced price lunch	<i>n</i>	<i>M</i>	<i>SD</i>
less than 10%	8	15.25	15.65
11 – 20%	8	20.25	16.79
21 – 30%	19	22.58	15.17
31 – 40%	12	35.58	20.75
41 – 50%	9	33.89	20.73
more than 50%	24	35.13	15.83

### Discussion

Results from our pilot testing of the survey instrument suggest the revised survey (see Appendix E) may be a technically adequate measure of secondary school teachers' perceptions of their efficacy working with students from diverse backgrounds. The survey provides reliable information about teachers' self-reported ability to align curriculum, instruction, and assessment; their feeling of inclusivity; their self-reported ability to organize their instructional units to reflect state content standards; and their general efficacy. However, the small size of our sample limits our ability to test the fit of our model in its entirety. The fit indices nearing significance indicate a general trend toward model fit, but further empirical testing with a larger sample will be necessary to fully test the complete model.

## Appendix A: Feedback Form Used During Content Review

**Feedback on CITES Teacher Survey**

*Thank you for your assistance in our efforts. The on-line survey about which you will be providing feedback is designed for in-service secondary school teachers from a variety of content areas. Your feedback will help us in the editing/revising phase of our work, as we prepare for a pilot testing of this instrument beginning in mid October. The survey is being developed as part of a grant-funded research project being conducted by \_\_\_\_\_ of \_\_\_\_\_ in the College of Education at \_\_\_\_\_.*

**Instructions:**

1. Please read over the questions on this feedback form prior to looking at the survey to familiarize yourself with the types of questions you will be answering. You will see that we ask the same questions for each of the sections of the survey, focusing on the formatting and wording of the items.
2. Once you know what to expect, please move through the survey instrument, providing feedback on each section and for each item. You may either write your responses on the printed copy of this feedback form or type your responses on the electronic version of the form that has been provided in a separate email.
3. You will access the survey on your computer. Please note: although you will need to provide answers to the survey questions in order for the computer program to function appropriately, your answers on the survey itself will NOT be used in any way. For this reason and because we want you to devote your time to providing feedback rather than contemplating how you should answer the survey, please feel free to provide fictitious answers on the survey itself.
4. As soon as you have completed the feedback form, please return your responses to me, \_\_\_\_\_, at \_\_\_\_\_. For faster delivery, responses can also be sent to me at \_\_\_\_\_ as email attachments (with a .doc extension).

If you have any questions, please contact me at [email](#) or *phone number*.

Thank you for providing us with feedback!

Sincerely,

Name, Title

**Reviewer Information**

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Current job title: \_\_\_\_\_ # of years at current job: \_\_\_\_\_

If you are a teacher, what subject do you teach?

**Feedback on the Survey Instrument****E-mail Intro**

*Please read over the e-mail with the subject heading “U of O Research” that contains the link to the on-line survey. This e-mail will be teachers’ first introduction to the survey. With this context in mind:*

1. What changes, if any, would you recommend be made to the e-mail?

2. How easy is it to understand what you are expected to do?

not at all easy                      somewhat easy                      easy                      very easy

**Survey Questions 1 - 9**

*Please read over questions 1 – 9 of the survey. These questions are designed to gather demographic information.*

3. How easy to understand were the directions?

not at all easy                      somewhat easy                      easy                      very easy

4. What changes, if any, would you recommend be made to the directions at the start of this section?

5. Which questions, if any, did you find confusing? Why?

6. On which questions, if any, would you recommend changing the wording?

a. How should the wording be changed?

7. Are there any other demographic questions that you think we should add to this section?

8. Approximately how long would it take you to complete this section of the survey itself?

**Survey, Question 10**

*Question 10 on the Survey is used to overcome a technical difficulty with the on-line format—including this question allows me to provide a ‘break’ in the survey between the demographics and the actual survey questions as well as to give directions for how to proceed with the rest of the survey. Please read Question 10 and then respond to the following questions:*

9. How easy to understand were the directions in Question 10?

not at all easy            somewhat easy            easy            very easy

10. What changes, if any, would you recommend to the wording of Question 10?

**Survey, Questions 11 - 20**

11. Which questions, if any, did you find confusing? Why?

12. On which questions, if any, would you recommend changing the wording?

b. How should the wording be changed?

13. Which questions, if any, did you find redundant in this section?

14. Approximately how long would it take you to complete this section of the survey itself?

**Survey, Questions 21-30**

15. Which questions, if any, did you find confusing? Why?

16. On which questions, if any, would you recommend changing the wording?

c. How should the wording be changed?

17. Which questions, if any, did you find redundant in this section?

18. Approximately how long would it take you to complete this section of the survey itself?

**Survey, Questions 31 - 40**

19. Which questions, if any, did you find confusing? Why?

20. On which questions, if any, would you recommend changing the wording?

d. How should the wording be changed?

21. Which questions, if any, did you find redundant in this section?

22. Approximately how long would it take you to complete this section of the survey itself?

**Survey, Questions 41 - 50**

23. Which questions, if any, did you find confusing? Why?

24. On which questions, if any, would you recommend changing the wording?

e. How should the wording be changed?

25. Which questions, if any, did you find redundant in this section?

26. Approximately how long would it take you to complete this section of the survey itself?

### **Overall Feedback**

*Please consider the on-line format of the survey in addressing the following questions:*

27. How easy was it to use the on-line survey?

not at all easy          somewhat easy          easy          very easy

28. How appropriate is the survey to use with middle and high school teachers?

not at all                  somewhat                  appropriate                  very appropriate  
appropriate                  appropriate

29. What changes in formatting/ appearance, etc. would improve the on-line survey?

30. What changes in the directions would improve the on-line survey?

31. Please note any additional suggestions you have for us. Thanks!

As soon as you have completed the feedback form, please return your responses to \_\_\_\_\_ at \_\_\_\_\_. For faster delivery, responses can also be sent to me at \_\_\_\_\_ as email attachments (with a .doc extension).

Thank you!

## Appendix B: Technical Specifications of Survey

*The following questions were included to gather demographic information: [number of item on actual survey], (variable identification on Empirical Path Diagram shown in Figure 2)*

1. Gender [45]
2. Age [46]
3. Ethnicity [47]
4. Highest degree earned [48]
5. Teaching licensure (grade levels/disciplines) [50]
6. Years teaching [49]
7. Currently assigned content area(s) [51]
8. Grade level(s) of students you are teaching this year [52]
9. Approximately how many students attend your school? [53]
10. Approximately what percentage of students at your school receive free/reduced price lunch? [54]
11. How would you characterize your school's setting [rural, small town, suburban, urban] [55]

← Explanation of the intended purpose of each item on the survey

*The following questions were included to gather information about efficacy:*

12. I am well prepared to teach my assigned content classes [4] (v4)
13. Overall, I am comfortable teaching the curriculum in my assigned classes [3] (v3).
14. If I try really hard, I can get through to even the most difficult or unmotivated students [6] (v6)
15. If a student in my class becomes disruptive and noisy, I know effective techniques to redirect him/her quickly. [7] (v7)
16. When one of my students gets a better grade than he/she typically gets, it is usually because I found a better way of teaching that student. [8] (v8)
17. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson. [9] (v9)
18. When a student is having difficulty with an assignment, I am able to adjust it to his/her level. [10] (v10)
19. When it comes right down to it, a student's motivation and performance depends on his/her home environment not on the teacher. [11] (v11)

20. The amount a student can learn is primarily related to family background. [5] (v5)

*The following questions were included to gather information about inclusivity:*

21. Some students in my classes would be better placed with a teacher who has additional training in meeting the needs of students with learning disabilities. [12] (v12)

22. I need additional support (e.g. classroom aides) to address the needs of all students in my classes. [13] (v13)

23. All my students can learn the main ideas in my curriculum. [15] (v15)

24. For students with special needs to succeed, I have to take instructional time away from other students. [16] (v16)

25. Having students with special needs in my classroom has negative consequences for other students. [14] (v14)

*The following questions were included to gather information about organization:*

26. The main ideas of the curriculum in my content area(s) are addressed across the units in my class: [17] (v17)

27. I review the big picture of my curriculum to ensure that there is coherence across lessons in my class: [18] (v18)

28. I teach my students to look for the same main ideas across multiple lessons. [19] (v19)

29. My lessons are designed to explicitly support the broader goals within my curriculum: [20] (v20)

30. I make sure that my tests measure the main ideas that I want students to master: [22] (v22)

31. I use specific techniques (e.g. outlines, graphic organizers, note taking) to make the main ideas obvious in my class. [23] (v23)

32. I provide my students with multiple opportunities to practice using the main ideas of the curriculum in my content area. [24] (v24)

*The following questions were included to gather information about alignment:*

33. I primarily use a textbook to identify what is important to teach in my classes: [25] (v25)

34. My curriculum, instruction, and assessment are aligned to the main ideas in the state standards. [27] (v27)

35. I primarily use the state standards to identify what is important to teach in my classes: [26] (v26)

36. I modify the curriculum in my classes to match the state standards. [21] (v21)
37. I am quite familiar with the main ideas in the state standards for my assigned content area(s).  
(28)
38. I develop lesson plans to teach students the main ideas in the state standards. [29] (v29)
39. I plan assessments to measure student mastery of main ideas relative to the state standards:  
[30] (v30)
40. I use the state standards to identify what it important to assess in my classes. [31] (v31)

*The following questions were included to gather information about attitude towards state standards/ state testing.*

41. The state's expectations are reasonable for students in my assigned content area. [32] (v32)
42. I think students at my school are doing as well as ever academically. [33] (v33)
43. For students in my classes, improvement on state tests is extremely difficult to accomplish.  
[36] (v36)
44. The state's expectations are unreasonable for students at my school. [37] (v37)
45. I know how students at my school compare to students at other schools in my state on state tests. [38] (v38)
46. I know how students at my school compare to students across the nation in terms of their performance on standardized tests. [39] (v39)
47. State testing appropriately measures my students' strengths and weaknesses. [40] (v40)
48. The statewide assessment addresses the main ideas of state content standards. [41] (v41)
49. Please estimate the percentage of your students who will fail the state test in spite of everything you do. [42]

*The following questions were included to gather information about school improvement.*

50. Please select the TWO answer choices below that you think have the most potential to improve student achievement. [43]
51. If you selected OTHER in the previous question please describe the approaches that you think have the most potential to improve student achievement. [44]

*The following questions are included to gather information about the participants' degree of responding in a 'socially desirable' way.*

52. I am always a good listener no matter whom I am talking to. [34]
53. I am always willing to admit when I make a mistake. [35]

#### 54. Appendix C: Survey Used in Pilot Study

The actual survey sent to teachers, along with the email messages sent with the initial link to the survey and once the survey had been returned are included below:

##### **Email message sent with the link to the survey**

Thank you for your willingness to participate in this research effort. The survey you are about to take is part of an ongoing study aimed at better understanding teachers' views on a variety of topics related to curriculum, instruction, and assessment. Your responses will provide valuable information about how teachers' views differ across Oregon. By completing the survey, you are giving consent for us to use your responses in analyses that may result in publication in research journals. All identifying information will be removed from the data (your name, the name of your school, etc.) and your responses will remain anonymous.

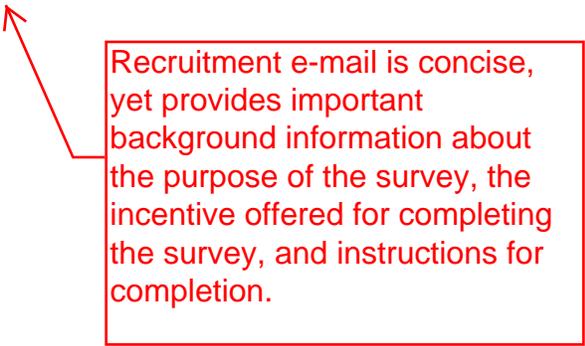
Based on feedback we received during our pilot study, we estimate you will need between 10 and 20 minutes to complete the 53 question survey. Because the survey is delivered online, you will need to complete all 53 questions in once session, once you access the survey. To prevent people from submitting their responses more than once, the computer will not allow you to return to the survey once you have accessed it.

Once you have responded to all the questions, your data will be sent automatically to a database, and I will receive notice that you have completed the survey.

At that time, I will email you once again to get the information we need in order to send you a check for \$10 to thank you for your time.

Again, I sincerely thank you for your help.

Julie Alonzo  
Research Assistant  
Behavioral Research and Teaching  
University of Oregon



Recruitment e-mail is concise, yet provides important background information about the purpose of the survey, the incentive offered for completing the survey, and instructions for completion.

CITES Survey

Revised November 1, 2004

The following survey is part of a research effort aimed at better understanding teachers' views on a variety of topics related to curriculum, instruction, and assessment. Data from your responses will be compiled with other teachers' responses for analysis. All identifying information (your name, the name of your school, etc.) will be removed from the data prior to analysis.

If you are unable to provide a response to a particular question, simply skip that item and move on to the next.

Note: Some questions were adapted from Woolfolk, A. & Hoy, W. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology*, 82(1), 81-91 or Crowne & Marlowe (1964) Social desirability scale, as cited in Ray, J. (1984). The reliability of short social desirability scales. *The Journal of Social Psychology*, 123, 133-134.

1. Overall, I am comfortable teaching the curriculum in my assigned classes.

strongly disagree  
disagree  
agree  
strongly agree

2. I am well prepared to teach my assigned content classes.

strongly disagree  
disagree  
agree  
strongly agree

3. The amount a student can learn is primarily related to family background.

strongly disagree  
disagree  
agree  
strongly agree

4. If I try really hard, I can get through to even the most difficult or unmotivated students.

less than 25% of the time  
26% - 50% of the time  
51% - 75% of the time  
more than 75% of the time

5. If a student in my class becomes disruptive and noisy, I know effective techniques to redirect him/her quickly.

strongly disagree  
disagree  
agree  
strongly agree

6. When one of my students gets a better grade than he/she typically gets, it is usually because I found a better way of teaching that student.

strongly disagree  
disagree  
agree  
strongly agree

7. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.

strongly disagree  
disagree  
agree  
strongly agree

8. When a student is having difficulty with an assignment, I am able to adjust it to his/her level of skill:

less than 25% of the time  
26% - 50% of the time  
51% - 75% of the time  
more than 75% of the time

9. When it comes right down to it, a student's motivation and performance depends on his/her home environment, not on the teacher.

strongly disagree  
disagree  
agree  
strongly agree

10. Some students in my classes would be better placed with a teacher who has additional training.

strongly disagree  
disagree  
agree  
strongly agree

11. I need additional support (e.g., classroom aides) to address the needs of all students in my classes.

strongly disagree  
disagree  
agree  
strongly agree

12. Having students with special needs in my classroom has negative consequences for other students.

strongly disagree  
disagree  
agree  
strongly agree

13. All my students can learn the main ideas in my curriculum.

strongly disagree  
disagree  
agree  
strongly agree

14. For students with special needs to succeed, I have to take instructional time away from other students.

strongly disagree  
disagree  
agree  
strongly agree

15. The main ideas of the curriculum in my content area(s) are addressed across the units in my class:

less than 25% of the time  
26% - 50% of the time  
51% - 75% of the time  
more than 75% of the time

16. I review the 'big picture' of my curriculum to ensure that there is coherence across lessons in my class:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

17. I teach my students to look for the same main ideas across multiple lessons.

strongly disagree  
 disagree  
 agree  
 strongly agree

18. My lessons are designed to explicitly support the broader goals within my curriculum:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

19. I modify the curriculum in my classes to match the state standards:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

20. I make sure that my tests measure the main ideas that I want students to master:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

21. I use specific techniques (e.g., outlines, graphic organizers, note taking) to make the main ideas obvious in my class:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

22. I provide my students with multiple opportunities to practice using the main ideas of the curriculum in my content area:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

23. I primarily use a textbook to identify what is important to teach in my classes:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

24. I primarily use the state standards to identify what is important to teach in my classes:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

25. My curriculum, instruction, and assessments are aligned to the main ideas in the state standards:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

26. I am quite familiar with the main ideas in the state standards for my assigned content area(s).

- strongly disagree
- disagree
- agree
- strongly agree

27. I develop lessons plans to teach students the main ideas in the state standards:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

28. I plan assessments to measure student mastery of main ideas relative to the state standards:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

29. I use the state standards to identify what is important to assess in my classes:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

30. The state's expectations are reasonable for students in my assigned content area.

strongly disagree  
 disagree  
 agree  
 strongly agree

31. I think students at my school are doing as well as ever academically.

strongly disagree  
 disagree  
 agree  
 strongly agree

32. I am always a good listener, no matter whom I am talking to.

strongly disagree  
 disagree  
 agree  
 strongly agree

33. I am always willing to admit when I make a mistake.

strongly disagree  
 disagree  
 agree  
 strongly agree

34. For students in my classes, improvement on state tests is extremely difficult to accomplish.

strongly disagree  
disagree  
agree  
strongly agree

35. The state's expectations are unreasonable for students at my school.

strongly disagree  
disagree  
agree  
strongly agree

36. I know how students at my school compare to students *at other schools in my state* on state tests.

strongly disagree  
disagree  
agree  
strongly agree

37. I know how students at my school compare to students *across the nation* in terms of their performance on standardized tests.

strongly disagree  
disagree  
agree  
strongly agree

38. State testing appropriately measures my students' strengths and weaknesses.

strongly disagree  
disagree  
agree  
strongly agree

39. The statewide assessment addresses the main ideas of state content standards.

strongly disagree  
disagree  
agree  
strongly agree

40. Please estimate the percentage of your students who will fail the state test in spite of everything you do.

[text response]

41. Please select the TWO answer choices below that you think have the most potential to improve student achievement.

teacher staff development  
better curriculum planning  
improved materials selection  
include teachers in decisions  
mandate standardized curriculum  
let teachers control curriculum  
more frequent assessments  
other

42. If you selected OTHER in the previous question, please describe the approaches that you think have the most potential to improve student achievement.

[text response]

## Part II

The following questions are included in order to give us demographic information that will aid in grouping responses for analysis. Your honest answers are very much appreciated.

43. What is your gender?

male  
female

44. What is your age?

[text response]

45. What is your race/ethnicity?

[text response]

46. What is the highest degree you have earned?

BA/BS  
MA/MS/MEd  
DEd/PhD

47. Including this year, how many years have you taught?

[numeric response]

48. What grade levels and content areas are you licensed to teach?

[text response]

49. What content area(s) are you teaching this year?

[text response]

50. What grade level(s) are you teaching this year?

[text response]

49. Approximately how many students attend your school?

fewer than 250

251 - 500

501 - 1000

1001 - 1500

more than 1500

51. Approximately what percentage of students at your school receive free/reduced price lunch?

less than 10%

11% - 20%

21% - 30%

31% - 40%

41% - 50%

more than 50%

52. How would you characterize your school's setting?

rural

small town

urban

suburban

53. Please feel free to share any additional thoughts you might have on topics related to education. (optional)

[text response]

**Email sent once teachers completed the survey:**

Thank you so much for participating in our study. The assistance of professional educators like you is vital for ongoing research.

In order to process payment for your participation, I will need three pieces of information from you:

1. Your name, as you would like it to appear on your check.
2. The address where you would like the check to be mailed.
3. Your social security number (required by the government for all payments made through grant sources).

You may either send the information to me in an email or mail it through the US postal service if you are uncomfortable sending it over the internet.

If you would prefer, you may also call me, Julie Alonzo, at the university (541) 346-1649 and give me your information over the phone.

Checks will be sent from the Bethel School District. Once I have submitted the request for payment along with all required paperwork, it typically takes between 3 and 5 weeks for checks to be mailed.

Please feel free to contact me if you have any questions. Again, thank you very much for helping out with this research.

Sincerely,

Julie Alonzo

Appendix D: Mplus Output Files for Measurement Model

First, I ran the model using only the measured variables linked to the latent construct of ‘efficacy’.

INPUT INSTRUCTIONS

```
Title:    CITES Survey Analysis -- Efficacy Factors -- 2 factors
Data:    File is "C:\Julie\Mplus\CFA_Data.dat";
Variable:
    Names are v1 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12 v13 v14
    v15 v16 v17 v18 v19 v20 v21 v22 v23 v24 v25 v26 v27 v28
    v29 v30 v31 v32 v33 v34 v35 v36 v37 v38 v39 v40 v41;

Usevariables = v3-v6 v8;
Missing are all (-9);
Model:
    con    BY    v3@1 v4;
    pers   BY    v5@1 v6 v8;
Analysis:
    Estimator is ML;
    Iterations = 1000;
Output:
    Tech1 mod Sampstat standardized;
```

The technical features described in Appendix D likely exceed the steps one would take for most surveys used in school settings. They are included in this instance because this report is documenting evidence of construct validity related to the survey instrument as a measurement tool.

INPUT READING TERMINATED NORMALLY

CITES Survey Analysis -- Efficacy Factors -- 2 factors

SUMMARY OF ANALYSIS

```
Number of groups           1
Number of observations      101

Number of y-variables      5
Number of x-variables      0
Number of continuous latent variables  2
```

Observed variables in the analysis

```
V3    V4    V5    V6    V8
```

Continuous latent variables in the analysis

```
CON    PERS
```

```
Estimator           ML
Maximum number of iterations  1000
Convergence criterion  0.500D-04
```

Input data file(s)

```
C:\Julie\Mplus\CFA_Data.dat
```

Input data format FREE

SAMPLE STATISTICS

Means					
	V3	V4	V5	V6	V8
1	3.495	3.406	2.861	2.713	2.604

Covariances					
	V3	V4	V5	V6	V8
V3	0.652				
V4	0.567	0.684			
V5	0.169	0.107	0.501		
V6	0.134	0.168	0.230	0.967	
V8	0.108	0.132	0.105	0.185	0.362

Correlations					
	V3	V4	V5	V6	V8
V3	1.000				
V4	0.849	1.000			
V5	0.296	0.183	1.000		
V6	0.168	0.206	0.330	1.000	
V8	0.222	0.266	0.246	0.313	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit

Value	8.853
Degrees of Freedom	4
P-Value	0.0646

Chi-Square Test of Model Fit for the Baseline Model

Value	172.784
Degrees of Freedom	10
P-Value	0.0000

CFI/TLI

CFI	0.970
TLI	0.925
H0 Value	-503.287
H1 Value	-498.861

Information Criteria

Number of Free Parameters	11
Akaike (AIC)	1028.574

Bayesian (BIC) 1057.341  
 Sample-Size Adjusted BIC 1022.598  
 (n\* = (n + 2) / 24)

RMSEA (Root Mean Square Error Of Approximation)

Estimate 0.110  
 90 Percent C.I. 0.000 0.209  
 Probability RMSEA <= .05 0.130

SRMR (Standardized Root Mean Square Residual)

Value 0.034

MODEL RESULTS

	Estimates	S.E.	Est./S.E.	Std	StdYX
CON BY					
V3	1.000	0.000	0.000	0.762	0.948
V4	0.967	0.175	5.534	0.737	0.895
PERS BY					
V5	1.000	0.000	0.000	0.393	0.558
V6	1.409	0.482	2.921	0.554	0.566
V8	0.781	0.272	2.874	0.307	0.513
PERS WITH					
CON	0.132	0.051	2.597	0.441	0.441

Residual Variances

V3	0.065	0.100	0.652	0.065	0.101
V4	0.134	0.095	1.414	0.134	0.198
V5	0.341	0.071	4.828	0.341	0.688
V6	0.651	0.137	4.737	0.651	0.680
V8	0.264	0.050	5.322	0.264	0.737

Variances

CON	0.581	0.135	4.319	1.000	1.000
PERS	0.154	0.072	2.132	1.000	1.000

R-SQUARE

Variable	Observed R-Square
V3	0.899
V4	0.802
V5	0.312
V6	0.320
V8	0.263

MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 10.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.

TECHNICAL 1 OUTPUT  
PARAMETER SPECIFICATION

LAMBDA		THETA					
	CON	PERS	V3	V4	V5	V6	V8
V3	0	0	4				
V4	1	0	0	5			
V5	0	0	0	0	6		
V6	0	2	0	0	0	7	
V8	0	3	0	0	0	0	8

PSI		
	CON	PERS
CON	9	
PERS	10	11

STARTING VALUES

LAMBDA		THETA					
	CON	PERS	V3	V4	V5	V6	V8
V3	1.000	0.000	0.326				
V4	1.000	0.000	0.000	0.342			
V5	0.000	1.000	0.000	0.000	0.250		
V6	0.000	1.000	0.000	0.000	0.000	0.483	
V8	0.000	1.000	0.000	0.000	0.000	0.000	0.181

PSI		
	CON	PERS
CON	0.050	
PERS	0.000	0.050

Next, I ran the model using the measured variables theoretically linked to the underlying latent construct of ‘alignment.’

INPUT INSTRUCTIONS

```
Title:    CITES Survey Analysis -- Alignment
Data:    File is "C:\Julie\Mplus\CFA_Data.dat";
Variable:
    Names are v1 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12 v13 v14
    v15 v16 v17 v18 v19 v20 v21 v22 v23 v24 v25 v26 v27 v28
    v29 v30 v31 v32 v33 v34 v35 v36 v37 v38 v39 v40 v41;
Usevariables = v21 v26 v27 v29-v31;
Missing are all (-9);
Model:
    align BY v29@1 v21 v26 v27 v30 v31;
    v29 WITH v27;
Analysis:
    Estimator is ML;
    Iterations = 1000;
Output:
    Tech1 mod Sampstat standardized;
INPUT READING TERMINATED NORMALLY
CITES Survey Analysis -- Alignment
```

SUMMARY OF ANALYSIS

```
Number of groups          1
Number of observations    95

Number of y-variables     6
Number of x-variables     0
Number of continuous latent variables  1

Observed variables in the analysis
  V21   V26   V27   V29   V30   V31
```

```
Continuous latent variables in the analysis
  ALIGN
```

```
Estimator                ML
Maximum number of iterations  1000
Convergence criterion      0.500D-04
```

SAMPLE STATISTICS

Means					
	V21	V26	V27	V29	V30
1	2.863	2.737	3.295	2.989	2.789

Means	
	V31
1	2.705

Covariances

	V21	V26	V27	V29	V30
V21	1.098				
V26	0.783	1.175			
V27	0.413	0.408	0.614		
V29	0.647	0.742	0.514	0.947	
V30	0.567	0.710	0.403	0.721	0.891
V31	0.693	0.890	0.407	0.720	0.746

Covariances  
V31

V31	1.019
-----	-------

Correlations

	V21	V26	V27	V29	V30
V21	1.000				
V26	0.689	1.000			
V27	0.503	0.480	1.000		
V29	0.635	0.704	0.674	1.000	
V30	0.573	0.694	0.545	0.785	1.000
V31	0.656	0.813	0.514	0.733	0.783

Correlations  
V31

V31	1.000
-----	-------

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit

Value	19.239
Degrees of Freedom	8
P-Value	0.0136

Chi-Square Test of Model Fit for the Baseline Model

Value	431.625
Degrees of Freedom	15
P-Value	0.0000

CFI/TLI

CFI	0.973
TLI	0.949

Loglikelihood

H0 Value	-581.347
H1 Value	-571.728

Information Criteria

Number of Free Parameters 13  
 Akaike (AIC) 1188.695  
 Bayesian (BIC) 1221.895  
 Sample-Size Adjusted BIC 1180.851  
 (n\* = (n + 2) / 24)

RMSEA (Root Mean Square Error Of Approximation)

Estimate 0.122  
 90 Percent C.I. 0.052 0.192  
 Probability RMSEA <= .05 0.047

SRMR (Standardized Root Mean Square Residual)

Value 0.033

MODEL RESULTS

	Estimates	S.E.	Est./S.E.	Std	StdYX
ALIGN BY					
V29	1.000	0.000	0.000	0.812	0.839
V21	0.944	0.114	8.282	0.767	0.736
V26	1.151	0.108	10.665	0.935	0.867
V27	0.567	0.076	7.477	0.461	0.591
V30	0.984	0.095	10.349	0.800	0.851
V31	1.124	0.098	11.530	0.914	0.910

V29 WITH

V27	0.134	0.042	3.199	0.134	0.177
-----	-------	-------	-------	-------	-------

Residual Variances

V21	0.499	0.079	6.305	0.499	0.459
V26	0.288	0.054	5.338	0.288	0.248
V27	0.395	0.060	6.585	0.395	0.650
V29	0.277	0.049	5.681	0.277	0.295
V30	0.243	0.044	5.550	0.243	0.275
V31	0.173	0.039	4.432	0.173	0.172

Variances

ALIGN	0.660	0.133	4.972	1.000	1.000
-------	-------	-------	-------	-------	-------

R-SQUARE

Variable	R-Square
V21	0.541
V26	0.752
V27	0.350
V29	0.705
V30	0.725
V31	0.828

MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 10.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.

TECHNICAL 1 OUTPUT

PARAMETER SPECIFICATION

LAMBDA ALIGN					
	_____				
V21	1				
V26	2				
V27	3				
V29	0				
V30	4				
V31	5				

THETA					
	V21	V26	V27	V29	V30
	_____	_____	_____	_____	_____
V21	6				
V26	0	7			
V27	0	0	8		
V29	0	0	9	10	
V30	0	0	0	0	11
V31	0	0	0	0	0

THETA V31	
	_____
V31	12

PSI ALIGN	
	_____
ALIGN	13

STARTING VALUES

LAMBDA ALIGN					
	_____				
V21	1.000				
V26	1.000				
V27	1.000				
V29	1.000				
V30	1.000				
V31	1.000				

THETA					
	V21	V26	V27	V29	V30
	_____	_____	_____	_____	_____
V21	0.549				
V26	0.000	0.587			
V27	0.000	0.000	0.307		
V29	0.000	0.000	0.000	0.473	
V30	0.000	0.000	0.000	0.000	0.446
V31	0.000	0.000	0.000	0.000	0.000

THETA

V31  
 V31      0.509

PSI  
 ALIGN  
 ALIGN      0.050

Then, I ran the model using the measured variables linked to the two underlying latent variables theoretically measuring ‘organization.’

INPUT INSTRUCTIONS

Title:      CITES Survey Analysis -- Organization, Revised  
 Data:      File is "C:\Julie\Mplus\CFA\_Data.dat";  
 Variable:  
             Names are v1 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12 v13 v14  
                  v15 v16 v17 v18 v19 v20 v21 v22 v23 v24 v25 v26 v27 v28  
                  v29 v30 v31 v32 v33 v34 v35 v36 v37 v38 v39 v40 v41;

Usevariables = v17-v20 v23-v24;  
 Missing are all (-9);

Model:  
     less    BY      v18@1 v17 v19 v20;  
     main    BY      v24@1 v23;  
     v17    WITH    v18;  
     v19    WITH    v20;

Analysis:  
     Estimator is ML;  
     Iterations = 1000;

Output:  
     Tech1 mod Sampstat standardized;

INPUT READING TERMINATED NORMALLY

CITES Survey Analysis -- Organization, Revised  
 SUMMARY OF ANALYSIS

Number of groups                      1  
 Number of observations                93  
 Number of y-variables                 6  
 Number of x-variables                 0  
 Number of continuous latent variables 2

Observed variables in the analysis  
     V17    V18    V19    V20    V23    V24

Continuous latent variables in the analysis  
     LESS    MAIN

Estimator                                ML

Maximum number of iterations 1000  
 Convergence criterion 0.500D-04

SAMPLE STATISTICS

Means					
	V17	V18	V19	V20	V23
1	3.419	3.226	3.194	3.376	3.398

Means	
	V24
1	3.548

Covariances					
	V17	V18	V19	V20	V23
V17	0.550				
V18	0.383	0.872			
V19	0.124	0.206	0.397		
V20	0.177	0.425	0.231	0.563	
V23	0.081	0.246	0.031	0.196	0.633
V24	0.061	0.157	0.067	0.161	0.247

Covariances	
	V24
V24	0.511

Correlations					
	V17	V18	V19	V20	V23
V17	1.000				
V18	0.552	1.000			
V19	0.266	0.350	1.000		
V20	0.319	0.606	0.488	1.000	
V23	0.138	0.331	0.062	0.329	1.000
V24	0.115	0.236	0.148	0.300	0.434

Correlations	
	V24
V24	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit

Value	4.197
Degrees of Freedom	6
P-Value	0.6499

Chi-Square Test of Model Fit for the Baseline Model

Value	141.737
Degrees of Freedom	15
P-Value	0.0000

CFI/TLI

CFI	1.000
TLI	1.036

Loglikelihood

H0 Value	-563.794
H1 Value	-561.695

Information Criteria

Number of Free Parameters	15
Akaike (AIC)	1157.587
Bayesian (BIC)	1195.576
Sample-Size Adjusted BIC	1148.225
(n* = (n + 2) / 24)	

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.000
90 Percent C.I.	0.000 0.109
Probability RMSEA <= .05	0.762

SRMR (Standardized Root Mean Square Residual)

Value	0.036
-------	-------

MODEL RESULTS

	Estimates	S.E.	Est./S.E.	Std	StdYX
LESS BY					
V18	1.000	0.000	0.000	0.702	0.756
V17	0.413	0.111	3.741	0.290	0.393
V19	0.376	0.140	2.695	0.264	0.422
V20	0.854	0.220	3.873	0.600	0.803
MAIN BY					
V24	1.000	0.000	0.000	0.427	0.600
V23	1.342	0.452	2.966	0.572	0.723
MAIN WITH					
LESS	0.173	0.067	2.579	0.579	0.579
V17 WITH					
V18	0.174	0.075	2.335	0.174	0.255
V19 WITH					
V20	0.070	0.053	1.311	0.070	0.149
Residual Variances					
V17	0.460	0.075	6.124	0.460	0.845
V18	0.370	0.130	2.849	0.370	0.428
V19	0.323	0.055	5.841	0.323	0.822
V20	0.198	0.091	2.178	0.198	0.355

V23	0.299	0.114	2.634	0.299	0.477
V24	0.324	0.075	4.311	0.324	0.640

Variances

LESS	0.493	0.164	3.004	1.000	1.000
MAIN	0.182	0.081	2.235	1.000	1.000

R-SQUARE

Observed	
Variable	R-Square
V17	0.155
V18	0.572
V19	0.178
V20	0.645
V23	0.523
V24	0.360

MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 10.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.

TECHNICAL 1 OUTPUT

PARAMETER SPECIFICATION

LAMBDA

	LESS	MAIN
V17	1	0
V18	0	0
V19	2	0
V20	3	0
V23	0	4
V24	0	0

THETA

	V17	V18	V19	V20	V23
V17	5				
V18	6	7			
V19	0	0	8		
V20	0	0	9	10	
V23	0	0	0	0	11
V24	0	0	0	0	0

THETA

	V24
V24	12

PSI

	LESS	MAIN
LESS	13	

MAIN 14 15

STARTING VALUES

LAMBDA

	LESS	MAIN
V17	1.000	0.000
V18	1.000	0.000
V19	1.000	0.000
V20	1.000	0.000
V23	0.000	1.000
V24	0.000	1.000

THETA

	V17	V18	V19	V20	V23
V17	0.275				
V18	0.000	0.436			
V19	0.000	0.000	0.198		
V20	0.000	0.000	0.000	0.282	
V23	0.000	0.000	0.000	0.000	0.317
V24	0.000	0.000	0.000	0.000	0.000

THETA

	V24
V24	0.256

PSI

	LESS	MAIN
LESS	0.050	
MAIN	0.000	0.050

I then ran the model using only the four measured variables associated with the latent construct ‘inclusivity.’

INPUT INSTRUCTIONS

Title: CITES Survey Analysis -- Inclusivity,  
 Data: File is "C:\Julie\Mplus\CFA\_Data.dat";  
 Variable:  
 Names are v1 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12 v13 v14  
 v15 v16 v17 v18 v19 v20 v21 v22 v23 v24 v25 v26 v27 v28  
 v29 v30 v31 v32 v33 v34 v35 v36 v37 v38 v39 v40 v41;  
 Usevariables = v12-v14 v16;  
 Missing are all (-9);  
 Model:  
 inclu BY v14@1 v12 v13 v16;  
 Analysis:  
 Estimator is ML;  
 Iterations = 1000;  
 Output:  
 Tech1 mod Sampstat standardized;

INPUT READING TERMINATED NORMALLY  
 CITES Survey Analysis -- Inclusivity,

SUMMARY OF ANALYSIS

Number of groups 1  
 Number of observations 101  
  
 Number of y-variables 4  
 Number of x-variables 0  
 Number of continuous latent variables 1

Observed variables in the analysis  
 V12 V13 V14 V16

Continuous latent variables in the analysis  
 INCLU  
 Estimator ML  
 Maximum number of iterations 1000  
 Convergence criterion 0.500D-04

SAMPLE STATISTICS

Means  

	V12	V13	V14	V16
1	2.416	2.158	2.861	2.337

Covariances  

	V12	V13	V14	V16
V12	0.725			
V13	0.153	0.575		
V14	0.168	0.202	0.541	
V16	0.089	0.196	0.287	0.546

Correlations  

	V12	V13	V14	V16
V12	1.000			
V13	0.238	1.000		
V14	0.269	0.363	1.000	
V16	0.141	0.350	0.529	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit

Value	2.562
Degrees of Freedom	2
P-Value	0.2744

Chi-Square Test of Model Fit for the Baseline Model

Value	61.681
Degrees of Freedom	6
P-Value	0.0000

CFI/TLI  
 CFI 0.990  
 TLI 0.970

Loglikelihood  
 H0 Value -435.826  
 H1 Value -434.545

Information Criteria  
 Number of Free Parameters 8  
 Akaike (AIC) 887.651  
 Bayesian (BIC) 908.572  
 Sample-Size Adjusted BIC 883.305  
 (n\* = (n + 2) / 24)

RMSEA (Root Mean Square Error Of Approximation)  
 Estimate 0.053  
 90 Percent C.I. 0.000 0.212  
 Probability RMSEA <= .05 0.364

SRMR (Standardized Root Mean Square Residual)  
 Value 0.036

MODEL RESULTS

	Estimates	S.E.	Est./S.E.	Std	StdYX
INCLU BY					
V14	1.000	0.000	0.000	0.569	0.778
V12	0.477	0.183	2.609	0.272	0.321
V13	0.660	0.178	3.713	0.376	0.498
V16	0.865	0.212	4.080	0.492	0.670

Residual Variances

V12	0.644	0.095	6.805	0.644	0.897
V13	0.428	0.069	6.180	0.428	0.752
V14	0.211	0.077	2.733	0.211	0.395
V16	0.298	0.068	4.353	0.298	0.551

Variances

INCLU	0.324	0.099	3.258	1.000	1.000
-------	-------	-------	-------	-------	-------

R-SQUARE

Observed

Variable	R-Square
V12	0.103
V13	0.248
V14	0.605
V16	0.449

MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 10.000  
 M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.

TECHNICAL 1 OUTPUT

PARAMETER SPECIFICATION

LAMBDA				
INCLU				
	_____			
V12	1			
V13	2			
V14	0			
V16	3			
THETA				
	V12	V13	V14	V16
	_____	_____	_____	_____
V12	4			
V13	0	5		
V14	0	0	6	
V16	0	0	0	7
PSI				
INCLU				
INCLU	_____			
	8			

STARTING VALUES

LAMBDA				
INCLU				
	_____			
V12	1.000			
V13	1.000			
V14	1.000			
V16	1.000			
THETA				
	V12	V13	V14	V16
	_____	_____	_____	_____
V12	0.363			
V13	0.000	0.287		
V14	0.000	0.000	0.270	
V16	0.000	0.000	0.000	0.273
PSI				
INCLU				
INCLU	_____			
	0.050			

Finally, I combined all four of the previous ‘mini models’ into a single model to test the four constructs measured together.

INPUT INSTRUCTIONS

Title: CITES Survey Analysis -- Efficacy (2 factor),  
 Organization (2 factor), Alignment, Inclusivity  
 Data: File is "C:\Julie\Mplus\CFA\_Data.dat";  
 Variable:  
 Names are v1 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12 v13 v14  
 v15 v16 v17 v18 v19 v20 v21 v22 v23 v24 v25 v26 v27 v28

v29 v30 v31 v32 v33 v34 v35 v36 v37 v38 v39 v40 v41;  
 Usevariables = v3-v6 v8 v12-v14 v16-v21 v23-v24 v26 v27 v29-v31;  
 Missing are all (-9);

Model:

```

con      BY    v3@1 v4;
pers     BY    v5@1 v6 v8;
less     BY    v18@1 v17 v19 v20;
main     BY    v24@1 v23;
align    BY    v29@1 v21 v26 v27 v30 v31;
inclu    BY    v14@1 v12 v13 v16;
v17 WITH v18;
v19 WITH v20;
v29 WITH v27;
    
```

Analysis:

```

Estimator is ML;
Iterations = 1000;
    
```

Output:

Tech1 mod Sampstat standardized;

INPUT READING TERMINATED NORMALLY

CITES Survey Analysis -- Efficacy (2 factor),  
 Organization (2 factor), Alignment, Inclusivity  
 SUMMARY OF ANALYSIS

```

Number of groups          1
Number of observations     85

Number of y-variables     21
Number of x-variables     0
Number of continuous latent variables 6
    
```

Observed variables in the analysis

```

V3    V4    V5    V6    V8    V12
V13   V14   V16   V17   V18   V19
V20   V21   V23   V24   V26   V27
V29   V30   V31
    
```

Continuous latent variables in the analysis

```

CON    PERS    LESS    MAIN    ALIGN    INCLU
Estimator          ML
Maximum number of iterations     1000
Convergence criterion     0.500D-04
    
```

SAMPLE STATISTICS

```

Means
V3    V4    V5    V6    V8
1    3.494    3.400    2.847    2.659    2.635
    
```

```

Means
V12   V13   V14   V16   V17
1    2.365    2.141    2.812    2.282    3.388
    
```

```

Means
V18   V19   V20   V21   V23
1    3.212    3.212    3.353    2.765    3.376
    
```

Means					
	V24	V26	V27	V29	V30
1	3.529	2.635	3.259	2.941	2.776

Means	
	V31
1	2.647

Covariances					
	V3	V4	V5	V6	V8
V3	0.658				
V4	0.574	0.695			
V5	0.184	0.121	0.464		
V6	0.135	0.174	0.173	0.966	
V8	0.063	0.100	0.110	0.184	0.354
V12	0.044	0.043	0.128	0.221	0.111
V13	0.013	-0.021	0.069	0.120	0.016
V14	0.011	-0.007	0.102	0.209	0.073
V16	0.061	0.064	0.068	0.228	0.033
V17	0.104	0.140	0.012	0.015	0.060
V18	0.108	0.176	0.021	0.061	0.102
V19	0.096	0.093	0.033	0.073	0.066
V20	0.014	0.036	0.031	0.110	0.011
V21	0.153	0.119	0.190	0.300	0.151
V23	0.026	0.038	0.082	0.166	0.079
V24	0.069	0.071	0.153	0.135	0.029
V26	0.051	-0.007	0.182	0.279	0.199
V27	0.073	0.098	0.183	0.077	0.107
V29	-0.030	0.012	0.122	0.265	0.157
V30	0.028	0.043	0.156	0.280	0.156
V31	0.046	0.048	0.124	0.295	0.167

Covariances					
	V12	V13	V14	V16	V17
V12	0.734				
V13	0.138	0.551			
V14	0.177	0.158	0.512		
V16	0.110	0.150	0.232	0.443	
V17	0.047	-0.067	-0.033	-0.004	0.550
V18	-0.019	0.029	0.052	0.035	0.429
V19	0.100	0.005	0.052	-0.013	0.143
V20	0.120	0.104	0.032	-0.018	0.195
V21	-0.068	-0.121	-0.033	0.091	0.069
V23	-0.020	-0.018	0.012	-0.024	0.090
V24	0.138	0.043	0.077	-0.008	0.066
V26	-0.032	-0.103	-0.058	0.092	-0.011
V27	-0.072	-0.025	-0.058	0.033	0.077
V29	-0.050	-0.075	-0.035	0.064	-0.036
V30	-0.001	0.008	0.017	0.111	-0.055
V31	0.059	-0.021	-0.032	0.089	-0.099

Covariances

	V18	V19	V20	V21	V23
V18	0.859				
V19	0.228	0.407			
V20	0.401	0.258	0.564		
V21	0.181	0.086	0.167	1.111	
V23	0.217	0.038	0.175	0.244	0.642
V24	0.137	0.077	0.144	0.138	0.251
V26	0.090	0.114	0.118	0.782	0.294
V27	0.147	0.064	0.217	0.419	0.270
V29	0.096	0.048	0.152	0.665	0.332
V30	0.096	0.036	0.139	0.625	0.311
V31	0.052	0.028	0.138	0.714	0.361

Covariances

	V24	V26	V27	V29	V30
V24	0.538				
V26	0.136	1.187			
V27	0.111	0.405	0.646		
V29	0.008	0.764	0.539	0.985	
V30	0.108	0.775	0.439	0.796	0.961
V31	0.070	0.905	0.426	0.753	0.813

Covariances

	V31
V31	1.041

Correlations

	V3	V4	V5	V6	V8
V3	1.000				
V4	0.849	1.000			
V5	0.332	0.214	1.000		
V6	0.169	0.212	0.259	1.000	
V8	0.131	0.202	0.272	0.314	1.000
V12	0.063	0.060	0.219	0.263	0.217
V13	0.021	-0.035	0.137	0.165	0.037
V14	0.019	-0.012	0.209	0.297	0.173
V16	0.113	0.116	0.149	0.349	0.083
V17	0.172	0.227	0.025	0.021	0.136
V18	0.144	0.228	0.033	0.067	0.185
V19	0.187	0.175	0.075	0.117	0.175
V20	0.023	0.057	0.060	0.149	0.025
V21	0.179	0.135	0.264	0.289	0.241
V23	0.040	0.057	0.150	0.210	0.167
V24	0.115	0.117	0.307	0.188	0.066
V26	0.058	-0.008	0.245	0.260	0.307
V27	0.112	0.146	0.334	0.098	0.225
V29	-0.037	0.014	0.180	0.272	0.266
V30	0.036	0.052	0.233	0.291	0.267
V31	0.055	0.056	0.178	0.294	0.276

Correlations

	V12	V13	V14	V16	V17
V12	1.000				
V13	0.217	1.000			
V14	0.288	0.297	1.000		
V16	0.193	0.304	0.488	1.000	
V17	0.074	-0.122	-0.063	-0.008	1.000
V18	-0.023	0.043	0.079	0.056	0.624
V19	0.184	0.012	0.114	-0.030	0.302
V20	0.186	0.187	0.059	-0.035	0.349
V21	-0.075	-0.155	-0.044	0.130	0.088
V23	-0.029	-0.030	0.021	-0.045	0.152
V24	0.220	0.080	0.147	-0.017	0.121
V26	-0.034	-0.127	-0.074	0.127	-0.014
V27	-0.104	-0.042	-0.101	0.062	0.129
V29	-0.058	-0.102	-0.049	0.098	-0.049
V30	-0.001	0.011	0.024	0.171	-0.076
V31	0.067	-0.028	-0.043	0.131	-0.131

Correlations

	V18	V19	V20	V21	V23
V18	1.000				
V19	0.386	1.000			
V20	0.575	0.538	1.000		
V21	0.186	0.128	0.211	1.000	
V23	0.292	0.075	0.291	0.289	1.000
V24	0.201	0.165	0.262	0.178	0.427
V26	0.089	0.164	0.145	0.681	0.336
V27	0.197	0.124	0.359	0.494	0.420
V29	0.104	0.076	0.204	0.636	0.417
V30	0.105	0.058	0.189	0.605	0.396
V31	0.055	0.043	0.180	0.664	0.441

Correlations

	V24	V26	V27	V29	V30
V24	1.000				
V26	0.170	1.000			
V27	0.189	0.462	1.000		
V29	0.011	0.707	0.676	1.000	
V30	0.150	0.725	0.557	0.818	1.000
V31	0.094	0.815	0.519	0.744	0.813

Correlations

V31	
V31	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit

Value	238.071
Degrees of Freedom	171
P-Value	0.0005

Chi-Square Test of Model Fit for the Baseline Model

Value	990.484
Degrees of Freedom	210
P-Value	0.0000

CFI/TLI

CFI	0.914
TLI	0.894

Loglikelihood

H0 Value	-1786.024
H1 Value	-1666.989

Information Criteria

Number of Free Parameters	60
Akaike (AIC)	3692.049
Bayesian (BIC)	3838.608
Sample-Size Adjusted BIC	3649.320
(n* = (n + 2) / 24)	

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.068
90 Percent C.I.	0.046 0.088
Probability RMSEA <= .05	0.086

SRMR (Standardized Root Mean Square Residual)

Value	0.075
-------	-------

MODEL RESULTS

	Estimates	S.E.	Est./S.E.	Std	StdYX
CON	BY				
V3	1.000	0.000	0.000	0.677	0.840
V4	1.236	0.237	5.218	0.837	1.010
PERS	BY				
V5	1.000	0.000	0.000	0.318	0.469
V6	1.949	0.558	3.490	0.619	0.633
V8	0.894	0.295	3.030	0.284	0.480
LESS	BY				
V18	1.000	0.000	0.000	0.794	0.862
V17	0.497	0.110	4.537	0.395	0.536
V19	0.354	0.134	2.641	0.281	0.443
V20	0.628	0.198	3.176	0.499	0.668
MAIN	BY				
V24	1.000	0.000	0.000	0.322	0.442
V23	2.384	0.986	2.417	0.768	0.965
ALIGN	BY				
V29	1.000	0.000	0.000	0.843	0.855
V21	0.912	0.114	8.006	0.769	0.734

V26	1.104	0.107	10.349	0.931	0.859
V27	0.566	0.079	7.192	0.477	0.597
V30	1.026	0.094	10.973	0.865	0.888
V31	1.096	0.095	11.510	0.924	0.911
INCLU BY					
V14	1.000	0.000	0.000	0.523	0.736
V12	0.700	0.223	3.137	0.366	0.430
V13	0.625	0.194	3.219	0.327	0.443
V16	0.774	0.192	4.023	0.405	0.612
PERS WITH					
CON	0.081	0.040	2.027	0.376	0.376
LESS WITH					
CON	0.125	0.072	1.746	0.232	0.232
PERS	0.053	0.043	1.228	0.211	0.211
MAIN WITH					
CON	0.014	0.025	0.544	0.063	0.063
PERS	0.036	0.023	1.574	0.353	0.353
LESS	0.095	0.052	1.831	0.371	0.371
ALIGN WITH					
CON	0.028	0.064	0.442	0.049	0.049
PERS	0.147	0.054	2.726	0.549	0.549
LESS	0.112	0.086	1.304	0.167	0.167
MAIN	0.127	0.062	2.030	0.467	0.467
INCLU WITH					
CON	0.016	0.046	0.342	0.044	0.044
PERS	0.107	0.040	2.679	0.646	0.646
LESS	0.049	0.062	0.801	0.119	0.119
MAIN	-0.002	0.023	-0.092	-0.012	-0.012
ALIGN	0.009	0.059	0.148	0.020	0.020
V17 WITH					
V18	0.110	0.109	1.011	0.110	0.162
V19 WITH					
V20	0.114	0.056	2.032	0.114	0.241
V29 WITH					
V27	0.131	0.044	2.986	0.131	0.166
Residual Variances					
V3	0.191	0.087	2.197	0.191	0.294
V4	-0.014	0.125	-0.112	-0.014	-0.020
V5	0.358	0.061	5.909	0.358	0.780
V6	0.571	0.120	4.752	0.571	0.599
V8	0.269	0.046	5.862	0.269	0.769
V12	0.592	0.099	5.949	0.592	0.815
V13	0.438	0.074	5.902	0.438	0.804
V14	0.232	0.067	3.487	0.232	0.459
V16	0.274	0.056	4.922	0.274	0.626
V17	0.387	0.089	4.359	0.387	0.713

V18	0.218	0.187	1.167	0.218	0.257
V19	0.323	0.057	5.658	0.323	0.803
V20	0.309	0.087	3.549	0.309	0.554
V21	0.507	0.084	6.031	0.507	0.462
V23	0.044	0.209	0.211	0.044	0.070
V24	0.428	0.075	5.684	0.428	0.804
V26	0.307	0.058	5.315	0.307	0.262
V27	0.411	0.066	6.252	0.411	0.644
V29	0.262	0.049	5.363	0.262	0.269
V30	0.202	0.041	4.922	0.202	0.212
V31	0.175	0.040	4.421	0.175	0.170

Variances

CON	0.459	0.126	3.649	1.000	1.000
PERS	0.101	0.051	1.980	1.000	1.000
LESS	0.631	0.223	2.829	1.000	1.000
MAIN	0.104	0.061	1.708	1.000	1.000
ALIGN	0.711	0.146	4.856	1.000	1.000
INCLU	0.274	0.089	3.076	1.000	1.000

R-SQUARE

Observed	
Variable	R-Square
V3	0.706
V4	Undefined 0.10204E+01
V5	0.220
V6	0.401
V8	0.231
V12	0.185
V13	0.196
V14	0.541
V16	0.374
V17	0.287
V18	0.743
V19	0.197
V20	0.446
V21	0.538
V23	0.930
V24	0.196
V26	0.738
V27	0.356
V29	0.731
V30	0.788
V31	0.830

MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 10.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.

TECHNICAL 1 OUTPUT

PARAMETER SPECIFICATION

LAMBDA					
CON	PERS	LESS	MAIN	ALIGN	
_____	_____	_____	_____	_____	

V3	0	0	0	0	0
V4	1	0	0	0	0
V5	0	0	0	0	0
V6	0	2	0	0	0
V8	0	3	0	0	0
V12	0	0	0	0	0
V13	0	0	0	0	0
V14	0	0	0	0	0
V16	0	0	0	0	0
V17	0	0	7	0	0
V18	0	0	0	0	0
V19	0	0	8	0	0
V20	0	0	9	0	0
V21	0	0	0	0	10
V23	0	0	0	11	0
V24	0	0	0	0	0
V26	0	0	0	0	12
V27	0	0	0	0	13
V29	0	0	0	0	0
V30	0	0	0	0	14
V31	0	0	0	0	15

LAMBDA  
INCLU

V3	0
V4	0
V5	0
V6	0
V8	0
V12	4
V13	5
V14	0
V16	6
V17	0
V18	0
V19	0
V20	0
V21	0
V23	0
V24	0
V26	0
V27	0
V29	0
V30	0
V31	0

THETA

	V3	V4	V5	V6	V8
V3	16				
V4	0	17			
V5	0	0	18		
V6	0	0	0	19	
V8	0	0	0	0	20
V12	0	0	0	0	0

V13	0	0	0	0	0
V14	0	0	0	0	0
V16	0	0	0	0	0
V17	0	0	0	0	0
V18	0	0	0	0	0
V19	0	0	0	0	0
V20	0	0	0	0	0
V21	0	0	0	0	0
V23	0	0	0	0	0
V24	0	0	0	0	0
V26	0	0	0	0	0
V27	0	0	0	0	0
V29	0	0	0	0	0
V30	0	0	0	0	0
V31	0	0	0	0	0

THETA					
	V12	V13	V14	V16	V17
V12	21				
V13	0	22			
V14	0	0	23		
V16	0	0	0	24	
V17	0	0	0	0	25
V18	0	0	0	0	26
V19	0	0	0	0	0
V20	0	0	0	0	0
V21	0	0	0	0	0
V23	0	0	0	0	0
V24	0	0	0	0	0
V26	0	0	0	0	0
V27	0	0	0	0	0
V29	0	0	0	0	0
V30	0	0	0	0	0
V31	0	0	0	0	0

THETA					
	V18	V19	V20	V21	V23
V18	27				
V19	0	28			
V20	0	29	30		
V21	0	0	0	31	
V23	0	0	0	0	32
V24	0	0	0	0	0
V26	0	0	0	0	0
V27	0	0	0	0	0
V29	0	0	0	0	0
V30	0	0	0	0	0
V31	0	0	0	0	0

THETA					
	V24	V26	V27	V29	V30
V24	33				
V26	0	34			

V27	0	0	35		
V29	0	0	36	37	
V30	0	0	0	0	38
V31	0	0	0	0	0

THETA  
V31

V31	<u>39</u>
-----	-----------

PSI  
CON PERS LESS MAIN ALIGN

CON	<u>40</u>				
PERS	41	<u>42</u>			
LESS	43	44	<u>45</u>		
MAIN	46	47	48	<u>49</u>	
ALIGN	50	51	52	53	<u>54</u>
INCLU	55	56	57	58	59

PSI  
INCLU

INCLU	<u>60</u>
-------	-----------

STARTING VALUES

LAMBDA  
CON PERS LESS MAIN ALIGN

V3	<u>1.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
V4	1.000	0.000	0.000	0.000	0.000
V5	0.000	<u>1.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
V6	0.000	1.000	0.000	0.000	0.000
V8	0.000	1.000	0.000	0.000	0.000
V12	0.000	0.000	0.000	0.000	0.000
V13	0.000	0.000	0.000	0.000	0.000
V14	0.000	0.000	0.000	0.000	0.000
V16	0.000	0.000	0.000	0.000	0.000
V17	0.000	0.000	<u>1.000</u>	<u>0.000</u>	<u>0.000</u>
V18	0.000	0.000	1.000	0.000	0.000
V19	0.000	0.000	1.000	0.000	0.000
V20	0.000	0.000	1.000	0.000	0.000
V21	0.000	0.000	0.000	0.000	<u>1.000</u>
V23	0.000	0.000	0.000	<u>1.000</u>	<u>0.000</u>
V24	0.000	0.000	0.000	1.000	0.000
V26	0.000	0.000	0.000	0.000	<u>1.000</u>
V27	0.000	0.000	0.000	0.000	1.000
V29	0.000	0.000	0.000	0.000	1.000
V30	0.000	0.000	0.000	0.000	1.000
V31	0.000	0.000	0.000	0.000	1.000

LAMBDA  
INCLU

V3	<u>0.000</u>
V4	0.000

V5 0.000  
 V6 0.000  
 V8 0.000  
 V12 1.000  
 V13 1.000  
 V14 1.000  
 V16 1.000  
 V17 0.000  
 V18 0.000  
 V19 0.000  
 V20 0.000  
 V21 0.000  
 V23 0.000  
 V24 0.000  
 V26 0.000  
 V27 0.000  
 V29 0.000  
 V30 0.000  
 V31 0.000

THETA

	V3	V4	V5	V6	V8
V3	0.329				
V4	0.000	0.348			
V5	0.000	0.000	0.232		
V6	0.000	0.000	0.000	0.483	
V8	0.000	0.000	0.000	0.000	0.177
V12	0.000	0.000	0.000	0.000	0.000
V13	0.000	0.000	0.000	0.000	0.000
V14	0.000	0.000	0.000	0.000	0.000
V16	0.000	0.000	0.000	0.000	0.000
V17	0.000	0.000	0.000	0.000	0.000
V18	0.000	0.000	0.000	0.000	0.000
V19	0.000	0.000	0.000	0.000	0.000
V20	0.000	0.000	0.000	0.000	0.000
V21	0.000	0.000	0.000	0.000	0.000
V23	0.000	0.000	0.000	0.000	0.000
V24	0.000	0.000	0.000	0.000	0.000
V26	0.000	0.000	0.000	0.000	0.000
V27	0.000	0.000	0.000	0.000	0.000
V29	0.000	0.000	0.000	0.000	0.000
V30	0.000	0.000	0.000	0.000	0.000
V31	0.000	0.000	0.000	0.000	0.000

THETA

	V12	V13	V14	V16	V17
V12	0.367				
V13	0.000	0.276			
V14	0.000	0.000	0.256		
V16	0.000	0.000	0.000	0.222	
V17	0.000	0.000	0.000	0.000	0.275
V18	0.000	0.000	0.000	0.000	0.000
V19	0.000	0.000	0.000	0.000	0.000
V20	0.000	0.000	0.000	0.000	0.000

V21	0.000	0.000	0.000	0.000	0.000
V23	0.000	0.000	0.000	0.000	0.000
V24	0.000	0.000	0.000	0.000	0.000
V26	0.000	0.000	0.000	0.000	0.000
V27	0.000	0.000	0.000	0.000	0.000
V29	0.000	0.000	0.000	0.000	0.000
V30	0.000	0.000	0.000	0.000	0.000
V31	0.000	0.000	0.000	0.000	0.000

THETA

	V18	V19	V20	V21	V23
V18	0.430				
V19	0.000	0.204			
V20	0.000	0.000	0.282		
V21	0.000	0.000	0.000	0.555	
V23	0.000	0.000	0.000	0.000	0.321
V24	0.000	0.000	0.000	0.000	0.000
V26	0.000	0.000	0.000	0.000	0.000
V27	0.000	0.000	0.000	0.000	0.000
V29	0.000	0.000	0.000	0.000	0.000
V30	0.000	0.000	0.000	0.000	0.000
V31	0.000	0.000	0.000	0.000	0.000

THETA

	V24	V26	V27	V29	V30
V24	0.269				
V26	0.000	0.593			
V27	0.000	0.000	0.323		
V29	0.000	0.000	0.000	0.492	
V30	0.000	0.000	0.000	0.000	0.481
V31	0.000	0.000	0.000	0.000	0.000

THETA

	V31
V31	0.520

PSI

	CON	PERS	LESS	MAIN	ALIGN
CON	0.050				
PERS	0.000	0.050			
LESS	0.000	0.000	0.050		
MAIN	0.000	0.000	0.000	0.050	
ALIGN	0.000	0.000	0.000	0.000	0.050
INCLU	0.000	0.000	0.000	0.000	0.000

PSI

	INCLU
INCLU	0.050

## Appendix E: Revised Survey (Post Pilot Study)

CITES Survey

Revised May 31, 2005

Note: Some questions were adapted from Woolfolk, A. & Hoy, W. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology*, 82(1), 81-91.

1. Overall, I am comfortable teaching the curriculum in my assigned classes.

strongly disagree  
disagree  
agree  
strongly agree

2. I am well prepared to teach my assigned content classes.

strongly disagree  
disagree  
agree  
strongly agree

3. The amount a student can learn is primarily related to family background.

strongly disagree  
disagree  
agree  
strongly agree

4. If I try really hard, I can get through to even the most difficult or unmotivated students.

less than 25% of the time  
26% - 50% of the time  
51% - 75% of the time  
more than 75% of the time

5. When one of my students gets a better grade than he/she typically gets, it is usually because I found a better way of teaching that student.

strongly disagree  
disagree  
agree  
strongly agree

6. Some students in my classes would be better placed with a teacher who has additional training in meeting the needs of students with learning disabilities.

strongly disagree  
 disagree  
 agree  
 strongly agree

7. I need additional support (e.g., classroom aides) to address the needs of all students in my classes.

strongly disagree  
 disagree  
 agree  
 strongly agree

8. Having students with special needs in my classroom has negative consequences for other students.

strongly disagree  
 disagree  
 agree  
 strongly agree

9. For students with special needs to succeed, I have to take instructional time away from other students.

strongly disagree  
 disagree  
 agree  
 strongly agree

10. The main ideas of the curriculum in my content area(s) are addressed across the units in my class:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

11. I review the 'big picture' of my curriculum to ensure that there is coherence across lessons in my class:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

12. I teach my students to look for the same main ideas across multiple lessons.

- strongly disagree
- disagree
- agree
- strongly agree

13. My lessons are designed to explicitly support the broader goals within my curriculum:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

14. I modify the curriculum in my classes to match the state standards:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

15. I use specific techniques (e.g., outlines, graphic organizers, note taking) to make the main ideas obvious in my class:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

16. I provide my students with multiple opportunities to practice using the main ideas of the curriculum in my content area:

- less than 25% of the time
- 26% - 50% of the time
- 51% - 75% of the time
- more than 75% of the time

17. I primarily use the state standards to identify what is important to teach in my classes:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

18. My curriculum, instruction, and assessments are aligned to the main ideas in the state standards:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

19. I develop lessons plans to teach students the main ideas in the state standards:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

20. I plan assessments to measure student mastery of main ideas relative to the state standards:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

21. I use the state standards to identify what is important to assess in my classes:

less than 25% of the time  
 26% - 50% of the time  
 51% - 75% of the time  
 more than 75% of the time

22. For students in my classes, improvement on state tests is extremely difficult to accomplish.

strongly disagree  
 disagree  
 agree  
 strongly agree

23. The state's expectations are unreasonable for students at my school.

strongly disagree  
disagree  
agree  
strongly agree

24. I know how students at my school compare to students *at other schools in my state* on state tests.

strongly disagree  
disagree  
agree  
strongly agree

25. I know how students at my school compare to students *across the nation* in terms of their performance on standardized tests.

strongly disagree  
disagree  
agree  
strongly agree

26. State testing appropriately measures my students' strengths and weaknesses.

strongly disagree  
disagree  
agree  
strongly agree

27. The statewide assessment addresses the main ideas of state content standards.

strongly disagree  
disagree  
agree  
strongly agree

28. Please estimate the percentage of your students who will fail the state test in spite of everything you do.

[text response]

29. Please select the TWO answer choices below that you think have the most potential to improve student achievement.

teacher staff development  
 better curriculum planning  
 improved materials selection  
 include teachers in decisions  
 mandate standardized curriculum  
 let teachers control curriculum  
 more frequent assessments  
 other

30. If you selected OTHER in the previous question, please describe the approaches that you think have the most potential to improve student achievement.

[text response]

## Part II

**The following questions are included in order to give us demographic information that will aid in grouping responses for analysis. Your honest answers are very much appreciated.**

31. What is your gender?

male  
 female

32. What is your age?

[text response]

33. What is your race/ethnicity?

[text response]

34. What is the highest degree you have earned?

BA/BS  
 MA/MS/MEd  
 DEd/PhD

35. Including this year, how many years have you taught?

[numeric response]

36. What grade levels and content areas are you licensed to teach?

[text response]

37. What content area(s) are you teaching this year?

[text response]

38. What grade level(s) are you teaching this year?

[text response]

39. Approximately how many students attend your school?

fewer than 250  
251 - 500  
501 - 1000  
1001 - 1500  
more than 1500

40. Approximately what percentage of students at your school receive free/reduced price lunch?

less than 10%  
11% - 20%  
21% - 30%  
31% - 40%  
41% - 50%  
more than 50%

41. How would you characterize your school's setting?

rural  
small town  
urban  
suburban

42. Please feel free to share any additional thoughts you might have on topics related to education. (optional)

[text response]

## References

- Alper, S., Schloss, P. J., Etscheidt, S. K., and Macfarlane, C. A. (1995). *Inclusion: are we abandoning or helping students?* Thousand Oaks: Corwin Press.
- American Educational Research Association. (2003). Standards and Tests: Keeping Them Aligned. *Research Points, 1*, 1-4.
- Barth, R. (1990). *Improving Schools from Within*. San Francisco: Jossey-Bass.
- Bean, R. M., Zigmond, N. (1994). Adapted use of social studies textbooks in elementary classrooms. *Remedial & Special Education 15*(4), 216-226.
- Buttram, J. L. & Waters, T. (1997) Improving America's Schools through Standards-Based Education. *NASSP Bulletin 81*(590). 1-6.
- Carnine, D. (2002). Big ideas (plus a little effort) produce big results. *Teaching Exceptional Children 34*(4), 70-73.
- Corbett, J. (2001). Teaching approaches which support inclusive education: a connective pedagogy. *British Journal of Special Education 28*(2) 55-60.
- DiegmueLLer, K. (1995). Buy the book. *Education Week, 15*(8), 3-11.
- Ketterlin-Geller, L. R., McCoy, J. D., Twyman, T., & Tindal, J. (2003). How Do Critical Thinking Measures Fit Within Standards-Based Reform? *Assessment for Effective Intervention 28*(3&4), 37-48.
- McCoy, J. D. & Ketterlin-Geller, L. R. (2004). Rethinking instructional delivery for diverse student populations: Serving all learners with concept-based instruction. *Intervention in School and Clinic 40*(2), 71-93.

- National Commission on Excellence in Education (Ed.). (1983). *A Nation At Risk: The Imperative For Educational Reform. An Open Letter to the American People. A Report to the Nation and the Secretary of Education*. Washington, DC: US GPO.
- No Child Left Behind Act of 2001, Pub. L. 107-110, § 1001, 115 Stat. 1425 (2002).
- Rosenholtz, S. J. (1989). *Teachers' workplace: the social organization of school*. White Plains, NY: Longman.
- Rudy, D. W. & Conrad, W. H. (2004). Breaking Down the data. *American School Board Journal* 191(2), 39-41.
- Schug, M, C., Western, R. D., & Enochs, L. G. (1997). Why do social studies teachers use textbooks? The answer may lie in economic theory. *Social Education*, 61(2), 97-101.
- Stainback, S., Stainback, W., & Jackson, J. (1992). Toward inclusive classrooms. In S. Stainback & W. Stainback (Eds.), *Curriculum considerations in inclusive classrooms: Facilitating learning for all students* (3-17). Baltimore: Brookes.
- Tomlinson, C. A. (2000). *Differentiation of instruction in the elementary grades* (Report No. EDO-PS-00-7). Champaign, IL: ERIC Clearinghouse on Elementary and Early Childhood Education. (ERIC Document Reproduction Service No. ED443572)
- Twyman, T., Ketterlin-Geller, L. R., McCoy, J. D., & Tindal, G. (2003). Effects of concept-based instruction on an English language learner in a rural school: a descriptive case study. *Bilingual Research Journal* 27(2), 259-274.

## **Abstract**

This technical document provides guidance to educators on the creation and interpretation of survey instruments, particularly as they relate to an analysis of program implementation.

Illustrative examples are drawn from a survey of educators related to the use of the easyCBM learning system. This document includes specific sections on considerations related to sampling plans; instrument creation; and gathering, analyzing, and reporting of survey results.

**SLDS Technical Document #4:****Instrument and Survey Analysis Technical Report: Program Implementation Survey**

We begin this technical document with a brief definition of key terms and then provide more in-depth discussion of considerations related to sampling plans; instrument creation; and gathering, analyzing, and reporting of survey results.

**Key Terms**

Please note: These terms are defined in relation to surveys, here, but they may also have additional meaning when used in different contexts. Definitions provided here are not intended to be exhaustive.

**Instrument:** A testing device for measuring a given phenomenon. Instruments may include paper/pencil or computer-based tests, interviews, and surveys, among others.

**Survey:** A data collection tool used to gather information from individuals.

**Respondent:** A person responding to a survey.

**Population:** The group of people whose input on a topic one is trying to obtain through surveying. If the population is small enough, it might be possible to include everyone in the population in one's sample. Otherwise, one uses a **sampling plan** to identify in advance the people who will be included in the sample, and how they will be selected for inclusion.

**Sample:** The group of people to whom the survey is sent.

**Selected Response Item:** A question where respondents select their response from a pre-determined set of possible answer choices (aka "multiple choice").

**Constructed Response Item:** A question where respondents answer a question using their own wording, typically in a short-answer or essay-type format (aka "open ended question").

### Considerations in Sampling

One of the first decisions one must make before conducting a survey is whom to include. Typically, this is done through the creation of a written sampling plan, whereby one specifies the population of interest and describes whether everyone in the population will be included (*exhaustive* or *census sampling*) or a smaller sub-set of the population. In schools, it is not uncommon to solicit input from every member of the population of interest. In large districts, however, the sheer number of potential respondents may make a smaller sample more manageable. Knowing in advance how the results will be compiled and analyzed can help in making decisions about sampling plan. For instance, if one is going to be using a paper/pencil survey and hand-entering all the results prior to analysis, then a smaller, more selective, planned sample may be in order. In contrast, if one is using one of the many online survey tools where the results are tabulated by the computer as they come in, a larger sample may be feasible.

If one decides to sample (rather than send a survey to every member of the population in question), the next decision is what sampling method to use. Generally speaking, sampling methods can take either a *probability* or *nonprobability* approach.

***Probability Sampling.*** In probability sampling, each member of the population has a chance of being selected, and one either samples randomly or systematically. In a random sample, each member of the population has an equal opportunity to be selected. In a systematic sample, one selects people to include in the survey using a systematic, planned approach. For instance, one might select every  $n^{\text{th}}$  name to survey. One danger of this approach, of course, is that names are not randomly distributed across the population. Another systematic sampling technique *stratified sampling* first requires one to identify relevant clusters, or stratifications, into which members of the population might be grouped. Once these groups are identified, and the

population is organized by the stratifications, one selects a sufficient number of people from each of the groups to enable generalization to the population in question. In a school district this approach might be taken, for instance, if educators wanted to ensure that they had attempted to include input from a representative sample of people from each ethnic group enrolled in the school.

***Nonprobability sampling.*** Nonprobability sampling involves selecting people to survey in a nonrandom manner. Often, one will see such sampling plans referred to as convenience, judgment, or snowball sampling. As the name implies, convenience sampling refers to a situation whereby people are selected to participate in the survey because they are convenient. For example, a school might conduct a survey of parents in attendance at back-to-school night using convenience sampling. One danger of convenience sampling, of course, is that the people included may not truly represent the larger population to which one is hoping to generalize. In the example of sampling parents at a back-to-school night, for instance, this approach might result in an inability to gather input from parents who work nights. To the extent that their views might differ from the views of the parents in attendance at the evening event, the sample results would be biased. Judgment sampling is typically an extension of convenience sampling whereby participants are selected based on the judgment of the person conducting the survey that they will be a good representation of the population as a whole. For instance, a school might opt to survey students in one classroom per grade, selecting those classrooms that appear to best represent the school population as a whole. The biggest concern with this approach, of course, is the degree to which the sample was selected wisely. To the extent that the sample differs from the population as a whole, the results may not be generalizable.

A final survey technique, most often used with hard-to-identify samples, is called snowball sampling. In this approach, one uses referrals from others to identify and recruit additional people to include in the sample. For instance, a school district may want to solicit information about how they might better provide assistance and support to homeless students and their families, but it is unlikely that school records will enable the easy and accurate identification of which parents should be surveyed. Using a snowball sampling technique, one would identify one or more homeless family in the district and would then request that person's assistance in passing along the survey to other families in similar circumstances. A caution when using this approach is that the final sample may well be biased, as the people surveyed may end up sharing characteristics, through their associations with one another, other than the one that originally led to their identification.

***What to Look for in Reference to Sampling Design in Research.*** Because the approach used to gather the sample can impact the generalizability of the results considerably, it is important to examine the sampling plan and sample characteristics carefully when reading the results of a survey. Things to notice include how the sample was generated, the demographic characteristics of the sample (especially as they compare to your own population of interest), and the size of the sample compared to the identified population. Generally speaking, the closer the sample is in size and characteristics to the population as a whole, the more confident one can be in the results being reported.

### **Considerations in Instrument Creation**

Surveys vary widely in their construction and intended use. Knowing in advance what one will do with the results can help ensure that the survey is useful and focused (Fowler, 2009). Keep in mind that if the survey is too long, it is likely that fewer people will complete it.

Generally speaking, responses to selected-response items are easier to analyze (many of the online survey tools provide a way to download results directly to an Excel file). Oftentimes, though, one may want to include constructed-response items or places where respondents may add more detail to explain their responses. Such responses can provide interesting insight into patterns in the results. It is important to keep in mind, however, the potential that a well-crafted constructed response might unduly sway one's interpretation of the results.

***Creating selected-response items.*** In designing a survey, it is important to keep in mind that well-written questions will help respondents provide accurate and reliable answers. If your survey includes questions related to a sensitive topic, it may be wise to ensure that responses remain anonymous and to make sure that respondents are aware of this before they begin the survey. To avoid the situation where people select the 'safe' middle option choice rather than taking a stand on a topic with a more definitive answer, it is generally recommended to have an even number of response options when asking about people's opinions on a topic. The following guidelines can help ensure that questions solicit useful responses:

Table 1

*Selected-Response Item Writing Guidelines*

Guideline	Example of a Poorly-Written Question	Example of a Better-Written Question
Limit each question to one dimension	How fair and appropriate are the tests in this class? a) extremely b) somewhat c) not very d) not at all	How appropriate are the tests in this class: a) extremely b) somewhat c) not very d) not at all

Table 1

*Selected-Response Item Writing Guidelines (Continued)*

<p>Minimize the repetition across answer choices ~ include words that might repeat in the question stem so they do not need to be included in the responses.</p>	<p>How would you describe the campus?</p> <ul style="list-style-type: none"> <li>a) I feel very safe on campus.</li> <li>b) I feel somewhat safe on campus.</li> <li>c) I do not feel very safe on campus</li> <li>d) I do not feel safe at all on campus.</li> </ul>	<p>How safe do you feel on campus?</p> <ul style="list-style-type: none"> <li>a) very</li> <li>b) somewhat</li> <li>c) not very</li> <li>d) not at all</li> </ul>
<p>Keep the grammar structure parallel in each of the possible response choices.</p>	<p>How useful are the student behavior reports during parent conferences?</p> <ul style="list-style-type: none"> <li>a) best ever!</li> <li>b) they are quite useful</li> <li>c) somewhat useful</li> <li>d) not at all</li> </ul>	<p>How useful are the student behavior reports during parent conferences?</p> <ul style="list-style-type: none"> <li>a) extremely</li> <li>b) quite</li> <li>c) somewhat</li> <li>d) not at all</li> </ul>
<p>Make sure that the answer choices cover all possible responses. If people might feasibly be able to select two options, be sure they are given that choice.</p>	<p>Which class do you most enjoy? (select one)</p> <ul style="list-style-type: none"> <li>a) English</li> <li>b) Mathematics</li> <li>c) Spanish</li> <li>d) PE</li> </ul>	<p>Which class(es) do you most enjoy? (select all that apply)</p> <ul style="list-style-type: none"> <li>a) English</li> <li>b) Mathematics</li> <li>c) Spanish</li> <li>d) PE</li> <li>e) Other (explain)</li> </ul>
<p>Make sure that the answer choices are mutually exclusive. If they are not, then respondents might not know how to give an accurate answer.</p>	<p>Where do you usually do your homework?</p> <ul style="list-style-type: none"> <li>a) In the kitchen</li> <li>b) In front of the TV</li> <li>c) In my bedroom</li> </ul>	<p>Where do you usually do your homework?</p> <ul style="list-style-type: none"> <li>a) In a quiet place at home</li> <li>b) In a noisy place at home</li> <li>c) In a quiet place away from home</li> <li>d) In a noisy place away from home</li> <li>e) Other (explain)</li> </ul>

<p>Ensure that the questions flow smoothly from one to the next. Grouping questions that are similar can help make it easier for respondents to complete the survey.</p>	<p>How long have you lived in the district?</p> <p>a) &gt; 5 years b) &lt; or = 5 years</p> <p>What is your GPA</p> <p>a) 4.0 – 3.5 b) 3.49 – 3.0 c) &lt; 3.0</p> <p>Where did you live before you lived here?</p> <p>a) in a neighboring district b) in a different state c) NA: I have always lived here</p>	<p>How long have you lived in the district?</p> <p>a) &gt; 5 years b) &lt; or = 5 years</p> <p>Where did you live before you lived here?</p> <p>a) in a neighboring district b) in a different state</p> <p>NA: I have always lived here</p> <p>What is your GPA</p> <p>a) 4.0 3.5 b) 3.49 – 3.0 c) &lt; 3.0</p>
<p>If there is a chance that a respondent will not be able to answer a question, include a “don’t know” answer option. Otherwise, respondents may guess, reducing the reliability of your results.</p>	<p>What proportion of your waking hours do you typically spend reading?</p> <p>a) Less than 25% b) More than 25%</p>	<p>What proportion of your waking hours do you typically spend reading?</p> <p>a) Less than 25% b) More than 25% c) I don’t know</p>
<p>Write questions and responses in such a way that they do not “lead” to a particular response.</p>	<p>Do you agree that reading for pleasure outside of school is extremely important?</p> <p>a) Yes b) No c) I’m not sure</p>	<p>How important is reading for pleasure outside of school?</p> <p>a) Extremely b) Somewhat c) Not very d) Not at all</p>
<p>Avoid the use of unfamiliar words, abbreviations, and technical jargon.</p>	<p>How satisfied are you with the district’s efforts to support work toward AYP?</p> <p>a) Extremely b) Somewhat c) Not very d) Not at all</p>	<p>How satisfied are you with the district’s efforts to support improvement in student performance on statewide large-scale assessments?</p> <p>a) Extremely b) Somewhat c) Not at all d) I’m not sure</p>

Table 1

*Selected-Response Item Writing Guidelines (Continued)*

<p>Limit questions that ask respondents to rank order a series of items to no more than 5 items.</p>	<p>Rank the following in their order of importance: (1 = most important; 10 = least important)</p> <ul style="list-style-type: none"> <li>a) healthy cafeteria food</li> <li>b) tasty cafeteria food</li> <li>c) inexpensive cafeteria food</li> <li>d) a variety of cafeteria food</li> <li>e) large servings of cafeteria food</li> <li>f) easily-recognizable cafeteria food</li> <li>g) ethnically-diverse cafeteria food</li> <li>h) warm cafeteria food</li> <li>i) etc.</li> </ul>	<p>Rank the following characteristics of cafeteria food in their order of importance: (1 = most important; 5 = least important)</p> <ul style="list-style-type: none"> <li>a) healthy</li> <li>b) tasty</li> <li>c) inexpensive</li> <li>d) a variety</li> <li>e) large servings</li> </ul>
--	---	---

***Creating constructed-response items.*** A great deal of attention must be paid to the way in which constructed-response items are phrased if one is to get a lot of information from them. A good rule of thumb to remember is that the best constructed-response questions will solicit more elaborate responses. Avoid phrasing a question in a way that might lead a respondent to answer with a single word response (eg., “yes” or “no”). Phrasing a question the same way you might if you were going to be conducting an interview can sometimes help. For instance, asking people to *Describe the most useful aspects of today’s professional development workshop* may elicit more detailed responses than asking people *What made today’s professional development workshop useful?* Likewise, one might decide to phrase a question in a neutral way that would enable respondents to share insights either negative or positive as a means of ascertaining their true feelings on a topic. For instance, a question phrased as *Describe your opinion of today’s professional development workshop* could elicit either negative or positive responses, which might provide a more accurate gauge of how people viewed the event than responses that specifically solicit feedback about positive aspects of the workshop.

***What to Look for in Reference to Item Type in Research.*** Often, survey designers will include a mix of selected- and constructed-response items on the survey instrument. It is important to remember, however, that not all respondents will have the same ability to express themselves well in writing. There is always the danger that a well-written constructed-response will skew one's interpretation of the results as a whole. For this reason, it may be wise to use the results of selected-response items to help balance the opinions shared in open-ended answers. When reading the results of survey research, look for examples of the questions themselves and evaluate them for lack of bias and appropriate phrasing, keeping in mind that poorly-written questions reduce the reliability and validity of conclusions drawn from the survey.

### **Considerations in Administering Surveys**

Coming up with a sampling plan and creating a survey instrument are critical first steps. It is also important, however, to make plans to increase the response rate. The following steps may help increase people's willingness to respond to a survey.

- If mailing the survey, use an envelope that will help your survey stand out in the mailbox. Generally speaking, colored, hand-addressed envelopes with postage stamps affixed (rather than bulk mail postage or printed address labels) may help reduce the chance that the survey is discarded as "junk mail" prior to being opened.
- Include a brief but well-written cover letter, introducing the survey and emphasizing the importance of receiving a response from the person. If an online survey instrument is being used rather than a mailing, a short well-written e-mail takes the place of the printed cover letter.
- Include a title for your survey that is short and meaningful.

- Include short, easy-to-understand directions for completing and returning the survey. If the survey is being distributed through the mail, include the return address on the survey itself as well as on the reply envelope.
- Begin the survey with a few interesting and non-threatening questions, and organize the survey such that the most important questions appear within the first half of the survey. That way, even if people do not complete the entire survey, the responses to the most important questions will be captured.
- If the survey will be administered paper/pencil, leave plenty of white space. This helps give the impression that the survey will be easy to complete.
- Consider incentives to encourage people to return completed surveys. For mailed surveys, attaching a dollar bill may help improve the response rate. Offering to send a summary report of the results to everyone who completes the survey may also help encourage people to respond.
- Piloting the survey with a few people who represent the target population prior to distributing it more widely can help identify points of confusion to be corrected before the survey is administered more formally.

***Online versus Paper / Pencil Surveys.*** Widely-accessible technology in the form of internet-based survey tools has opened new avenues for collecting survey data. Online surveys may help reduce time and costs associated with gathering and analyzing survey data (Clayton & Werking, 1998; Gjestland, 1996; Schmidt, 1997). One of the most appealing characteristics of online survey engines is the way in which they facilitate data entry. Each respondent's input is tallied as it is entered, enabling instantaneous download of the data for rapid analysis as soon as the survey is closed. They may also include built-in features to enhance response rates, such as

the ability to provide feedback and/or summaries of responses upon completion and simple-to-use tracking of who has responded, enabling the person conducting the survey to send out multiple invitations to participate without an increase in mailing costs (Dillman, 2000; Schmidt, 1997), although some research suggests that paper/pencil surveys result in higher response rates (Sax, Gilmartin, & Bryant, 2003). Online survey engines are not without problems. One of the biggest challenges of using online survey engines is sampling bias that might favor higher-income households, where computer access might be more readily available (Sax et al., 2003).

Paper/pencil surveys may have some distinct advantages for school-based applications, where potential respondents are likely to be physically present in a room (such as a parent or faculty meeting or student class). Distributing, completing, and collecting surveys in the same sitting, can improve response rates significantly. Likewise, some respondents may find a paper/pencil survey less intimidating to complete than one that is delivered via computer. Knowledge of the potential sample to be surveyed can help in selecting the most appropriate method to use.

### **Analyzing Survey Results**

Survey results are generally reported for the whole sample as well as for specific subgroups. To make such analyses possible, one must collect the data in such a way that it is possible to link the responses to the demographic information collected in earlier questions. For instance, if one is interested in comparing the opinions of freshmen students with the opinions of juniors, the survey instrument must include a question that will prompt students to select their class in school so that the responses can later be disaggregated or different surveys must be administered to students in the different groups. One of the most common mistakes made by people who have less experience with constructing and analyzing surveys is failure to include

questions that will enable thorough analysis of the results. Taking steps to ensure that all responses on a given survey can be tracked back to the individual responding to the survey does not mean breaching confidentiality. One can assign code numbers to each survey instrument and use the numbers to link individuals' responses to different questions. Such an approach is particularly important for surveys that extend beyond a single sheet of paper; printing the person's code number on each sheet of paper can help ensure that responses are tracked even if the individual pieces of paper become separated.

### **Reporting Survey Results**

When reporting the results of a survey, provide a summary of the process used including the method of distribution and how the survey was introduced. Include information about how surveys were distributed and how many were completed, calculating a response rate (usually reported as a %) for the survey as a whole. If some questions elicited significantly fewer responses than the overall completion rate for the survey, report this information as well. Provide a frequency count, with raw numbers as well as percentage of respondents, for items that use a Likert-type scale. Including descriptive statistics (mean, standard deviation, and total number of respondents) may also help in interpreting results. Sometimes, other measures of central tendency such as which option elicited the most responses (mode) provide useful insight. If the survey includes constructed response items, one may either analyze the responses given for patterns and report findings with a few illustrative quotations or provide all responses given, allowing others to draw their own conclusions. Of these two approaches, the first may help reduce the potential for the qualitative responses to overpower the trends captured in the quantitative items on the survey.

**Illustrative Example of Survey Creation, Administration, Analysis, and Reporting**

The section that follows provides an annotated technical report describing a survey created in the mid-2000s to collect information about teacher self-efficacy. It is included in its entirety, in the same form in which it was published, with one exception: the addition of annotations intended to call attention to features in the manuscript discussed in this technical document.

### References

- Clayton, R. L., & Werking, G. S. (1998). Business surveys if the future: The World Wide Web as a data collection method. In M. P. Couper; R. P. Baker; J. Bethlehem; Z. F. Clark; J. Martin; W. L. Nicholls II; and J. M. O'Reilly (Eds.), *Computer assisted survey information collection*. John Wiley & Sons, New York, pp. 543-562.
- Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method (2nd ed.)*, John Wiley & Sons, New York.
- Fowler, F. J. Jr. (2009). *Survey research methods, 4<sup>th</sup> ed.* Thousand Oaks, CA: Sage.
- Gjestland, L. (1996). Net? Not yet. *Mark. Res.: Mag. Manage. Appl.*, 8, 26–29.
- Sax, L. J.; Gilmartin, S. K.; & Bryant, A. N. (2003). Assessing response rates and nonresponse bias in web and paper surveys. *Research in Higher Education*, 44, 409-433.
- Schmidt, W. C. (1997). World Wide Web survey research: Benefits, potential problems, and solutions. *Behavioral Research Methods Instruments & Computers*, 29, 274–279.

Additional Sources of Information About Survey Research:

<http://www.socialresearchmethods.net/kb/survey.php>