Measuring the Impact of Professional Development on Teacher Growth

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Measuring the Impact of Professional Development on Teacher Growth

Welcome! This handout contains information about the five levels of measurement of the outcomes of professional development proposed by Guskey (2000). It also includes information about strategies for gathering data on the five levels, along with additional resources. In addition, strategies and resources are provided for analyzing qualitative and quantitative data, as well as for sharing the findings.

Five Levels for Measuring Growth Related to Professional Development

According to Guskey (2000), trainers can measure five areas related to Professional Development:

• Level 1: Participants’ Reactions (Guskey, 2000, pp. 94-120; for instruments, see pp. 108-114)
  o Content Questions
  o Process Questions
  o Context Questions

• Level 2: Participants’ Learning (Guskey, 2000, pp. 121-148; for instruments, see pp. 128-130 and p. 143)
  o Cognitive Goals (Knowledge and Understanding)
  o Psychomotor Skills (Skills and Behaviors)
  o Affective Goals (Attitudes and Beliefs)

• Level 3: Organization Support and Change (Guskey, 2000, pp. 149-177; for instruments, see p. 164 and p. 170)
  o Organization Policies
  o Resources
  o Protection from Intrusion
  o Openness to Experimentation and Alleviation of Fears
  o Collegial Support
  o Principal’s Leadership and Support
  o Higher-Level Administrators’ Support
  o Recognition of Success
  o Provision of Time

• Level 4: Participants’ Use of New Knowledge and Skills (Guskey, 2000, pp. 178-206; for instruments, see p. 190 and p. 201)
  o Stages of Concern (SoC)
  o Levels of Use (LoU)
  o Differences in Practice

• Level 5: Student Learning Outcomes (Guskey, 2000, pp. 207-247; for instruments, see pp. 228-230)
  o Cognitive Goals (Knowledge and Understanding)
Choosing the Methods for Gathering Data

This section includes the methods for gathering data for the five levels that Guskey (2000) mentioned most frequently. They include evaluation forms, personal learning logs and reflective journals, portfolios, direct observations, focus groups, demographic forms, and interviews. Information is also included about developing questionnaires, as well as finding questionnaires. The methods for gathering data are cross-referenced with Guskey’s (2000) five levels of evaluation. In all research, participants should know in advance the purpose of what they are doing and feel safe that the data will be used to evaluate the training rather than to evaluate them (Guskey, 2000).

Qualitative data include data from interviews, focus groups, open-ended questions on surveys, diaries, journals, observations, portfolios, records, written materials, case studies, etc. Basically, qualitative data consist of words. Denzin and Lincoln's (2011) book, as well as Patton’s (2014) book, contain everything you could want to know about gathering qualitative data.

Quantitative data include surveys, questionnaires, and other instruments that can be analyzed statistically. You can gather quantitative data when you are able to measure specific outcomes and want to compare measurements. When you can capture the results in numbers, you use quantitative methods. A goal of gathering quantitative data is to be able to generalize the findings to a larger population.

Evaluation forms. Evaluation Forms can be used at Levels 1, 2, and 3 (Guskey, 2000). At Level 1, the participants respond to questions about the content, process, and context of the training. Items can be multiple-choice questions, open-ended questions, or a mixture. At Level 2, evaluation forms can be used to evaluate cognitive and affective outcomes from the professional development. Participants can fill them out at the end of the training or soon after the training has ended to indicate what they learned. At Level 3, evaluation forms could include questions about the types and level of support that the district is providing. These are participants’ perceptions of the types of support they are receiving.

Personal learning logs and reflective journals. Teachers and administrators can use personal learning logs and reflective journals for Levels 2, 3, and 4 (Guskey, 2000). Those who are asking the participants to keep logs and reflective journals should provide guidelines, such as open-ended questions, areas to address, and formats. It is helpful for participants to have questions to answer so that those who are evaluating the portfolios can easily compare what the various participants wrote.

At Level 2, teachers can respond to either specific questions or open-ended questions and document what they learned (Guskey, 2000). They can
either write them by hand or on the computer. At Level 3, participants can write about the support they received from the organization, the resources they received, and other aspects related to school and district support. At Level 4, teachers can write about the ways they have implemented what they have learned and reflect on what they have been doing. They can document areas of concern, questions they might have, and the results they are noticing as they work with students.

Participants might be reluctant to share what they really think for fear of having it used against them (Guskey, 2000). Those who are collecting the logs and journals will spend a lot of time analyzing them. It would be important for participants to know what the assessors will be looking for so that they can target what they write. Dietz (2008) and Stevens (2009) have provided information about journal writing for educators.

**Portfolios.** Teachers, administrators, and students can keep portfolios of their work to demonstrate how they have incorporated what they have learned into their practice (Guskey, 2000). The owner of the portfolio can choose what to include, or the items can be assigned. Those who are assigning portfolios will need to specify the goals and the criteria. Portfolios generally include rubrics so that the entries can be assessed. The assessor of the portfolio is able to see the person’s progress over time.

People who put their portfolios together will spend a great deal of time doing so. They will need to see the value of doing so. Then, the person who is assessing portfolios will need to spend a large amount of time going through them. If professional developers are collecting portfolios from participants, they will need to have a place to store them.

Guskey (2000) suggested using portfolios for Levels 3, 4, and 5. For Level 3, participants could document the support they received in the school district. Teacher portfolios for Level 4 could include items such as lesson plans, information about how they have implemented what they learned in their professional development, and videos of lessons they have taught. Student portfolios for Level 5 could include tests, art work, videos, projects, and other items that demonstrate how they have progressed. It can be helpful to invite people to write a reflection on what they learned from putting their portfolios together.

Reynolds and Davis (2013) have provided information about keeping portfolios for students, and Stefani, Mason, and Pegler (2007) have provided information about keeping e-portfolios. Campbell, Cignetti, Melenyzer, Nettles, and Wyman, Jr. (2011) have provided information for teachers about keeping standards-based portfolios. The book by Johnson, Mims-Cox, and Doyle-Nichols (2009) includes information about focusing portfolios on action research. Bullock and Hawk (2009) have provided information about developing portfolios for both preservice and practicing teachers.
**Direct observations.** Direct observations can be used at Levels 3, 4, and 5 (Guskey, 2000). At Level 3, observers can observe for indicators that the organization is supporting teachers in implementing the initiative. They could observe the principal, meetings, and teacher interactions. They could also examine the resources that teachers receive. At Level 4, observers could watch how teachers are implementing their new skills with students. They could take videos of them, as well. At Level 5, observers could look for behaviors in students that would be expected as a result of the teachers implementing what they learned in professional development.

Observers need to be trained in what to look for, including quantity and quality (Guskey, 2000). They should do their best not to intrude and should observe at the times when they will see what they want to observe. The fact that people are being observed might make them do things that they might not normally do (Guskey, 2000). The observers will also need to be paid, so money will need to be set aside. Teacher candidates can learn to observe. Still, they will need to be trained and paid. McNeely (1997) has provided information about observing in classrooms, as well as forms. Other forms can be found in scholarly articles.

**Focus groups.** Researchers conduct focus groups when they wish to find out information from a group of people. In a focus group, participants interact with each other to collaboratively share their thoughts and feelings about a particular issue. Generally, it is good to have five to seven people in a focus group. You want to have more than two or three in order to have group synergy. If you have too many participants (i.e., 10 or more), participants will not be able to express their thoughts and feelings because so many others will be talking.

Most focus groups run anywhere from 1½ to 2 hours so that people will have enough time to talk. When you determine what questions to ask participants, be sure and determine approximately how much time you would like to spend on each question. For example, if you planned on asking 10 questions in an hour-long focus group, participants would have six minutes to answer each question. That might not be enough time.

Be sure that you are able to get a high quality recording of what participants say. Also, it is a good idea to use chart paper to record what people say. It is also a good idea to have someone take extensive notes in case the tape recorder misses some of the voices. Check the recorder periodically to make sure that it is running and to see when you need to turn the tape over if you are using a tape recorder. Conduct a “trial run” to make sure that the recorder is able to pick up people’s voices. You might want to have participants pass the recording device to the person who is talking.

Focus groups can be used at Levels 3 and 4, according to Guskey (2000). At Level 3, participants could talk about the support or lack of support they are receiving for implementing the innovation. At Level 4, participants could talk about the level at which they are using the innovation, questions they have,
and concerns they have. Their comments could be mapped using the Stages of Concern and Levels of Use models (Hall & Hord, 1987).

Some resources for conducting focus groups are by Krueger and Casey (2014) and Bader and Rossi (2002). Either of those books will provide you with the information you need to conduct successful focus groups.

**Demographic forms.** It will be helpful for you to create demographic forms to find out more about the people who are participating in your study so that you will be able to describe them when you present the findings. It is helpful to brainstorm all possible variables that might influence responses on other instruments. For example, class size and number of students with special needs might influence a teacher’s feelings of efficacy. By gathering these kinds of data, the findings will make more sense. In addition, if the participants did not grow from pretest to posttest, you will be able to determine variables that are related to growth. For example, women may have grown more than men, or teachers of grades 3 and 4 may have grown more than teachers of grades 1 and 2.

It is also preferable to gather specific data rather than aggregated data. Instead of asking for years of teaching experience with a range (0-5, 6-10, 11-15, etc.), it is better to ask for the specific number of years taught. The specific data can always be put into groups of 0-5 years, 6-10 years, etc.; however, 0-5 years and 6-10 years can never be put back into the specific number of years. Above all, use plenty of white space on forms, and make it easy for the participants to fill them out quickly.

**Interviews.** You can conduct interviews with a sample of participants when you would like to obtain in-depth information from each person that they might not be willing to share or have the time to share if they were to participate in a focus group. When you conduct interviews, plan on spending approximately 30 minutes to an hour with each person, depending on what you are going to be asking the participants. If you are going to want detailed, in-depth information, you would need more time. Guskey (2000) suggested conducting interviews for Level 2 (with teachers to find out about cognitive outcomes), Level 3 (to find out the level and types of support), Level 4 (with teachers, supervisors, or students to determine level of implementation), and Level 5 (with students to determine cognitive, affective, and psychomotor outcomes).

You can write open-ended questions to ask participants. Determine how much time you would like to allot to each question. You would not want to ask 15 in-depth questions in a half-hour interview. You may want to ask participants around five to eight questions, depending on how long the interview will last. If you had 30 minutes for the interview and asked five questions, you would have approximately five minutes per question, subtracting time at the beginning to introduce the interview and time at the end to bring closure.

If you are interviewing several different groups of people (i.e., teachers, parents, and administrators), be sure and ask all of them the same or similar questions so that you can compare their responses. You could give the
participants the questions in advance so that they could be thinking about what they wanted to say, or you could just ask them the questions when they come for the interview.

Be sure and audio record the interviews so that you will be able to transcribe the recordings later on. Ask the person for permission to record the interview. Then, turn on the recording device and ask again so that the person’s consent to record is on the recording.

It is helpful to take notes in case the recorder accidentally switches off or malfunctions. Be sure and check the recorder periodically to make sure that it is running. This will ensure that you have an accurate account of what each person said. Be sure and conduct the interviews in a quiet place, and make sure that you have the tape player or recording device turned up high.

You could either transcribe the tapes yourself, or you could hire a professional typist to transcribe the tapes. Count on paying around $20 per hour or more, depending on the area in which you live. It could take anywhere from two to six hours for the typist to transcribe one hour of conversation. Interview several people before choosing someone to transcribe the tapes, asking them how long they take to transcribe an hour-long tape. It may be helpful to give them one tape to transcribe before deciding to hire them. Be sure and plan your budget accordingly.

If you are conducting interviews via GoToMeeting or WebEx, you could hit the Record button. If you are conducting interviews over the phone, you could type what the interviewees are saying if you type quickly while you have a recording device in the background. You could also conduct interviews with Skype.

If you type quickly, you may prefer to transcribe the tapes yourself. By doing so, you can become even more familiar with what the participants are saying. You can purchase a transcribing tape recorder from OfficeMax for approximately $200. Better yet, you could borrow one from the business school in the school district in which you are working if they still use them. Transcribing machines have a slide to slow the tape down so that the person on the tape is talking very slowly. They also have a foot pedal so that you can start and stop the tape while you have your hands on the keyboard.

Some helpful books on conducting interviews are by Arksey and Knight (1999) and Kvale (2014). If you would like to have a comprehensive guide to conducting interviews, Gubrium and Holstein (2012) have written an edited volume that includes chapters on topics such as developing interview questions, conducting interviews ethically, analyzing data from interviews, and other topics.

**Developing questionnaires.** You may choose to develop a questionnaire to discover what people think about various things, to determine their attitudes, etc. You can adapt questionnaires to particular audiences. You could include questions that they could answer with “yes” and “no.” You could also include a
Likert-style scale in which participants could answer questions from one to five. Generally, one would mean none, and five would mean the most. Some researchers use scales of one to six, others use scales of one to seven, and others use scales of one to ten. According to Guskey (2000), you could use questionnaires at Level 3 to find out the level of support for the initiative, at Level 4 to find out the teachers’ concerns or the level at which they are implementing the innovation, and at Level 5 to measure students’ cognitive, affective, and psychomotor outcomes.

You could develop a checklist so that people could check off areas that are present and leave blank areas that are not present. You may wish to ask participants questions about the presence or absence of things in their classrooms, or questions about what they consider when they plan lessons.

If you would like to obtain qualitative information from a large number of people—more than you could possibly interview or invite to participate in focus groups, you could develop open-ended questionnaires to distribute to a larger group of people. You would ask participants to write answers to the questions that you pose. If they are filling out the questionnaires by hand, be sure and provide enough space for them to write their answers. Also, be sure and ask the questions clearly so that they know exactly what you want to find out. Willis (2005) has provided information about asking questions in questionnaires so that you will obtain the information that you want. Salkind (2012) has provided user-friendly information about creating and administering tests and measurements.

If you are conducting online surveys, you may want to use Survey Monkey. Participants can fill out surveys online, and you receive the results. It is available at http://www.surveymonkey.com. If you are going to use the Statistical Package for the Social Sciences (SPSS) to analyze the data, be sure and purchase the option to have the data provided to you in SPSS format.

Finding questionnaires. Rather than developing your own questionnaire, you may prefer find one that has already been developed that has reliability and validity data. You could find questionnaires to measure constructs such as academic optimism, trust, efficacy, collective efficacy, school culture, enthusiasm for teaching, job satisfaction, attitudes, and other areas. In order to locate instruments, you can either search on the Internet through Google (http://www.google.com), Google Scholar (http://www.scholar.google.com), or ERIC (http://www.eric.ed.gov). If your school district or local university has access to full-text databases, you could run searches in them. If you were searching for instruments on efficacy, you could search for efficacy, efficacy scale, efficacy survey, efficacy instrument, or efficacy research. Some databases require you to put two or more words in quotation marks in order to only get results with the words together. You could see which instruments were most frequently used, and you could see which instruments have been used in contexts that are similar to yours. Instruments in articles can generally be used free of charge. It is always nice to contact the developer of the instrument to let him/her know that you are using the instrument. You can also adapt an instrument to your context with permission from the author.
You can find dissertations that contain instruments at the ProQuest website, which is http://www.proquest.com/products-services/dissertations/. You can also order the dissertation at that website. By searching in these ways, you will be able to locate the most frequently used instruments for what you want to measure. You will be able to find studies that have used the instrument, and you will be able to see in what ways and in what contexts the researchers have used the instrument.

You can also check on the Buros website (http://www.buros.org) to locate measurements, and you can access a book that includes tests that have been used in the field of education by Lester, Inman, and Bishop (2014). You can obtain information about the instruments that your school district uses to measure student progress from the Assessment Department.

The Survey Kit (Fink, 2002) contains a set of books that include information about conducting surveys. If you would like to discover changes in teachers’ or students’ attitudes, the book by Henerson, Morris, and Fitz-Gibbon (1987) can be helpful. If you would like to find instruments and other assessment methods to measure outcomes in a particular field, Sage Publications has a kit that contains instruments for areas such as counseling programs (Borders & Drury, 1992), mathematics programs (Bright, Uprichard, & Jetton, 1993), programs for at-risk students (O’Sullivan & Tennant, 1993), reading and language arts programs (Olson & Miller, 1993), special education programs (Vallecorsa, deBettencourt, & Garriss, 1992), and staff development programs (Mullins, 1994).

If you would like to obtain information about interpreting the various studies that you find, books by Hittleman and Simon (2006), as well as Spirduso, Locke, and Silverman (2009), contain valuable information. You will learn about the various parts of research articles, how to interpret the statistical findings, how to determine if the study was conducted in a credible manner, and more.

Table 1 includes some of the many areas that you could explore with instruments. The instruments in the table below are available free of charge from the Internet. You could administer the instruments before people participate in the training and after they have participated. Then, you could compare their scores. You could use a comparison group, as well.
Table 1

Some of the Instruments that are Available on the Internet

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<th>Areas to Investigate</th>
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| School Culture         | School Culture Quality Survey, David C. Anchin Center (http://anchin.coedu.usf.edu)            |
Analyzing the Data

You have gathered the data for your study. You are sitting in your home or office with the interview transcripts, student test scores, surveys, etc. What will you do with the data? How will you go about analyzing the data? This section includes information about making sense of the qualitative and quantitative data that you have collected.

Analyzing qualitative data. How are you going to make sense of the qualitative data? You have two options for analyzing the data. You can either use qualitative data analysis (QDA) software, or you can do it “by hand.” Two of the many software options would be ATLAS.ti and MAXQDA. You can download demonstration copies from their websites to see which of the programs might work for you. The ATLAS.ti website is http://www.atlasti.com, and the MAXQDA website is http://www.maxqda.com. You can also attend courses on analyzing qualitative data listed on the websites, and/or, you can obtain consulting on analyzing your data through ResearchTalk. Their website is http://www.researchtalk.com. Ray Maietta and Jeff Petruzzelli are extremely helpful and provide many resources to assist people who are analyzing qualitative data. Friese (2014) has written a book to help users of the ATLAS.ti software analyze data.

If you choose to analyze your qualitative data “by hand,” you would print out copies of your data. If you were analyzing interviews, you could color code them, drawing a red line down all of the pages from Person A, a blue line down all of the pages of Person B, etc. Then, you would read through the data, cut out the quotes, and categorize the quotes into themes. You could have a piece of chart paper on the wall for each of the themes. You would paste quotes that are similar on the same piece of chart paper. Thus, as the themes emerged, you would have the quotes to back up the themes. It is helpful to have a room that you can dedicate to the project. You could also copy and paste quotations to different documents in Microsoft Word.

Many resources are available to assist you in analyzing qualitative data. Leech and Onwuegbuzie (2007) have provided seven strategies for analyzing

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<td>Principal Trust Scale (<a href="http://wmpeople.wm.edu/site/page/mxtsch/researchtools">http://wmpeople.wm.edu/site/page/mxtsch/researchtools</a>)</td>
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qualitative data. Another helpful resource is by Richards (2014), who has developed several qualitative data analysis software programs. Saldaña’s (2012) book includes numerous strategies for analyzing qualitative data. He has updated the classic book on analyzing qualitative data by Miles and Huberman (Miles, Huberman, & Saldaña, 2013).

Analyzing quantitative data. How are you going to make sense of the quantitative data that you have collected? Many people in the field of education use the Statistical Package for the Social Sciences (SPSS). As of December 2014, they are on Version 22.0. The company releases a new version approximately every year. You can download a demonstration copy from the http://www.spss.com website free of charge to use for two weeks if you would like to explore the program. Students can obtain the Grad Pack for a greatly discounted price from various vendors on the Internet. SPSS includes tutorials in the package.

Unless you have extensive training in statistics, it would be best to have a statistician in your school district, local university, or community enter and analyze the data. You could enter the data and have someone else run the analyses as another option. If you would like to have the teachers examine the data, Wellman and Lipton (2004) have provided an excellent book to assist them in engaging in data-driven dialogue.

Pallant’s (2013) book includes valuable information about designing a quantitative study, setting up a codebook, entering data, and analyzing the data. Salkind (2014) has provided user-friendly information about statistics. Newton’s and Rudestam’s (2012) book contains helpful information about statistical procedures at a more advanced level.

Sharing the Findings

After you have conducted your study, you will want to share the findings with others. It will be important to tailor your presentation to the people with whom you are sharing the results. If you are going to be publishing in a scholarly publication, you will need to follow the format of other articles in that publication. If you are going to be sharing the findings with the school board, your write-up may be less formal. If you are sharing the findings with colleagues or parents, you will need to tailor them to their level of understanding. Wolcott’s (2008) book contains helpful information for sharing qualitative research findings. A book by Torres, Preskill, and Piontek (2004) contains a number of formats that you can use for sharing findings with various audiences. If you would like to include tables and figures, a book by Nicol and Pexman (2010) contains information for formatting them. The American Psychological Association Publication Manual (2010) includes information about formatting papers.
References


