Conducting Action Research on
the Effects of Cognitive Coaching^{SM}
and Adaptive Schools

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The purpose of this manual is to provide information about conducting action research on the effects of Cognitive Coaching^{SM} and Adaptive Schools. It contains information about action research and the process of conducting an action research study. Strategies are included for formulating research questions, selecting the setting, determining the participants, choosing the procedures, applying to Institutional Review Boards, writing grants, analyzing the data, and sharing the findings. Resources for further study are also included.

What is Action Research?

According to McTaggart (1991), action research was developed in the early 1900s. Contributors to the field have included such writers as Dewey (1910), Lewin (1946, 1952), and Corey (1949, 1953). By conducting action research, researchers are able to make changes in order to improve the settings in which they conducted research, rather than just gathering data and formulating theories, as in traditional research paradigms. According to Stringer (2014), the researcher first looks at the situation by defining the problem and gathering data. Then, the researcher thinks about the data, reflecting on possible causes of the outcomes. Wellman and Lipton (2012) have described strategies for engaging in this process.The researcher acts on the findings, designing and implementing a course of action. The next cycle begins, with the

researcher examining the results of the actions, gathering more data, and implementing new strategies in order to continually improve the situation. By doing action research, practitioners are able to continuously refine their practice, leading to improved schools and organizations.

Action research runs along a continuum from action research to community-based action research (Stringer, 2014). On the action research end of the continuum, the researcher identifies a problem and gathers data to determine possible answers and solutions. Then, the researcher formulates a plan for improving the situation, gathers more data, and continues the action research process.

On the other end of the continuum, the researcher works with a group of people to identify problems, gather data, and analyze the data. Myles Horton of the Highlander Center in New Market, TN worked with people who were living in the small mining towns in the Appalachian region of the United States to help them with the problems that had been caused by the large corporations that had moved into their areas (Horton, Kohl, & Kohl, 1997). In one case, the people suspected that their water was being polluted because people were becoming sick. He taught the people in the community how to gather and analyze the data. Then, the people decided upon actions to take as a result of their findings. That is true community-based action research. Park, Brydon-Miller, Hall, and Jackson (1993) have written a comprehensive book about participatory action research. You can obtain information about the Highlander Center from the website (http://www.highlandercenter.org) and by reading books by Horton et al., as well as Horton and Freire (1991).

Numerous resources are available for learning more about conducting action research. Cunningham (2011), McNiff and Whitehead (2011), and Sagor (2011) have published materials that contain the essentials of conducting action research. Reason and Bradbury's (2008) edited book on action research contains articles on all aspects of action research, including theory, practice, examples, and skills to use in various contexts. In addition, the LearningForward website (http://www.learningforward.org) contains information about conducting action research. The section on the website to access is called "Data," which is under "Standards."

Conducting an Action Research Study

In order to conduct an action research study, the first step is to formulate research questions. What would you like to find out? The next steps are to decide on the setting in which you will conduct the study, as wel as the participants from whom you will gather data to answer your research questions. You will also need to determine the procedures that you will use for collecting the data. Will you gather qualitative data through interviews, focus groups, open-ended questions on surveys and/or other methods? Will you collect quantitative data in the form of student test scores, surveys, etc.? Perhaps you will use a mixed methods design and gather both qualitative and quantitative data in order to answer your research questions.

After you have determined your research design, you will need to apply to the Institutional Review Board of the school district or institution where you will be conducting your research. You may also choose to write a grant to obtain funding for your study. After you have collected the data, you will need to analyze it and reflect on what you have discovered. Then, you will want to communicate the findings to others.

As a result of what you have found in the data, you may then decide to implement a new plan, make changes in your practice, or take other steps to build on what you found. This section includes strategies for doing these things.

Formulating Research Questions

In order to conduct an action research study, the researcher first develops research questions to answer. Then, the researcher identifies types of data to gather to enable him/her to answer the research questions. The type of data gathered must be aligned with the research question so that after gathering and analyzing the data, the researcher will be able to answer the question.

What are you curious to discover about Cognitive Coaching^{SM} or Adaptive Schools? You have been studying, learning, and refining your Cognitive Coaching^{SM} and/or Adaptive Schools skills, perhaps for a short period of time, or perhaps for many years. What are some of the things that you are most curious to discover about them? What effects would you most like to investigate? You may want to learn more about the impact of Cognitive Coaching^{SM} and/or Adaptive Schools on teachers, or perhaps you might want to learn about their effects on students. Another possibility could be to discover the effects of Cognitive Coaching^{SM} and/or Adaptive Schools on student test scores—standardized, as well as teacher-made tests. You might also be interested in learning what happens when teachers use these strategies with students. In what ways does your use of these skills with students impact their learning, your relationship with them, etc.? In what ways does using your skills in parent-teacher conferences impact the teacher-parent relationship and the parents' attitude toward the teacher? What are

some of the many ways that teachers employ their Cognitive Coaching^{SM} and Adaptive Schools skills, both in the classroom and outside of the classroom?

The first step in conducting research is to decide what questions you would like to answer. Some possible research questions might be:

- What are the effects of teachers' modeling of Cognitive Coaching^{SM} and/or Adaptive Schools skills with students on student interactions with each other?

- What are the effects of teachers' modeling of Cognitive Coaching^{SM} and/or Adaptive Schools skills with students on student interactions with the teacher?

- When teachers use Cognitive Coaching^{SM} and/or Adaptive Schools skills in the classroom, what are the effects on student attendance? In what ways does teacher use of these skills impact student test scores?

- In what ways does teacher use of Cognitive Coaching^{SM} and/or Adaptive Schools in the classroom impact students' Five States of Mind?

- In what ways does training in Cognitive Coaching^{SM} and/or Adaptive Schools impact the Five States of Mind in teachers?

- In what ways do teachers (at the elementary level, middle school level, high school level, college level) use these skills in their classrooms?

- In what ways do educators use Cognitive Coaching^{SM} and/or Adaptive Schools skills with members of their families?

- In what ways does using Cognitive Coaching^{SM} and/or Adaptive Schools impact educators personally and professionally?

- How does teacher use of these skills impact teacher attitudes toward school policies, the principal, colleagues, etc.?

- In what ways does teacher use of these skills impact their interactions with other teachers?

- In what ways does teacher and principal use of these skills impact teacher-principal interactions?

- What do parent-teacher conferences look like when teachers use these skills with parents?

What we already know about using Cognitive Coaching[SM]. As you can see, we could investigate many areas. We already know a number of things from studies that other researchers have done (Edwards, 2018).

1. Cognitive Coaching[SM] was linked with increased student test scores and other benefits for students.

2. Teachers grew in teaching efficacy.

3. Cognitive Coaching[SM] impacted teacher thinking, causing teachers to be more reflective and to think in more complex ways.

4. Teachers were more satisfied with their positions and with their choice of teaching as a profession.

5. School cultures became more professional.

6. Teachers collaborated more.

7. Cognitive Coaching[SM] benefited teachers professionally.

8. Cognitive Coaching[SM] benefited teachers personally.

9. Cognitive Coaching[SM] benefited administrators.

10. Cognitive Coaching[SM] benefited people in fields other than teaching. (p. 1)

Researchers have also discovered important things for leaders in school districts to keep in mind as they are implementing Cognitive Coaching^{SM}. They include the following (Edwards, 2018):

1. Establish long-term, district-level support to provide training and to support teachers as they are implementing Cognitive Coaching^{SM}.

2. Enlist principals' support and modeling of Cognitive Coaching^{SM}.

3. Be aware of implementation concerns and use tools such as the Concerns-Based Adoption Model (CBAM) Stages of Concern and Levels of Use when implementing Cognitive Coaching^{SM}.

4. Recognize that all teachers can benefit from being involved in Cognitive Coaching^{SM}.

5. Create norms of collaboration.

6. Create a climate of self-directedness.

7. Invite voluntary participation.

8. Establish a trusting environment.

9. Emphasize the importance of reflection.

10. Create a climate of learning in the organization.

11. Emphasize the importance of developing the identity of a mediator of thinking.

12. Involve teachers right away in using their coaching skills.

13. Structure time for Cognitive Coaching^{SM}.

14. Recognize that teachers tend to use Cognitive Coaching^{SM} skills on an informal basis more frequently than they use the formal Planning Conversation, Observation, and Reflecting Conversation.

15. Invite teachers to use their coaching skills in many contexts.

16. Distinguish between coaching and evaluation.

17. Realize that district and national policy can influence teachers' adoption of the identity of a mediator of thinking (i.e., a Cognitive Coach).

18. Realize that other initiatives can help to develop the Five States of Mind in teachers.

19. Structure time for coaches to reflect on their coaching and refine their skills. (pp. 37-38)

When a number of researchers have discovered something, future researchers can explore other areas unless they want to confirm the findings in their particular setting. If one researcher found something to be true in urban settings, another researcher may want to replicate the study in rural settings. If one researcher found something to be true at the elementary level, another researcher may want to replicate the study at the secondary level. Some of the many areas for further research in Cognitive Coaching^{SM} include the following:

• The effects of Cognitive Coaching^{SM} on students

• The effects of Cognitive Coaching^{SM} on teacher-student interactions

• The effects of Cognitive Coaching^{SM} on teacher-parent interactions

• The effects of Cognitive Coaching^{SM} on teacher-principal interactions

• The effects of Cognitive Coaching^{SM} on teacher-family relationships

So, what are some of the things that you are most curious to discover and learn about the effects of Cognitive Coaching^{SM} and/or Adaptive Schools?

What are some of the things that you could measure? According to Ralph and Dwyer (1988), researchers in educational settings can investigate four types of claims. They include:

- **"Academic Achievement: Changes in Knowledge and Skills" (p. 20)**–Possible areas to investigate include growth in student learning and skills, including improvement on tests, application of new knowledge, speed of learning, acquisition and application of new skills, speed of learning, etc.

- **"Improvements in Teachers' Attitudes and Behaviors" (p. 25)**–It is important for researchers to link teacher changes with educationally important outcomes for students. For example, high teacher efficacy has been found to result in beneficial outcomes for students in numerous studies (e.g., Ashton, Webb, & Doda, 1983; Brookover & Lezotte, 1979; Dutton, 1990; Glenn, 1993; Tracz & Gibson, 1986). If teachers were to grow in efficacy as a result of teachers using Cognitive Coaching[SM], it might follow that students would benefit. Researchers can measure student improvement on an instrument that has been related to positive outcomes for students, as well as increase in teacher time with students, increase in the amount of time that teachers spend on teaching a topic, teacher change in instructional delivery, teacher emphasis on various topics, teacher expectations of students, teacher time spent in transition, etc.

- **"Improvements in Students' Attitudes and Behaviors" (p. 31)**–It would also be important for researchers to link improvements in this category with educationally beneficial outcomes for students. Researchers can gather data on student attendance rate, student dropout rate, student interactions with each other, student graduation rate, student nutrition, and student use of drugs. They can also examine student attitudes toward themselves, learning, various subjects, other students, school, etc.

- **"Improvements in Instructional Practices and Procedures" (p. 36)**–
Improvements in this area could also be linked with educationally desirable outcomes for students. Researchers can measure cost of educating students, number of students served, distribution of materials, number of people using facilities, etc.

What might YOU like to discover? The important thing is what might YOU like to discover about Cognitive Coaching[SM] and/or Adaptive Schools? What have you always wanted to find out? What have you always wondered about? What have you always been curious about discovering? Start there. Then, formulate one or more research questions that you will be able to answer by collecting data.

When we learn to pose mediative questions, we learn to intentionally embed positive presuppositions into the questions (Costa & Garmston, 2016). When we are formulating research questions, we need to omit presuppositions that would suggest that we have preconceived ideas about what we might find. Of course, we do have preconceived ideas; however, we need to phrase the questions in such as way that the reader thinks that we don't. If we were to ask, "How do students' attitudes improve when their teachers use Cognitive Coaching[SM] in the classroom," or "How do groups collaborate more as a result of using the Seven Norms of Collaboration," the reader would know that we were looking for improved student attitudes or teacher behaviors. Instead, by asking, "What are the impacts of teacher use of Cognitive Coaching[SM] on student attitudes," or "What are the impacts of groups using the Seven Norms of Collaboration," we are suggesting that student attitudes or group behaviors could change either way—toward the positive or toward the negative. Another possibility could

be that student attitudes or group behaviors might not change. We cannot be sure in advance what we will find. In the process of conducting research, we can be prepared to be surprised!

We generally want to ask open-ended questions when we are gathering qualitative data (such as data from interviews, focus groups, open-ended responses on a survey, etc.), and we want to ask closed-ended questions when we are gathering quantitative data (student test scores, answers on a survey, etc.). Still, we can use what we know about asking invitational questions to presuppose that we will find many answers in the data. Possible research questions could be:

- In what ways does teacher use of Cognitive Coaching[SM] impact their attitudes toward their students?

- In what ways does group members' use of the Seve Norms of Collaboration impact meetings?

- In what ways do teachers use Cognitive Coaching[SM] maps and tools in parent-teacher conferences?

- In what ways does group members' use of meeting standards impact meetings?

- What are parent impressions of parent-teacher conferences when teachers use Cognitive Coaching[SM] maps and tools in talking with them?

- In what ways are teachers using Cognitive Coaching[SM] with their students?

- In what ways are teachers using norms of collaboration with their students?

- What are the effects of teachers using Cognitive Coaching[SM] on the attitudes of students in their classrooms?

- And many more possibilities . . . add your own ☺ !

Selecting the Setting

The next step in conducting a study is to select the setting. What will be the setting for your study? Will you conduct research in an entire school district? Will you conduct research in one school or perhaps in several schools? Will you conduct research in one family? Will you conduct research in one or more classrooms?

Determining the Participants

Depending on your research question(s), you will be determining the participants who can give you the data to answer your question(s). Who might some of the possible participants be? You could invite teachers, parents, students, principals, administrators, community members, and others to participate in the study. Choose the participants who can best provide you with the data to answer your questions. If you ask an open-ended question such as, "In what ways do family relationships change as a result of teachers who are trained in Cognitive Coaching^{SM} using their skills with members of their families," you will need to gather data from the teachers and members of their families in order to answer the question.

Choosing the Procedures

The research questions that you would like to answer determine the type of data that you will be collecting. You have many choices of procedures for conducting the study. If your research question were, "In what ways do family relationships change as a result of teachers who are trained in Cognitive Coaching^{SM} and/or Adaptive Schools using their skills with members of their families," what types of data might you gather to answer the question?

- You could interview the teachers, as well as members of their families.

- You could conduct a case study of one family and describe how their relationships changed.

- You could conduct focus groups of teachers and ask them to talk as a group about the impact of using Cognitive Coaching[SM] and/or Adaptive Schools with members of their families.

- You could conduct focus groups of family members of teachers and ask them to talk as a group about how the family member who is trained in Cognitive Coaching[SM] and/or Adaptive Schools has impacted them, or how relationships have changed in their families as a result of someone being trained in these areas.

- You could devise a survey that teachers (and/or members of their families) could fill out in which they could give short answers to questions. You could also include questions that they could answer using a 1 to 5 Likert scale, such as 1 = Never or Not at All, 5 = Always or To a Large Extent, etc.

Whatever types of data you decide to gather, you will need to ask the participants in your study how their relationships have changed as a result of having one family member become involved in Cognitive Coaching[SM] and/or Adaptive Schools, if that is your research question. You can use more than one method for gathering data; in fact, it is generally better to use more than one method so that you can triangulate the data and be able to say that the participants were saying the same things in the interviews, as well as in their responses to the survey questions.

You will also need to gather data about how frequently the person who received training in Cognitive Coaching[SM] and/or Adaptive Schools uses his/her skills in the family. It would also be helpful to know which skills the person used, how many trainings in Cognitive Coaching[SM] and/or Adaptive Schools the person has attended, when the person took training in Cognitive Coaching[SM] and/or Adaptive Schools, how frequently he/she uses Cognitive Coaching[SM] and/or Adaptive Schools skills at school, in what ways and how frequently the person uses Cognitive Coaching[SM] and/or Adaptive Schools skills with family members, etc. This is called "controlling for" the use of Cognitive Coaching[SM] and/or Adaptive Schools. You could prepare a questionnaire that the participants could fill out quickly in order to gather those types of data. It would also be helpful to know the age of the participants, gender, grades or subjects that they teach, number of years they have been teaching, and other variables that might impact the results. By having these types of data, you will be able to describe the participants in the study when you write up your findings. A sample demographic form is included in Appendix A.

Advantages and disadvantages of collecting various types of data. Each type of data that you can collect has both advantages and disadvantages. If you were to conduct interviews, you would only be able to obtain data from a small group of people. Since you would be spending anywhere from a half hour to an hour or perhaps longer with each participant, not to mention the time it would take for you to set up the interview and transcribe the audio recordings, you would not want to conduct, say, 50 interviews (unless you had a lot of time on your hands and/or were able to pay others to conduct interviews and transcribe the recordings).

If you did a case study of one family, conducting in-depth interviews with each family member, you would be able to learn a great deal about that particular family; however, you might not be able to generalize the data to all families of all teachers who are implementing Cognitive Coaching[SM] and/or Adaptive Schools. If you conducted four or five focus groups of five to seven people per focus group, you could obtain data from a larger group of people than if you conducted interviews or did a case study. People might not be willing to share things in a group that they might share in a one-on-one interview, though, so you might miss some of the more detailed information. If you wrote a survey, you would be able to obtain data from more people; however, the data might not be as rich and in-depth. If you obtained many surveys from a random sample of participants, you might be able to generalize the findings to a larger population.

Ultimately, you get to choose the people who could provide answers to your research question(s), and you get to decide what type of data you would like to collect from them. Would you like to get in-depth answers from a small group of people, or would it be more beneficial to obtain less in-depth data from a larger number of people?

Designing the Study

You have a number of options for designing the study. You might want to compare people who have received training in Cognitive Coaching[SM] and/or Adaptive Schools with people who have not received the training. The people who have been trained in Cognitive Coaching[SM] and/or Adaptive Schools will be the treatment group, and the others who have not received the training will be called the comparison group. You will then be able to compare the data that you gather from the two groups.

You might also want to do a pretest-posttest design in which you administer an instrument or interview people before they have taken training in Cognitive Coaching^{SM} and/or Adaptive Schools and again after they have taken the training. If you just have a treatment group, you will be able to compare their pretest scores with their posttest scores. If you have both treatment and comparison groups, you will be able to compare the growth in the treatment group with the growth in the comparison group to see if one of the groups grows more than the other group.

Creswell (2014) has provided general information about designing a research study. Another one of his books that might be helpful contains information about the various qualitative research traditions (Creswell & Poth, 2017). Tashakkori and Teddlie's (2010) book contains information about theory and practice in conducting mixed methods research.

Using Qualitative Methods

Qualitative data include data from interviews, focus groups, open-ended questions, diaries, journals, observations, records, written materials, etc. Basically, qualitative data consist of words. This section includes some of the methods that are available for gathering qualitative data, including conducting focus groups, conducting interviews, and developing open-ended surveys. Books by Richards and Morse (2013), Richards (2014), and Denzin and Lincoln (2017) contain everything you could want to know about conducting qualitative research.

Conducting 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 get the group synergy. If you have too many participants (i.e., ten), people 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 in order to have enough time for people 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.

Be sure that you are able to have 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 something happens and the 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.

Some resources for conducting focus groups are by Krueger and Casey (2015) and Bader and Rossi (2002). These books will provide you with the information that you need to conduct successful focus groups.

Conducting interviews. You can conduct interviews with 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 45 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 (such as a life history), you would need more time. Write open-ended questions to ask participants. As with the focus groups, determine how much time you want 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.

It is also helpful to have a demographic sheet for participants to fill out so that you will be able to describe the participants in your study (See Appendix A). You might ask things such as year born, number of years of teaching, number of years teaching that particular grade level or subject, certifications, etc.

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 record the interviews so that you will be able to transcribe the tapes later on. It is also helpful to take notes in case the recorder accidentally switches off. 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 recorder turned up high. You need to have a clear recording. A woman who transcribed my tapes said that 60-minute tapes are better than 90-minute tapes, as they pull less. You would not want to conduct interviews in a restaurant, a stadium, etc. Choose a quiet place

where you can talk normally without interference. Be sure and check the recorder periodically to make sure that it is running.

You could either transcribe the recordings yourself, or you could hire a professional typist to transcribe them. 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 recording. It may be helpful to give them one recording to transcribe before deciding to hire them. Be sure and plan your budget accordingly.

If you type quickly, you may prefer to transcribe the recordings yourself. By doing so, you can become even more familiar with what the participants were saying. You can purchase a transcribing tape recorder from a business supply store for approximately $200. Better yet, you could borrow one from the business school in the school district in which you are working if they have any left. 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, Holstein, Marvasti, and McKinney (2012) have compiled an edited volume that includes chapters on strategies for conducting interviews. You will be using rapport skills, paraphrasing skills, questioning skills, and other Cognitive Coaching[SM] skills as you conduct the interviews.

Developing open-ended surveys. If you would like to obtain 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 surveys to distribute to a larger group of people. You would ask participants to write short (or longer) answers to the questions that you pose on a piece of paper. 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 in order to obtain the information that you want.

Using Quantitative Methods

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. The goal of gathering quantitative data is generally to be able to generalize the findings to a larger population. This section includes methods for gathering data through developing surveys and finding surveys. Information is also included on accessing student test scores and creating demographic sheets.

Developing surveys. You may choose to develop a survey to discover what people think about various things, to determine their attitudes, etc. You can adapt surveys to particular audiences. You could include questions that they could answer with "yes" and "no." ou could also include a Likert-style survey in which participants could answer questions on a scale of 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.

Survey Basics (Phillips, Phillips, & Aaron, 2013) includes information about developing and conducting surveys. The book by Salkind (2017) is also helpful. If you are conducting online surveys, you may want to use Survey Monkey. People are able to fill out surveys online, and you receive the results. It is available at http://www.surveymonkey.com. Qualtrics is also available for online surveys (http://www.qualtrics.com).

Finding surveys. Rather than developing your own survey, you may prefer to find a survey that has already been developed that has reliability and validity data. You could find surveys to measure constructs such as trust, efficacy, collective school culture, enthusiasm for teaching, job satisfaction, attitudes, and many other areas. In order to locate instruments, you can either search on the Internet through Google Scholar (http://www.scholar.google.com), or you can search on ERIC (http://www.eric.ed.gov). If you were searching for instruments on efficacy, you could search for *efficacy* or *efficacy instrument or scale or survey,* or *efficacy research*. 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.

You can also find dissertations that contain instruments. The ProQuest website is http://wwwlib.umi.com/dissertations. You can download and print the abstract and the first 24 pages of many recently published dissertations in order to determine if the dissertation includes the instrument that you want to access. You can also order the dissertation at that website. By searching this way, you will be able to locate the most frequently used instruments. 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 used it.

You can also check on the Buros website (http://www.unl.edu/buros/) 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 the school district uses to measure student progress from the Assessment Department in your school district.

If you would like to obtain information about interpreting the various studies that you find, books by Martella, Nelson, Morgan, and Marchand-Martella (2013), Locke, Silverman, and Spirduso (2010), as well as Hittleman and Simon (2006) 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.

Developing checklists. You could develop a checklist so that people could check off areas that were present and leave blank areas that were 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. You would have a list of items with a line to the left of each item. Participants could check if the item was present and leave the line blank if the item was not present.

Creating demographic sheets. It will be helpful for you to create demographic sheets to find out about the people who are participating in your study. It is helpful to brainstorm all possible variables that might influence responses on other instruments. For example, class size and number of students who have behavior problems 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 correlate with growth. For example, women many 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 if participants are filling out hard copy, and make it easy for the participants to fill them out quickly. A copy of a demographic sheet is in Appendix A.

Accessing student test scores. If you have access to student test scores in a school district, you could invite the school district personnel to analyze them to determine increases in student achievement. You could also invite teachers to provide you with student test scores or daily scores in order to determine if students grew in their test scores over a period of time. Be sure and have an identifying number or letter on student work so that you can match pre and post scores for Student A, Student B, etc.

Applying to Institutional Review Boards

After you have decided on the research questions, the setting, the participants, and the procedures, you will need to obtain permission to conduct the study. School systems frequently have Institutional Review Boards (IRBs) to make sure that all studies

that researchers conduct in the district are done correctly and are ethical. They want to make sure that researchers know what they are doing, will make valuable use of the data, treat the participants in their studies with respect, and honor the time that participants spend. They also want to know that the participants in a study will be safe and free from harm.

Be sure and inquire about the IRB in the district in which you are considering conducting research. If you are associated with a university, you will also need to go through their IRB to get permission to conduct the study. You will need to fill out the forms, answering the questions that they require. You will also need to prepare Informed Consent Forms for the participants to read and sign that include standard topics such as why they were chosen, the purpose of the study, what you will be asking them to do, how long it will take, when they need to be available, what you will do with the data, the fact that they are free to participate or not, if they might experience any harm, how they will benefit from participating in the study, what will happen if they should withdraw from the study, how they can withdraw, an offer to answer any questions, your contact information, and a place for their printed name, their written name, and the date they are signing the form. Various institutions might require you to include other items in the Informed Consent Form.

You will also need to write a Letter of Invitation to send to potential participants in your study. Typically, this letter should include most of the items above. It is considered ethical to recruit people by letter. Potential participants need to have the option to either participate in your study or not. If you were to walk up and ask someone to participate, face-to-face, it could be considered coercive. Thus, the person would not have the

option to decline. Also, if you are in a position of authority over people whom you are inviting to participate in the study, it would be better to have someone else invite them to be in the study. You will also need to emphasize in the letter that they are completely free to either participate or not participate.

Be sure and apply to the Institutional Review Board as soon as you have formulated your study, as it can take a month or more to obtain permission. Typically, all of the members of an Institutional Review Board will need to read your application. Some IRBs only accept applications at certain times of the month. Please check with personnel in the school district to see how research is handled. If the district does not have an IRB, you should write a letter to the principal and superintendent containing the information above and ask permission to conduct the study. After you have the permission of the principal and the superintendent, you will need to distribute the Letters of Invitation and the Informed Consent Forms to the people whom you are inviting to participate in your study. A book by Israel and Hay (2006) contains additional information about the importance of protecting people who participate in studies.

Writing Grants

You may wish to write a grant in order to obtain money to conduct your study. Numerous grants can be located on the Internet. Some school districts have grants departments with a staff of people who focus on obtaining grants for the district. People who have money to give have specific reasons that they want to give it. They want to gain something in return for the money they give. Thus, it is essential to use their wording in your proposal and help them make the link between what you want to do and what they want to fund. If they want to give money for raising student achievement, then

cite research to indicate that what you are planning on doing has a high likelihood of raising student achievement. Books by O'Neal-McElrath (2013) and Clarke (2009) contain valuable information about writing grant proposals.

Analyzing the Data

You have decided what you wanted to find out about Cognitive Coaching[SM] or Adaptive Schools, formulated your research questions, selected the setting, determined who the participants would be, chosen the procedures, applied to the Institutional Review Board or requested permission from the principal and superintendent, obtained a grant to conduct the research, and gathered the data. You are sitting in your home or office with piles of interview transcripts, student test scores, surveys, etc., around you. What do you do with the data? How will you go about analyzing it? This section includes information about making sense of the data that you collect.

Analyzing qualitative data. How are you going to make sense of the qualitative data that you have collected? You have two options for analyzing it. You can either do it "by hand," or you can use qualitative data analysis (QDA) software. Three software options would be ATLAS.ti, NVivo, and MAXQDA2. 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, the NVivo website is https://www.qsrinternational.com, and the MAXQDA2 website is http://www.maxqda.com. They have online tutorials and free webinars to get you started using the programs. You can also attend courses on analyzing qualitative data, 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. A book by Friese (2014) contains information to help users of ATLAS.ti to become acquainted with the program. You can obtain more information about ATLAS.ti from Woolf and Silver (2017a), about NVivo from Woolf and Silver (2017b), and about MAXQDA from Woolf and Silver (2017c).

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 would 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.

A number of resources are available to assist you in analyzing qualitative data. Leech and Onwuegbuzie (2007) discuss seven methods for analyzing qualitative data, including constant comparison analysis, keywords-in-context, word count, classical content analysis, domain analysis, taxonomic analysis, and componential analysis. Saldaña (2013) explains numerous methods for analyzing qualitative data, and Miles, Huberman, and Saldaña (2014) talk about analyzing qualitative data and displaying the findings.

Analyzing quantitative data. How are you going to make sense of the quantitative data that you have collected? Most people in the field of education use the Statistical Package for the Social Sciences (SPSS). As of January 2016, they are on

Version 23.0. The company creates 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. SPSS has training materials on their website, as well as tutorials in the program itself.

Generally, unless you have extensive training in statistics, it would be best to have the statisticians in the school district enter the data and crunch the numbers. You could enter the data and have someone else analyze it as another option. You could also access doctoral students at a local university. You could invite teachers to analyze students' daily scores, or you could use the district-wide test scores. You could also examine attendance rates, number of times students are sent to the office, and other quantitative data. Appendix B contains information about setting up a Codebook for your data. Appendix C contains information about entering variables and cases into SPSS, Appendix D contains information about running descriptive and summary statistics in SPSS, and Appendix E contains information about special features of SPSS.

Pallant's (2016) book includes everything you will need to know about designing a study, setting up a codebook, entering data, and analyzing the data. Salkind's (2016) book includes understandable information about statistics. Newton's and Rudestam's (2013) 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 (2009) 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 (2009) includes information about formatting papers.

Conclusion

So . . . that's it! That's how you conduct an action research study. First, you decide what you want to find out. You formulate one or more research questions. Then, you determine in what setting you wish to conduct the study, and who might be able to provide you with the data that you need in order to answer the research questions that you are proposing.

Next, you determine the type of data that will help you answer the research questions. Would it be beneficial to interview a sample of people, to conduct focus groups so that people can bounce ideas off of one another, to have people fill out surveys or checklists, or to access data that is already in the school system, such as test scores? You may choose several methods for gathering data. After you know how you would like to conduct your study, you can apply to the organization's Institutional Review Board to obtain permission to conduct the study. If you would like to have

money for having the data transcribed, purchasing the various software programs, and other expenses, you can apply for a grant.

After you have gathered the data, you analyze the data and reflect on the findings. If action is indicated in order to change the situation, you determine the action that is needed and take it. Then, you can conduct another round of action research, posing new research questions, determining the setting, deciding on the participants, planning the procedures, applying to the Institutional Review Board, writing a grant, gathering the data, and analyzing the data to help you determine the results of your action . . . and so, the cycle continues.

<div align="center">References</div>

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Appendices

Appendix A: Sample Questionnaire

On this sample questionnaire, please note the large amount of white space, the request for specific data (year born, rather than age range from 20-29), the combination of qualitative and quantitative data, and the ease with which a participant could fill it out.

Please fill in the blanks or circle the appropriate response.

Last six digits of your Social Security number ____ ____ ____ ____ ____ ____

1.   School name(s) _____

2.   Gender

        a.   Male

        b.   Female

4.   Year in which you were born _____

5.   Present Position _____ Grade Level(s) _____

        Subject(s) that you teach in your present position _____

6.   Number of years of teaching experience _____

7.   Number of years in present position _____

8.   Number of behavior problem students with whom you work _____

9.   How satisfied are you with your position? (please circle)

1	2	3	4	5
very dissatisfied	dissatisfied	neutral	satisfied	very satisfied

Comments:

10.   How satisfied are you with education as a career? (please circle)

1	2	3	4	5
very dissatisfied	dissatisfied	neutral	satisfied	very satisfied

Comments:

11.   What is your attitude toward Standards-Based Education?

1	2	3	4	5
very negative	negative	neutral	positive	very positive

Comments:

12. Highest degree attained:

    1. High School Diploma

    2. Bachelor's degree

    3. Bachelor's + 40 semester hours

    4. Master's degree

    5. Bachelor's + 60 semester hours, including Master's

    6. Bachelor's + 75 semester hours, including Master's

    7. Bachelor's + 90 semester hours, including Master's

    8. Ed.D.

    9. Ph.D.

13. Most recent degree earned:

    Name of Institution _____

    Degree _____

    Major _____

    Year Awarded _____

14. Number of undergraduate or graduate level hours earned in the last year:

    _____ quarter hours

    _____ semester hours

15. Number of In-Service credits earned in the last year: _____

Appendix B: Creating a Codebook

Before entering data into the Statistical Package for the Social Sciences (SPSS), it will be helpful to create a codebook. The information below will assist you.

- Decide how many cases you will have in the study. The more cases you have, the more statistical power you will have. With a small number of cases, it takes a large difference for the findings to be statistically significant. With many cases, a smaller change can bring statistical significance.

- Decide what the variables will be. If you are using an instrument, each question and each sub-question on the instrument will be a variable. Also, decide what variables might affect scores on the instrument so that if you do not find large changes on the instrument, you will have a lot of other variables to analyze. (The group as a whole didn't change; however, females grew more than males, or those with more than 10 years of teaching experience grew more than those with less than 10 years.)

- Decide on the values for each variable. Some instruments use Likert scales (1-5). In that case, the variables are already defined. A score of 5 should indicate a lot of whatever you are measuring, and a score of 1 should indicate very little.

- Qualitative data can be coded into categories. Each category is then assigned a number so that statistics you can run the statistics.

- Make sure that the categories are mutually exclusive so that a person can only give one answer to a question. An example of what not to ask would be, "Status: 1-Married, 2-Not married, 3-Have children. It would be better to ask two separate questions. Status: 1-Married, 2-Not married. The next question would be, Number of children: Zero, One, Two, Three, Four, Five, Six, Seven, Eight, etc.

- Decide on a code for missing codes. Typically, the codes for missing codes are 9, 99, 999, 9999, 99999, etc. If a participant leaves an answer blank, the researcher must fill in one of these codes. Responses of "Don't know" or "Uncertain" are generally coded as "8," "88," or "888."

- Set up a codebook in the form of a grid for the variables. A codebook will include the following columns:
   - **Variable Name**–the name of the variable that you will key into SPSS. It can contain up to 8 letters. It can also be alphanumeric (V01, V02, etc.).
   - **Width**–tells the number of columns that the variable will occupy. For example, 1=Male, 2=Female will only occupy one column. The missing value will be 9. If you have 20 schools in your study, the name of the school will occupy 2 columns, and the missing value will be 99.
   - **Label**–a brief description of the variable so that you can identify it.
   - **Values / MIssing**–the response categories and their codes, for example, 1=Adams School, 2=Cowan School, 3=Fort Henry School, 4=Harrison School, etc.

Appendix C: Entering Variables and Cases Into SPSS

You can follow the directions below to enter variables and cases into the Statistical Package for the Social Sciences (SPSS) and set up your file.

- Cases (in rows) are the people who are participating in your study. If your study is about people, each case would be a different person. If you are studying a number of schools, each case could be a school.

- Variables (in columns) are the bits of information that you collect on each case. Year of birth, number of years of teaching experience, score on an instrument, and score on a particular item of an instrument are variables.

- The square where the case intersects with a variable is called a cell. Type numbers in the cells and press "Enter."

- Numeric variables contain numbers. String variables contain letters.

- To enter variables, double click at the top of a column. You will go Variable View. Type the variable name. Then, click on "Type." Select either "String" for a variable containing letters or "Numeric" for a variable containing numerals. Define the width and number of decimal places the variable will contain.

- Then, click on "Label." Key in the Label listed in your codebook. Then, key in the Value and Label listed in the codebook.

- Click on "Missing Values," and key in the missing values that you have identified in the codebook for the variable.

- Click on "Column Format." Make sure that the column width is "8" so that you can read the variable name in the Data Editor.

- After the variables have been defined, you can begin entering cases. Key in the values, pressing the right arrow key after the value for each variable has been entered.

Appendix D: Running Descriptive and Summary Statistics

Information on this page can be used for running descriptive and summary statistics in the Statistical Package for the Social Sciences (SPSS).

- A frequency table will tell how frequently the participants gave each of the responses. By running frequencies, you will be able to tell if the data have been entered correctly.

- To run frequencies, click on Analyze . . . Descriptive Statistics . . . Frequencies. Double click on Statistics to define the specific statistics you want to run. If you wish to have graphic displays of the data, click on "Charts." "Format" will define the format.

- Scales

  - A nominal scale is used to indicate categories, such as 1=Male and 2=Female.

  - In an ordinal scale, 1 is less than 5, but one doesn't know exactly how much.

  - In a ratio scale, one can tell how much larger or smaller one number is than another. For example, in reporting income, $50,000 is $10,000 less than $60,000.

  - In an interval scale, there is no absolute zero. One cannot know that a temperature of 100 degrees is twice as hot as a temperature of 50 degrees.

- To run descriptive statistics, click on Analyze . . . Descriptive Statistics . . . Descriptives. Double click on the box for Options, and click on the boxes for the statistics you wish to run.

Appendix E: Special Features of SPSS

The following items are some of the special features of the Statistical Package for the Social Sciences (SPSS) that you might wish to use.

- If you wish to change options, such as having the variables listed in alphabetical order instead of the order in which you entered the variables, go to Edit . . . Options. The changes you make will occur the next time you open SPSS.

- If you would like to find a particular variable and double check the value labels, go to Utilities . . . Variables. Another way would be to double click on the variable name at the top of the screen and examine the labels within that. Utilities . . . File Info displays that information in the Output Editor for printing.

- SPSS has an extensive Help section. You can:
  - Choose a topic
  - Ask a question
  - Be connected to the SPSS home page
  - Run the tutorial
  - Use the Statistics Coach
  - Obtain help with statistics

- To add a variable, double click at the top where you want to add the variable, and go to Data . . . Add Variable.

- To add a new case, double click on the left side where you want to add the case, and go to Data . . . Add Case.

- If you want to sort the cases, go to Data . . . Sort Cases. Then, key in the variable by which you wish to sort the cases.

Appendix F: Conducting Action Research on the Effects of Cognitive Coaching[SM]

Research Question(s)

↓

Setting(s)

↓

Participant(s)

↓

Procedures

Qualitative Methods ← → Quantitative Methods

Focus Groups

Interviews

Demographic Survey

Self-Developed Surveys

Ready-Made Survey

Open-Ended Surveys

Checklist

Student Test Scores

↓

Institutional Review Board

↓

Writing Grants

Analyzing Qualitative Data

Analyzing Quantitative Data With SPSS

With ATLAS.ti or MAXQDA2

By Hand

Sharing the Findings

↓

Beginning Another Cycle