Descriptive Research

Critics of descriptive research typically point out that the quality of descriptive research is often vulnerable to poor planning, poor implementation of research methods, and poor development of research instruments (Gay, et al., 2006). Misperceptions regarding descriptive research abound with individuals who do not clearly understand what descriptive research is, the purpose of descriptive research, and how various approaches can be effectively utilized to provide information (Lodico et al., 2006). However, descriptive research is significant as surveys abound in educational research and are utilized by many researchers as an investigative tool to collect data in order to address educational questions (Gay, et al., 2006). Consider the following example:

> Ms. Espinoza, a principal at Kennedy Middle School, would like to implement a school-wide program in an effort to improve the climate of the school. In order to select a program that can appropriately meet the needs of Kennedy Middle School, she decides to collect data regarding the students' perceptions of the school climate as it currently exists. Thus, Ms. Espinoza administers a questionnaire to students on which they are required to rate their perceptions of various aspects of the school climate.

What potential problems should Ms. Espinoza be aware of that are unique to descriptive research?

- First, Ms. Espinoza should be aware that descriptive research often suffers from low levels of participant response. Can Ms. Espinoza really consider her study valid if only 15 students of the 350 students who attend Kennedy Middle School return surveys? Often, researchers must consider that participants' motivation to respond to questionnaires may vary depending on their views. For instance, while the students who believe that Kennedy Middle School's climate is unsupportive may be more likely to complete surveys to ensure that their opinions are recorded, other students, who are more satisfied with the school's current climate, may be less motivated to complete the questionnaire.

- Second, Ms. Espinoza should recognize that questionnaire items must be carefully constructed to provide results that can serve as accurate representations of the school climate.

- Finally, if at any point during the study Ms. Espinoza decides to conduct several observations to affirm the study's findings, Ms. Espinoza should be aware that additional difficulties exist that are associated with observations as observations often require researchers to complete complex tasks, such as systematically code information (Gay, et al., 2006).

Descriptive research is typically identifiable as having the following characteristics:

- First, researchers conducting descriptive research typically use a pre-established instrument to collect data.

- Also, while survey responses can vary from *quantitative* (quantitative research is research in which numerical data is collected) to *qualitative* (qualitative research is research in which narrative or visual data is collected to describe social settings (Slavin, 2007)) in nature, they are typically quantitative and are summarized in accordance to quantitative analyses.

- Finally, in order to complete descriptive research, researchers use a sample representative of a larger population to collect data in an attempt to generalize findings to a population (Lodico, 2006).

Steps for Doing Descriptive Research

How does an educator go about completing descriptive research? Mr. Walker, a fourth grade teacher at Simpson Elementary School, would like to know about the conditions in which his students complete their homework so that he can adjust their homework load accordingly and provide classroom instruction regarding effective homework strategies to increase students' success in completing quality homework. In order to complete descriptive research, Mr. Walker should follow eight steps.

Step One: Define a Problem to Research

- With all of the numerous possible topics that educators can potentially research, how does an individual go about selecting one particular problem to research? In order to research a topic, a problem must be sufficient to both justify that research is necessary and to incite individuals to respond to some form of data collection, such as a questionnaire, interview, etc.

- Also, individuals should have a set of specific objectives when defining a particular problem to research so that they can begin to consider what data must be collected. For instance, in the example, Mr. Walker has identified that he would like to know the conditions in which his students complete their homework in an effort to adjust their homework load and provide classroom instruction of effective homework strategies. In order to answer this particular question, Mr. Walker realizes that he will need to collect data regarding students' activities while completing homework.

- Finally, in order to complete step one, researchers should break topics into subareas to further focus the study and assist in the decision-making required in the following steps (Gay et al., 2006). For instance, Mr. Walker may decide to ask students questions regarding the amount of time they spend completing homework, their interest in homework, the amount of homework assistance they get from parents, and the physical environment in which they complete homework.

Step Two: Write a Research Question and Sub-questions

- To further focus the study, researchers must write a research question and sub-questions. What would be Mr. Walker's research question? First, as with all research questions, Mr.

Walker must specify who is being studied in his research. This group of individuals being studied is called the *sample*.

- Research questions should also include verbs that explore individuals' attitudes, perceptions, feelings, and/or beliefs.

- Finally, all research questions should clarify the topic or issue being studied. Following these perimeters, Mr. Walker's research question should be something similar to the following: What factors effect the homework completion of Mr. Walker's fifth grade students?

Although descriptive research is not considered a type of qualitative research, like qualitative research, descriptive research requires a set of additional questions called *sub-questions* that are used to support the research question that researchers have identified. Sub-questions allow researchers to design surveys with more than a couple of questions. It is important to note that, although subquestions are more specific in comparison to the broader research question, subquestions must align with the research question. Thus, subquestions are utilized as categories for a survey or other instrument of data collection. Researchers generally arrive at sub-questions while reading about the topic (Lodico et al., 2006). For instance, some sub-questions that Mr. Walker may want to consider when developing an instrument to collect information regarding his students might include:

- Do the students get homework assistance from parents, siblings, etc.?
- What is the environment like in which students' complete homework?
- What are students' perceptions of homework?
- What other activities are students involved in that may limit the amount of time they can dedicate to completing homework?

Step Three: Design and Develop a Survey/Questionnaire

Individuals often erroneously believe that survey development is a simple process. Rather, a significant amount of planning and knowledge are required to develop a sound instrument (Lodico et al., 2006). Researchers must carefully construct an attractive and concise survey with items that are directly-related to the topic to ensure that participants do not waste valuable time responding to unnecessary questions. Researchers should adhere to several guidelines when creating a survey or questionnaire (Gay et al., 2006).

- *Use Structured Items as Often as Possible*

  Survey items can be either structured or unstructured items. *Structured items*, often referred to as close-ended items, require respondents to choose from items presented among options. Structured items include scaled items, ranked items, and checklist items, all of which are discussed in greater depth in the following guideline for creating a survey. *Unstructured items* provide respondents the opportunity to respond to a question without constraints (e.g. "Write in the provided space instructional strategies that you would like to learn more about."). Although unstructured items often allow respondents

to provide a response of greater depth and detail and are often simpler to create, structured items are the preferred item type for several reasons. First, unstructured items are time-consuming for researchers to score. Additionally, many respondents often do not respond to unstructured questions as they require additional time to formulate responses. Generally, it is recommended that surveys include one or two unstructured questions while the majority of questions are created as structured items (Gay et al., 2006).

- *Consider Different Types of Items*

Several self-report types of measures exist from which researchers can select. *Scaled items* include Likert and semantic differential items that allow respondents to select a numeric or nominal response. The following is an example of a Likert-type item that a science teacher might ask during a unit to determine whether students are being appropriately challenged by a particular group of experiments:

The electricity experiment our group recently completed was challenging.

Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	2	3	4	5

Semantic differential items require respondents to reply to a survey item by selecting bipolar adjective responses. For instance, rather than allowing students to select from a range of responses regarding the difficulty of an experiment, a science teacher might require that students respond in the follow way:

Rate whether you consider the electricity experiment easy or difficult.

	Very Much	**Somewhat**	**Neither**	**Somewhat**	**Very Much**	
Easy	1	2	3	4	5	**Difficult**

Survey questions also can be constructed as *ranked items* that require respondents to rank provided responses according to a particular criteria. For instance, a science teacher may be interested in gathering data regarding the specific concepts within a particular electricity experiment that students considered the most difficult to understand. For instance, the following is an example of a ranked item:

Rank the following concepts of the electricity experiment according to the level of difficulty of concepts with 5 being the most difficult concept to understand and 1 being the easiest concept to understand.

_____ The purpose of a circuit breaker
_____ Differences between conductors and inductors
_____ Principles of current flow
_____ Methods of increasing current flow resistance

_____ Applying Ohm's Law

Survey questions can also be created as *checklist items* that require respondents to check specific responses according to a particular criterion. For instance, rather than requiring students to rank concepts presented during a science experiment regarding electricity, a science teacher might ask students to check concepts that they are interested in learning more about (Gay et al., 2006).

- *Gather Demographic Data to Make Comparisons*

Questions concerning demographic information (e.g. gender, age, school where a teacher currently teaches) should be considered a major section of a survey as it can be utilized to compare subgroups. For instance, if a researcher were to have teachers from two schools complete surveys but had not thought to include a demographic section, the researcher would be unable to determine whether differences exist between the responses of teachers in School A and School B. While educational researchers are typically interested in the following demographic information when studying teachers: the grade levels teachers are responsible for teaching, the length of time each teacher has been teaching, and teachers' areas of expertise. Specific demographic information researchers decide to gather is dependent on the question(s) researchers are attempting to support.

In order to consider possible demographic questions to ask respondents, researchers should take note of demographic questions asked to respondents while reviewing previous research conducted of a specific topic, as well as demographic questions previous researchers have neglected that could be of consequence to further understanding a topic. While designing a survey, researchers should have specific reasons for deciding to ask particular demographic questions to respondents as too many demographic questions may serve to frustrate respondents and create concern from respondents regarding how researchers may utilize such information. This can especially be the case when researchers request ethnicity and race information from respondents. Finally, while the majority of demographic sections of surveys are included at the beginning of surveys, in some cases placing demographic questions at the end of a survey may be justified. This decision should, ultimately be made by considering the importance of demographic questions to the study. If respondents' completion of demographic questions is imperative to the study, then demographic questions should appear at the beginning of the study (Lodico et al., 2006).

- *Focus Questions on a Single Concept*

Items should be carefully constructed as to ask one question of participants at a time. Although combining several questions into a single item, called *double-barreled questions,* may seem an effective time-saver for respondents, the result will be both confusing for respondents to answer and impossible for researchers to interpret (Gay et al., 2006; Johnson & Christensen, 2004; Lodico et al., 2006). For instance, consider if a teacher were to survey parents to analyze their experiences during parent-teacher

conferences and the teacher asked that parents rate a specific part of the conferences with the following question:

Was the teacher's explanation, during parent-teacher conferences, of your child's Iowa Assessments and Skills Iowa scores clear?

Not at All Clear	Moderately Clear	Neutral	Clear	Extremely Clear
1	2	3	4	5

Although this example may seem to ask a single question of respondents, consider the situation in which a parent believes that a teacher clearly explained their child's Iowa Assessments score but provided an unclear and confusing explanation of the same student's Skills Iowa score. This single survey item actually requires respondents to reply to two separate questions and, thus should be formatted as two individual questions: "Was the teacher's explanation during parent-teacher conferences of your child's Iowa Assessment scores clear?" and "Was the teacher's explanation during parent-teacher conferences of your child's Skills Iowa scores clear?

- *Avoid or Provide Clarification of Ambiguous Terms*

Clarification should be provided of any term that may be interpreted differently by different individuals. This requires that researchers either define or restate terms to avoid ambiguous terms. While this guideline can apply to specific educational terms that all respondents may not be familiar with (such as constructivist, differentiated, mainstreaming, etc.) (Lodico et al., 2006), this guideline applies to general words that can be interpreted subjectively by respondents including the terms "several" and "often." Consider for example if a teacher were to ask parents the following survey item: "Do you read to your children often?" While some parents might interpret "often" as meaning once a day, other parents might interpret "often" to mean once a month (Gay et al., 2006).

- *Provide Reference Points as Necessary*

Since respondents cannot provide accurate responses to questions that researchers have not clarified past ambiguity, researchers must not only provide clarification to any ambiguous terms, they must also provide references points in order to design items that are as specific as possible. For instance, if a principal was interested in surveying teachers to determine the amount of time teachers dedicate to different tasks throughout the day, rather than asking teachers, "Do you spend a lot of time writing lesson plans?" a principal should ask, "Do you spend a lot of time writing lesson plans in comparison to other teachers at your elementary school?" Such reference points ensure that all respondents are using the same point of reference (Gay et al., 2006).

- *Avoid Questions in Which Respondents May Not Reply with Honesty*

  Researchers should attempt to avoid questions that demand all respondents reply in a particular way regardless of whether the respondents' replies are honest. For instance, a researcher can be fairly certain that all educators are going to respond affirmatively to a question such as "Do you have high expectations for your students?"

- *Don't Ask Questions that Make Assumptions*

  Assumptions are often extremely subtle when included in survey questions. For instance, consider why the following question might be problematic, "How many hours does your class spend in your school's computer lab?" While the question seems straight forward, researchers in this example must consider that not every school may have a computer lab. While teachers in schools without computer labs may respond to the question by stating that they do not spend anytime in their school's computer lab, such a response may cause a researcher to interpret the study's findings incorrectly. The researchers might incorrectly believe that their study supports that teachers are not making use of computer labs in their schools since half of the study participants responded that their classes do not spend any time in their school's computer lab when, in fact, the teachers might often take their students to the computer lab if their school had a computer lab (Gay et al., 2006)! So first ask if a school has a computer lab. Then, for respondents who answer yes, ask the question written above. For respondents who answer no, allow them to skip the question and direct them to the next question.

- *Avoid Leading Questions*

  Researchers can lead respondents to reply to survey items in multiple ways. For instance, questions can be designed as to be obviously interpreted by respondents that they should respond in a particular way. The following question is an example of a leading question: "Do you agree with most teachers who believe that good reading programs require that students receive four hours of reading instruction daily?"

- *Progress from General to Specific Questions*

  When organizing survey items, researchers should place items from general to more specific questions while also placing similar items together. This prevents respondents' responses of specific questions from influencing their responses to general questions (Cohen, Manion & Morrison, 2007).

- *Begin with Less Threatening Questions*

  Respondents may be less likely to complete surveys in which sensitive questions are asked at the beginning of the survey for fear that further questions will be increasingly sensitive. Thus, researchers should place less threatening questions at the beginning of the survey and conclude the survey with items that may be considered sensitive to respondents (Gay et al., 2006).

- *Number Items*

Numbering items is beneficial to researchers as it can save valuable time as they analyze the data they have gathered (Gay et al., 2006).

- *Don't Ask Important Questions Last*

  As some participants may not answer all survey items for a variety of reasons such as time constraints, important survey questions should not be placed last in the survey (Gay et al., 2006).

- *Include Directions for Each Section*

  While general directions should be mentioned in the cover letter that accompanies most surveys, directions should also precede each section to ensure that participants clearly understand what researchers are asking of them. Having directions precede each section is critical especially for surveys in which different sections are intended to provide different information to researchers. Researchers can use italics, underlining, all capital letters, and bold type to be certain that directions are clear and gain participants' attention. Directions to each section also provide an opportunity for researchers to clarify ambiguous terms (Lodico et al., 2006).

- *Think Like Research Participants*

  When designing a survey, it is often useful if researchers can think like the individuals they plan to include as respondents in their study. This allows researchers to consider which terms, questions, and/or wording might be difficult for respondents to clearly understand (Johnson & Christensen, 2004).

- *Make Sure Item Responses Do Not Overlap*

  Even the most seasoned of researchers can create a survey item in which possible responses overlap. Consider the following example in which a researcher is attempting to gather information concerning the amount of years of teaching experience that educators possess. The researcher has directed teachers to select one of the following options:

  1-3 years
  3-5 years
  5-7 years
  7-10 years

  Can you identify the issue with this item's response options that would be problematic when researchers attempt to analyze the study results? How is a teacher who has been teaching for five years expected to respond since five years is included in the second and third options provided? When items do not overlap they are considered *mutually exclusively.* All items in a survey should be mutually exclusively to ensure that data collected is accurate. Item response options should also be *exhaustive* in that they should provide a response option for all possible legitimate responses (Johnson & Christensen,

2004; Lodico et al., 2006). For instance, how would a teacher who has been teaching 15 years respond given the above response options?

- *Avoid Using Double Negatives*

  Double negatives should be avoided as they may require participants to wonder what response options mean. For instance, "It is not good for teachers to not have high expectations of students." This question could be confusing to respondents as it requires that individuals take a moment to consider what response options such as "strongly agree" or "strongly disagree" might mean in this context (Lodico et al., 2006). If a researcher must frame a question negatively, the negative word should be underlined or in some other way emphasized to avoid respondent confusion (Johnson & Christensen, 2004).

Step Four: Create a Cover Letter

Each mailed survey should include a cover letter. The primary purpose of creating a cover letter is to invite participants to participate in a study (Lodico et al., 2006). Cover letters should include the following components:

- *Detail Why the Study is Importance*

  The cover letter, which should be individually addressed to potential research participants, provides researchers the opportunity to specifically state why the research project is important. This area should address why the survey has been distributed to a particular group (e.g. teachers, parents) and why individuals' responses are valuable (Creswell, 2008). Finally, the cover letter also provides researchers an opportunity to state how research findings will be shared with participants (Gay et al., 2006).

- *Describe the Purpose of the Study*

  Researchers should provide information regarding the purpose and intent of a study. This information provides a context for responders to answer survey items (Lodico et al., 2006). In addition, researchers should also detail exactly what participants are being asked to do in order to participate (Gay et al., 2006).

- *Provide Assurances to Participants*

  Researchers should assure participants that confidentiality will be maintained throughout the course of the study from the time that raw data is collected through when the study results are reported (Creswell, 2008). This means that research consumers should not be able to identify individual study participants. Researchers often confuse confidentiality with the issue of ensuring that participants remain anonymous during the course of a study. Researchers who promise participants that they will remain anonymous promise that no one, including the researcher, will have knowledge of participants' names; whereas, confidentiality requires that while researchers will have knowledge of

participants' identities, they will not disclose participants' identities to others (Gay et al., 2006). While confidentiality seems fairly easily achieved, in fact, confidentiality is often more difficult when researchers use smaller settings to conduct research. In some cases, researchers are unable to report some findings as they could be directly used to identify individual participants. For instance, consider conducting research in a small school building in which there is only one teacher per a grade level. In this situation a researcher would not be able to report that the study found that the first grade teacher's perceptions of a particular event greatly differed from the fifth grade teacher's perception as reporting such a finding would break confidentiality. Maintaining participants' confidentiality is not only one of a researcher's primary ethical responsibilities (Lodico et al., 2006), it also serves to increase the likelihood that individuals will respond to survey items truthfully (Gay et al., 2006).

- *Discuss Sponsorship*

  The cover letter also should address the issue of sponsorship by including identification and contact information (e.g. phone number, physical address, email) for the research advisor(s) and the principal investigator (Gay et al., 2006). This information allows participants to contact the researcher to ask questions and ask for clarification of survey items as needed (Lodico et al., 2006). The institution through which the research is being conducted should also be identified in the cover letter. Thus, cover letters should be typed on the letterhead of the institution sponsoring the research project (Creswell, 2008). Finally, each letter should be signed individually by the researcher. While this practice obviously can take some time, this is one more step that can be used to encourage potential participants to complete surveys (Gay et al., 2006).

- *State That Participation is Voluntary*

  Cover letters provide researchers an opportunity to address another critical issue of research, that an individuals' decision to participate in research is voluntary. This means that individuals who decline to participate in a study will not experience negative consequences due to their decision. For instance, students who do not participate in a study will not receive lower grades or a teacher who declines participating in a study will not be demoted as a result of their decision. Statements addressing the voluntary nature of study participation should also state that participants may choose to discontinue their participation at anytime without fear of negative consequences (Lodico et al., 2006).

- *Provide Timetable*

  Cover letters should also provide a timetable for participants by providing an estimation of the amount of time that is required to complete the survey, as well as detailing the return procedure (Creswell, 2008). The deadline for returning completed surveys should be placed approximately two weeks from the time that surveys are distributed. Researchers should also provide a self-addressed-stamped-envelope to encourage individuals to return completed surveys (Gay et al., 2006). Finally, researchers should

conclude the cover letter by thanking participants for their involvement in the research project (Lodico et al., 2006).

Step Five: Select a Sample

Survey research can be considered unique among quantitative research in that researchers conducting surveys typically attempt to include the largest possible sample. This means that survey researchers often attempt to survey either an entire population, such as all of the teachers in a district or all school psychologists in a state. It is important to note that, although researchers may attempt to survey a larger population, not all individuals surveyed will select to complete and return the survey. Low response rates from participants become an issue for researchers when attempting to generalize study findings. In such a situation, researchers become concerned that individuals who decided to partake in the study by returning surveys differ in some way from those who selected not to return surveys. This would mean that participants who completed surveys may represent a subsample of the population rather than the entire population that researchers are attempting to study (Lodico et al., 2006).

Step Six: Pilot the Survey

Can you imagine following all of the steps required to complete a descriptive research study only to realize, when analyzing the data you have gathered, that participants did not understand questions included in the survey? This situation can often be avoided by piloting the survey. Pilot testing a survey can often be sufficiently completed by having a few (three, four, or a small group) people complete the survey and provide feedback including questions, suggestions, and/or comments they might have regarding the survey. Feedback collected during pilot testing can be used to revise and improve the survey prior to administering the survey to study participants. To acquire the most accurate feedback, researchers should pilot a survey with individuals similar to those who will partake in the actual study. For instance, if a researcher plans to survey teachers for a study, then he/she should pilot test the survey with teachers (Gay et al., 2006). Individuals who complete a survey during a pilot test should be encouraged to provide feedback regarding the cover letter, clarity of directions, specific survey items, correctness of grammar, punctuation, and spelling, clarity of language and terms used, and procedures followed by the researcher to collect data. Researchers should provide paper during a pilot test on which respondents can make comments (Lodico et al., 2006). Pilot test respondents can also review the completeness or overall depth of the survey to verify content validity (the degree to which items on a survey correspond to the intended topic of which researchers are attempting to gather information (Slavin, 2007)) (Gay et al., 2006).

Step Seven: Administer the Survey

At this step in the process of descriptive research, researchers must consider what method they will utilize to administer surveys. There are five methods used by researchers to distribute surveys: e-mail, interview, mail, personal administration, and telephone. While the majority of educational survey research typically selects to send surveys to participants via mail, sending surveys via e-mail is also quickly becoming a common method of distribution. In order to select a distribution method, researchers must consider the advantages and disadvantages associated

with each method. While mailed surveys have the advantage of being relatively inexpensive, easy to score, standardizable, and confidential, they also do not allow researchers to ask respondent follow-up questions. Distributing surveys via email is a speedy, as well as an efficient method; however, researchers must also consider that all respondents may not have email access. The following table provides a list of advantages and disadvantages associated with each of the five methods of survey distribution available.

Distribution Method	Advantages	Disadvantages
E-Mail	• Data can be automatically tabulated. • Results can be obtained quickly. • Inexpensive. • Procedures can be standardized.	• Some respondents may not have e-mail access. • Individuals may respond multiple times.
Interview	• Interviewer can clarify questions as needed. • Improves response rates. • Interviewer can probe for further responses. • Assists respondents who have difficulties reading & writing. • Interviewer can control the environment. • Interviewers can ensure survey protocol is followed. • Respondents are more likely to respond spontaneously. • Interviews may be recorded and transcribed at a later date.	• Interviewer characteristics and demeanor may influence responses. • Respondents may feel a loss of confidentiality. • Lack of standardization. • Time-costly. • May require travel costs.
Mail	• Cost efficient. • Can include a large amount of individuals. • Convenient for respondents. • Provides time for respondents to consider responses. • Standardized wording of surveys. • Interviewer bias is eliminated. • Can include respondents scattered throughout an area. • Maintains confidentiality. • Easy to score items.	• Typically has a low response rate. • Does not provide researchers with information about non-respondents. • Respondents may not understand questions. • Postage can be expensive. • Requires participants' mailing addresses. • Surveys may not be returned for several weeks. • Researchers cannot ask follow-up questions.

Personal Administration	• Efficient when respondents are located in the same place at the same time.	• Contact with the researcher can bias responses. • Time-consuming.
Telephone	• Time and cost efficient. • Time delay in responses is eliminated. • Researcher can encourage participation. • Researcher can explain survey questions. • Does not require researcher to travel.	• Not all respondents may have telephone access. • Not all respondents have listed numbers. • Individuals who answer the phone may not be the intended participant. • Order of questions can greatly influence participants' responses. • Time-consuming. • Scoring can be complex.

Gay, Mills, & Airasian (2006) & Lodico, Spaulding, & Voegtle (2006)

Once a researcher has distributed surveys and begun to receive completed surveys, a researcher is just a step away from beginning to analyze the data that has been gathered, right? Not so fast. There is another issue researchers who complete descriptive research must consider, response rates. *Response rates* are the percent of a sample that return completed surveys and can vary based on the research topic and a researcher's relationship to participants. Response rates typically vary from 30-50% for surveys that have been distributed via mail. In situations in which respondents believe they have a vested interest in a study's results, response rates may exceed 80%. Internet surveys have a history of lower response rates in comparison to other methods (Lodico et al., 2006).

Why must researchers be concerned about survey response rates? Response rates are critical as low response rates can lead to issues with the generalizability of a study. Low response rates are concerning as nonresponders may systematically differ from responders. For instance, if a fifth grade teacher were to survey his students to determine the amount of time they spend on homework each night, the teacher may become concerned about the results of the study if only 30% of students returned complete surveys. Perhaps the students who returned completed surveys are more organized and responsible in comparison to their peers, such qualities may also impact these students' survey responses when they completed the survey. While the students who completed the survey report spending an average of four hours each night on homework, the nonresponders may spend less than thirty minutes on homework each night. Thus, without some idea of how the nonresponders differ from the responders, a researcher cannot generalize findings of a study to an entire population (the population is a large group which the sample should represent so that results of the study can be applied to the population) (Gay et al., 2006).

What can a researcher do when their survey has a dismally low response rate? Some researchers choose to interview a small sample of nonrespondents to determine whether differences exist between those who completed the survey and those who did not. By having a small sample of individuals who originally did not respond to the survey complete the survey, as well as provide demographic information, researchers can determine whether differences exist among responders

and nonresponders that would make the practice of generalizing results impossible. Generalizability may be of concern even with a descriptive survey with a 50% response rate since surveys are typically completed more readily by individuals who have more extreme views of a research topic (either a more positive or negative view) while individuals with less extreme views may feel less compelled to complete a survey.

How can researchers attempt to increase a low response rate? Researchers can increase response rates for surveys that were distributed via mail in the following ways:

- Preparing a follow-up reminder for nonresponders (e.g. by mail, email).
- Including pre-paid addressed envelopes to be used by responders to return completed surveys.
- Acknowledging any affiliations in documents such as the cover letter (e.g. university, school district).
- Offering rewards or incentives for survey completion.
- Providing clear directions to respondents to follow when returning completed surveys.
- Personally delivering surveys.

When preparing a follow-up letter researchers should:

- Re-emphasize the study's importance.
- Convey some disappointment and surprise regarding the non-cooperation of the individual.
- Avoid sharing that researchers expect some individuals not to complete surveys.
- Include another copy of the survey.
- Send a follow-up three weeks after the initial survey has been distributed, then send a second follow-up one week after the first follow-up, and a third follow-up may also occur at a later date.
- Expect that, while response rates will increase as a result of each follow-up, response rates from the first follow up will be lower than response rates of the original distribution of a survey. Likewise response rates from the second follow-up will be lower than response rates of the first follow-up (Cohen et al., 2006).

Step Eight: Analyze Data

Researchers should be certain to include specific information when reporting results of descriptive research. First, the response rate for each questionnaire item should be included, as well as the sample size (this is the amount of individuals who participated in a study), and the overall response rate of the survey should be expressed as a percentage. The percentage of item options selected by respondents should also be considered when researchers are analyzing data they have gathered (Gay et al., 2006). For example, a researcher might record the percentage of respondents who selected each item response option if the following was an item on a questionnaire:

1. How many years have you been teaching?
    a. 1-5 years (25% selected)

b. 6-10 years (50%)
c. 11-15 years (15%)
d. Greater than 16 years (10%)

Researchers should also analyze data collected from descriptive research by comparing responses of subgroups. As mentioned earlier, researchers can also compare subgroups based on the demographic information respondents were asked to provide on the questionnaire. For instance, a researcher may be interested whether teachers' and principals' perceptions of school climate differ or whether the way in which middle school or high school teachers spend the time they are allotted to prepare for lessons differ (Gay et al., 2006).

Types of Descriptive Research

Longitudinal Survey

The purpose of longitudinal surveys, which includes a variety of survey types, is to "track participants over an extended period of time" (Lodico et al., 2006, p. 172) which typically spans from ten to thirty years. Longitudinal surveys are used to investigate changes in individuals' attitudes or perceptions regarding an issue or topic, to follow participants to determine how their lives progress, and investigate how participants' philosophies and interests change in the course of many years (2006). As longitudinal surveys can investigate changes in cohort groups, subpopulations, or panel groups, longitudinal surveys can be conducted by surveying the same group of individuals or surveying different individuals during the course of many years (Creswell, 2008). Longitudinal surveys are appealing to researchers as they allow researchers to make inferences, determine causality, and include qualitative and numerical information (Cohen et al., 2006).

Consider the following example of a longitudinal survey that would survey the same group of individuals several times over the course of years:

> Ms. Brown, a high school history teacher, is interested in determining the amount of her students who enter professions in the field of social studies after graduating from high school. Thus, Ms. Brown surveys a group of students shortly after they graduate. Ms. Brown then surveys the same group of students at their five year high school reunion and again at their ten year high school reunion to determine the amount of students who have careers in the field of social studies.

Ms. Brown's study is a type of longitudinal survey called a *panel study*. Panel studies survey the same group of individuals over a period of time. There are several types of longitudinal surveys including trend surveys, panel surveys, follow-up surveys and cohort surveys (Creswell, 2008). The following types of longitudinal surveys are similar in that they survey participants several times during the course of research; however, the different types of longitudinal surveys differ in the samples and groups from which they collect data (Gay et al., 2006).

Trend Survey

Trend surveys are typically conducted to investigate groups' perceptions regarding a shared experience or another factor rather than specific people (Cohen et al., 2006). The purpose of trend surveys is not to compare how one group's perceptions have changed over time but rather to investigate each group's perceptions and then note any trends that occur (Lodico et al., 2006). Trend surveys sample from a general population while using different groups and samples over years during each survey stage to represent the general population of interest (Creswell, 2008). Trend surveys vary from short to long in duration. Researchers completing trend surveys often face difficulties associated with unpredictable factors that can invalidate data interpretation. Thus, trend surveys that are shorter in duration tend to have greater accuracy in comparison to longer studies. Researchers must also be cautious when interpreting findings from trend surveys as differences in data may be due to differences among individuals who participated in each survey stage (Cohen et al., 2006). An example of a trend survey would be a study in which a principal is interested in determining trends in a school's practice of hiring teachers. Such a study would require that a principal would survey teachers hired each year to note any trends that emerge within individuals' responses.

Cohort Survey

To conduct a cohort survey, a researcher must identify a cohort (a subgroup of a population that shares a common characteristic) and survey the subgroup over time (Creswell, 2008). Cohort surveys include different actual groups of individuals based on the characteristic being researched. Researchers conducting cohort surveys may also select to continue to include previous years' participants while adding additional participants yearly (Lodico et al., 2006). For example, the following would be considered a cohort survey:

> Mr. Bell, a special education consultant, would like to study teachers' perceptions of their experiences during the first year they are a member of the Problem-Solving Team. Thus, Mr. Bell surveys teachers at the end of their first year on the team. The second year of the study Mr. Bell surveys a different group of teachers experiencing their first year as members of the Problem-Solving Team.

Panel Survey

Panel surveys require that a researcher surveys a group of individuals then again surveys the same group several years later. This type of survey might be beneficial for researchers who want to gather information regarding the ways in which teachers' perceptions change as they teach for several years. This would require teachers to complete a survey shortly after graduating college and again after teaching for several years (Lodico et al., 2006). Frequently, panel surveys face difficulties including loss of research participants due to lack of interest, relocation, death, or name change (Cohen et al., 2006). Since the same participants are surveyed each time, panel studies are considered the most rigorous of longitudinal studies (Creswell, 2008).

Follow-Up Survey

Follow-up surveys require an additional step past panel surveys. In a follow-up survey, researchers survey a group of individuals then again survey the same group several years later,

then surveys the same group a third time several years after the panel group study has completed (Gay et al., 2006).

Cross-Sectional Survey

The most popular survey in education, the cross-sectional survey, is primarily concerned with gathering data at a single time from a group. Cross-sectional surveys are primarily used to gather information concerning individuals' opinions, beliefs, perceptions, or practices (Creswell, 2008). While cross-sectional surveys are convenient and time-efficient, there are several limitations associated with cross-sectional surveys. First, a survey completed by participants at a single time may not provide participants the opportunity to develop their perspective of a topic over the time. Also, researchers must be especially careful when selecting samples for cross-sectional surveys as some samples may not be as representative of a population as others. Finally, participants selected for cross-sectional surveys may not be as similar as a researcher would hope (Gay et al., 2006). Another form of a cross-sectional survey can be utilized by researchers to compare the opinions, beliefs, perceptions, or practices of different educational groups. In education, researchers often use cross-sectional surveys to compare groups such as parents and teachers, elementary and middle school teachers, and social workers and school psychologists. Cross-sectional surveys can be used to measure the needs of communities, schools or any other educational organization, evaluate an educational program, and survey teachers or students nationally or statewide (Creswell, 2008).

Developmental Survey

The primary purpose of developmental surveys is to gather information regarding variables of children at different levels (e.g. age, maturation, growth) of development. Developmental surveys are often used by researchers to gather information regarding characteristics including intellectual, emotional, social, and physical development. Groups of children used for developmental surveys can be selected based on a general or more specific characteristic. A general characteristic that researchers might decide to study could include children of a particular age, gender, or socioeconomic status. A more specific characteristic a researcher might consider studying could include selecting children who have been identified as academically gifted, athletically-inclined, or children who have relocated at least five times in the past academic year. Developmental surveys can be especially useful for researchers (Gay et al., 2006). For instance, information regarding whether 13-year-old students prefer to complete projects individually or collaborate with a group would be important information for a middle school teacher.

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