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Chapter 1 Introduction to Educational Research

Many of the learners in your class may be uncomfortable with the idea of interpreting or conducting research. In Chapter 1, the text addresses that some learners may be a little anxious about learning research methods. The text promotes a comfort level with the course content for students.

A variety of examples of research can also ease students' initial anxiety. Generating examples in class and 'thinking like a researcher' will facilitate learners' understanding. Therefore, the exercises below are designed to promote exposure to relevant research on topics that are familiar to the learners. The exercises also promote thinking like a researcher and the students will soon realize that they have the general knowledge to do research; they just need additional training and skills.

The ethics content in Chapter 1 is critical for students' understanding of research. Many students perceive they know 'enough' about research ethics but find, through experience with activities such as those in this Instructors' manual (e.g., 6-11 below) that there is more to understand. The ethics content always sparks a lot of interest and discussion and as such is a great way to start the course content.

Suggested Activities

1. One place to get ideas of recent research reports is to go to access the hot topics links as found on the Mid-Continent Research for Education and Learning. This site provides some recent studies and reports about these topics. If students in your class are unsure what they might want to study, they might look here to read about some recent findings. This site also can serve as a resource for the instructor when generating additional examples to support text content. Some of the topics presented include, class size, school size and achievement, laptop initiatives, after school programs, and there are many more. <http://www.mcrel.org/newsroom/hottopics.asp>. As an additional support, the site provides a primer on understanding research. This overview can serve as outside reading to support much of the text's content.
2. Obtain evaluation reports from a local school or study of interest to your learners. If there are no local examples, consider the following examples, which are accessible through ERIC. Those provided below are evaluation reports. These types of reports work well for introduction because they often include the steps the team or researcher used in the study in greater detail than is often found in published studies. This activity directly addresses the first outcome of Chapter 1. Illustrate the parts of the report to facilitate understanding of outcome 2.

Four recent examples of evaluation studies from diverse topic areas that have broad appeal to use if you don't have any local ones include:

- Capizzano, J., Bischoff, K., Woodroffe, N., & Chaplin, D. (2007). *Ingredients of a successful summer learning program: A case study of the building educated leaders for life (BELL) accelerated learning summer program*. ED497332
- Hartmann, T., Maluk, H. P., & Riffer, M. (2007). *Teachers and students learning through service: A report on need in deed's developing work with teachers*. ED499066
- University of Southern California, Los Angeles. School of Education. (2007). *Making the grade in college prep: A guide for improving college preparation programs*. ED499275

- Washington Univ., Seattle. Center on Reinventing Public Education. (2007). Inside charter schools: A systematic look at our nation's charter schools project update. ED495842
3. Also consider using brief research reports or shorter empirical articles in class. Divide the students into groups and give each group a research study. Three examples of varied types of studies that examine college students' attendance follow. Have learners identify the component parts of the articles to support Task 1b and 1c. Groups should identify each of the following.
- (a) Topic of the study and the problem investigated
 - (b) Type of study (have them include type of approach and also whether qualitative or quantitative)
 - (c) Procedures used to gather data
 - (d) Method of data analysis
 - (e) Major conclusion

References of Examples to Use:

- Davidovitch, N., & Soen, D. (2006). Class attendance and students' evaluation of their college instructors. *College Student Journal*, 40(3), 691-703.
- Debevec, K., Shih, M., & Kashyap, V. (2006). Learning strategies and performance in a technology integrated classroom. *Journal of Research on Technology in Education*, 38(3), 293-307.
- Sommer, R., & Sommer, B. A. (2007). Credit for comments, comments for credit. *Teaching of Psychology*, 34(2), 104-106.
4. The National Center for Policy Analysis provides great ideas for potential research topics (See <http://www.ncpa.org/sub/dpd/>). This site shares newspaper articles around topics in education that you can use as examples of potential areas of research to work through for most of the content in the text. This site does have a 'both sides' component so the education topics presented can be considered from different political angles.
5. Task 1C asks learners to decide if topic statements represent different types of research. Provide examples in class to practice this skill. Some example items to include in your exercise are provided in Handout 1.5 at the end of this manual to be used as a handout or overhead.
- For each topic statement, determine if the study is likely
- quantitative or qualitative
 - basic or applied
 - experimental, single-subject, correlational, causal-comparative, survey, narrative, ethnographic, or action

Here are the suggested responses to the topics presented in Handout 1.5:

For Practice...

These answers are provided to guide discussion of these topics. As many topics can be approached from various angles, you or your students might ‘come up with’ additional ways to approach these broad topics.

- (a) A study that investigates what experts think about while solving problems.

This topic would likely be conducted as either as a *qualitative* study or as a *quantitative survey* study. This topic would also likely be an *applied* study because it would use existing theory to examine behaviors.

- (b) A comparison between achievement scores of learners with simulations embedded in their mathematics instructional materials and those without simulations in their materials.

This *applied* research topic would likely be conducted as either a *causal-comparative or experimental quantitative* study, depending upon whether it is ex post facto or if random selection and assignment are possible.

- (c) A study that examines one district’s response to the NCLB legislation.

This *applied* research topic could be addressed using a *case study* methodology. It is likely that *qualitative* data, such as observations, interviews, document analyses, would drive such a study. *Quantitative* test scores or change in scores might also be included in the case.

- (d) A study conducted by the high school art education teachers regarding the use of various instructional materials and media to facilitate student understanding of district-level objectives for art education.

This topic is likely an *action research* study, and would be an *applied* study that would include primarily *qualitative* methods although student understanding in this example *might be assessed with quantitative* measures.

- (e) A study that compares student grades in self-paced and instructor-taught college psychology courses.

This topic is a *quantitative* and *applied* study that represents *causal-comparative* research.

- (f) A study that determines the relationship between years of teaching and incidence of student disruptive behavior in the classroom.

This topic is most likely addressed as an *applied, quantitative, correlational* study.

- (g) A study that investigates what happens on a typical Saturday in our school's detention program.

This topic is likely an ***applied, qualitative*** study. It might be approached using ***ethnographic*** methods but would most likely at least include observations and maybe interviews.

- (h) A study that targets a reading-disabled student's response to intervention.

This topic would most likely be conducted as an ***applied*** study. It might be approached either ***quantitatively or qualitatively***, likely as a ***single-subject*** study or perhaps as a ***case study***. Many of studies that address this and related topics are single-subject quantitative studies.

- (i) A study of 5 first-year students from rural communities on acclimation to a large university setting.

This topic would most likely be approached as an ***applied***, primarily ***qualitative***, likely ***narrative*** or ***ethnographic*** or study. Some mixed methods might be used.

- (j) A study that addresses how parents feel about the new district standards regarding calculators in math classes.

This topic is best addressed as an ***applied, quantitative, survey*** study.

- (k) A study that examines the relationship between in class attendance and course grades.

This topic is best addressed as an ***applied, quantitative, correlational*** study.

- (l) A study that addresses the experiences of ethnic minorities at primarily white universities during the 1950s and 1960s.

This topic is an ***applied, qualitative, narrative*** study.

- (m) A study to determine whether a summer reading program should be continued.

This topic could be approached from numerous ways. It is an ***applied*** study that might best be addressed from a mixed-methods approach. ***Qualitative*** data might include interviews and observations and ***quantitative*** data might include test scores or other measure of reading ability. This study might be an ***evaluation*** study or an ***action*** study.

6. Learners in my courses often believe that certain research areas can only be investigated by one method. I use a single general research question and have the class work with me, in groups or individually to generate topics that address the same general question using different methods. Consider the general topics such as ***school uniforms, year-round schooling, school size, school vouchers, transition to post-secondary education, laptop initiatives, cyberschooling, and extra-curricular activities and academic achievement***, and discuss how each could be a correlational

study, a causal-comparative, or a survey study. Further discuss how each could be addressed by ethnography, action research, and through narrative. Discuss the difficulties of true experimental studies in educational settings. Remember this exercise because you can use the same topics several more times in the class, which will promote continuity.

Handout 1.6 provides an overhead or handout for this exercise using the topic of school uniforms. The following are some possible answers for this exercise given school uniforms as the research topic.

While some topics may be most often approached for study by a particular method or type of research some topics can easily be considered from many different types of research. One example of such a topic is school uniforms. Given the general topic of school uniforms, develop a research topic for each of the following approaches.

- a. Narrative : What is the experience of a class of students in a school that has just implemented a school uniform policy?
 - b. Ethnography: What are the perceived benefits and drawbacks of a school uniform policy according to parents and students?
 - c. Case Study: How do students and teachers react to the implementation of a school uniform policy?
 - d. Single-Subject: Are there changes in the behavior problems of individual students with emotional disorders after the implementation of a school uniform policy?
 - e. Survey: How do teachers, parents, students, and community members feel about the implementation of a school uniform policy?
 - f. Correlational: Across schools with uniform policies in the state, what is the relationship between school violence and attendance? (Note that this topic would more likely be addressed in a causal-comparative study than correlational. Explain why to your students)
 - g. Action research: How should we decrease the wearing of gang colors and inappropriate clothing to school?
 - h. Causal-comparative: Across the state, is there a difference in standardized test scores between low SES schools that have a school uniform policy and those who do not?
7. Many institutions, due to new requirements by some federal funding agencies such as NIH, now require all researchers to pass a written or verbal test and undergo formal training on human subjects' ethics prior to consideration of proposals. As part of Chapter 1 content I make the training a requirement for the course. Also recently, some training programs are now collaborative across institutions. The National Science Foundation has set forth guidelines for data storage. It is helpful for students to be familiar with the guidelines suggested by national granting agencies. It is also helpful for them to review the data collection and storage guidelines in accord with APA style.
 8. Ivor A. Pritchard published an essay regarding research ethics and human subjects' review. It is a nicely done piece that traces some history, introduces the IRB, and discusses the role of IRBs for

practitioner researchers. It is a helpful article if there are many practitioner- researchers in the class that you teach. Have students access it from the library, read it, and bring it to class as part of a Chapter 2 assignment or scavenger hunt. Discuss the main points in class. Handout 1.8 at the end of this manual can be used as guided notes for students to complete prior to class or as an overhead to guide discussion.

- Pritchard, I. A. (2002). Travelers and trolls: Practitioner research and institutional review boards. *Educational Researcher*, 31(3), 3-13.

9. As part of the ethics content, I review ethics of scholarly work and ethics with human subjects. I introduce content such as appropriate referencing, field ethics and standards, as well as ethics in reporting data and research credit for collaborators. During other parts of the text some of this content is covered in depth but I broadly introduce it here. The *Publication Manual of the APA*, 5th edition, provides some support for this content. Other ethics sources include three good websites: The APA, AERA, and the ASA site have resources online and both are excellent to either review or assign. The APA and AERA links below include not only the code of ethics for those organizations but also links to additional ethics resources that can supplement your instruction.

- <http://www2.asanet.org/members/coe.pdf>
- <http://www.apa.org/ethics>
- http://www.aera.net/AboutAERA/Default.aspx?menu_id=90&id=717

10. I have had representatives from the Compliance Office come to my courses and introduce the IRB. They generally cover a little history, a little law, a few terrifying stories about what happens if a researcher doesn't comply with the requirements of human subjects' review, and then get into very helpful content about the institution's specific training programs and IRB. Since IRBs differ some, it is helpful to get this information directly.

If I don't have a guest come, I usually try to cover in a little more depth than the text some of the experiments that led up to the Federal Acts. There are a few sites on the Web that document unauthorized medical experiments post-Nuremberg. Most cover a little history too. Have students access one posted by Ronald B. Standler, which documents several of the studies and provides references if students would like to read more about the studies. This site documents several additional medical experiments other than the Tuskegee and Harold Blauer. Sometimes I show the Milgram video in class.

- Milgram reference: Milgram, S. (1969). Obedience. (Videotape of the classic research on obedience to authority, based on footage shot at Yale University.) Available for purchase from Penn State Media Sales at MediaSales@psu.edu.
- Milgram's biographer, Thomas Blass, maintains a Milgram Website (<http://www.stanleymilgram.com/>)
- Robert B. Standler (1997). Nonconsensual medical experiments on human beings (<http://www.rbs2.com/humres.htm>)

11. Of particular interest to some students are the differences among countries' expectations for ethics and standards for studies involving human subjects. Academic institutions require students to obtain human subjects at their home (degree granting) institution as well as site level institution if they are conducting their studies in other countries. I have had numerous conversations with my students about the comparatively stringent requirements in the United States compared to other institutions and other Countries. Discussing these apparent differences always provokes student participation and can provide an opportunity for students' to reflect on our practices both at the institutional level and the national level. If you lack diversity in your class, one means to introduce differences is to consider requirements for numerous institutions. The following website provides requirements and forms for the University of Glasgow. Students can access this site and make direct comparisons with your own institution.
<http://www.gla.ac.uk/services/dpfoioffice/> As an additional resource, <http://www.ryerson.ca/research/> provides similar information regarding approval at Ryerson University in Canada. While these two sites do not present the largest variety of standards (although there are some differences) they are sites presented in English. These two examples also provide additional ethics content as found on links from these main pages. Of recent concern in the United States are student records. The Glasgow site provides very detailed information about their policies on student records that is interesting for conversation in the class. One strategy I have used to assure my international students understand their ethical requirements both as students in the United States and as citizens of, and perhaps those conducting research in, other countries is to have them share the procedures that the study they are proposing would undergo during review in their country.

Chapter 1 Test Items

1. Of the following, which is an example of a type of qualitative research?
 - a. Correlational
 - b. Causal-comparative
 - c. Ethnographic
 - d. Experimental
2. Of the following, which is an example of a type of qualitative research?
 - a. Experimental
 - b. Survey
 - c. Prediction
 - d. Case study
3. After reviewing the literature the qualitative researcher will select participants. The participants in a qualitative study differ from those in a quantitative study in that
 - a. the number of participants are usually larger in qualitative studies.
 - b. the participants are purposefully selected.
 - c. the participants provide no personally identifiable information.
 - d. the time commitment for participants is generally shorter.
4. The first step of the scientific method is to
 - a. recognize and identify a topic to be studied.
 - b. describe and execute research procedures.
 - c. analyze the collected data.
 - d. state the results or implications.
5. When using the scientific method, the step most similar to the methods section in a research article is
 - a. recognition and identification of a topic to be studied.
 - b. description and execution of procedures.
 - c. analysis of data.
 - d. stating the results or implications.
6. Developing generalizations from a limited number of related observations or experiences is referred to as
 - a. deductive reasoning.
 - b. inductive reasoning.
 - c. scientific method.
 - d. reliance on tradition.
7. Which of the following is indicative of most survey research?
 - a. This method relies on controlling independent variables.
 - b. This method relies on internal and external criticism.
 - c. This method relies on tests and questionnaires.
 - d. This method relies on interviews and observations.

8. Narrative is a method employed by
 - a. quantitative researchers.
 - b. qualitative researchers.
 - c. experimental researchers.
 - d. empirical researchers.
9. One difference between qualitative and quantitative research is that:
 - a. Quantitative researchers develop deep relationships with their participants.
 - b. Qualitative researchers rely on objective analysis of the data.
 - c. Qualitative researchers manipulate the research context.
 - d. Quantitative researchers state hypothesis prior to beginning the study.
10. Which of the following steps of conducting research includes identifying research participants?
 - a. Recognize and identify a topic to be studied.
 - b. Describe and execute procedures to collect information about the topic being studied.
 - c. Analyze the collected data.
 - d. State the results or implications based on analysis of the data.
11. Case Study is a method employed by
 - a. quantitative researchers.
 - b. qualitative researchers.
 - c. experimental researchers.
 - d. empirical researchers.
- 12. Which of the following is an example of a causal-comparative question?
 - a. Are there gender differences in the effectiveness of computer-based simulations?
 - b. Is there a relationship between computer based simulation training and attitudes about computers?
 - c. What happens in a typical science lesson that includes computer based simulations?
 - d. What are the reasons a school would include computer-based simulations in their instructional materials?
- 13. Which of the following is an example of a correlational study?
 - a. What are the attitudes of the parents about our districts new homework policy?
 - b. Is there a relationship between student achievement and homework completion?
 - c. Are there differences in parent attitudes about homework between mothers and fathers?
 - d. How much homework does the average fifth grade teacher in our district assign?

- 14. Karen is a school principal. She has been collecting data all year regarding the benefits and costs of an after-school community service program. She thinks the program is effective but must make a decision about whether or not the outcomes of the program for the children justify the cost. She collects data from the students, parents, and those that have benefited from the program to assist in making her decision. Karen is engaging in which type of research?
 - a. Evaluation
 - b. Experimental
 - c. Correlational
 - d. Causal comparative

- 15. Max is a trainer with the “Information Technology Consulting Firm.” The CEO of a large business hired Max’s firm to do a long-term training for her company. Max wants to get a sense of how the training is going so he can make any necessary changes over the next few months. He collects data from those in the firm that have participated in the training. He collects information from those who supervise past participants of the training. He also looks at job performance measures to assess progress in IT. Max is illustrating which of the following?
 - a. Basic research
 - b. Qualitative methods
 - c. Formative evaluation
 - d. Summative evaluation

- 16. Of the following, which is generally true regarding the differences between qualitative and quantitative research?
 - a. Quantitative but not qualitative research involves data collection.
 - b. Qualitative but not quantitative research generally states hypotheses.
 - c. Qualitative research involves more participant/researcher interaction than does quantitative.
 - d. Qualitative research but not quantitative research informs educational practice.

- 17. A publishing company is interested in determining if there is a need for a new reading curriculum. The research they will conduct is best categorized as
 - a. experimental research.
 - b. correlational research.
 - c. action research.
 - d. research and development.

- 18. Jack is collecting data for a school district that is interested in the effectiveness of a district provided Head-Start program. Jack is looking at the benefits of the program, based upon test scores, in order to make decisions about whether the program should be continued. Which of the following is the best description of the type of study Jack is conducting?
 - a. Experimental
 - b. Evaluation
 - c. Survey
 - d. Correlational

- 19. Paula is a materials scientist. She does research on the effects of environmental toxins on various materials samples. She carefully designs these studies and collects data in order

to derive theory about how toxins affect these materials. Of the following, Paula's research could best be described as

- a. basic.
- b. correlational.
- c. ethnography.
- d. applied.

- 20. Michele is interested in the effects on learning outcomes of questions within instructional materials delivered to learners via the web. She randomly assigns students to groups given either materials with questions or materials with no questions and assesses the effects of the questions based upon student performance on multiple-choice questions administered after learning. Of the following, Michele's research could best be described as
 - a. survey.
 - b. correlational.
 - c. experimental.
 - d. narrative.
- 21. Chris is interested in the role of attitudes about weight training. He developed a questionnaire and sent it out to a sample of 30-59 year old males and females. Of the following, Chris's attitude study could best be described as _____ research.
 - a. survey
 - b. correlational
 - c. experimental
 - d. narrative
- 22. Jeremy, a researcher at a local university, is interested in the nature of playground bullying. He obtains permission for his research and goes to a local middle school to observe playground behaviors. He spends several months watching and taking notes. As he begins to understand the context of the playground, he interviews some students and teachers. He incorporates these interviews into his notes. He systematically identifies themes and categorizes his findings. At the end of his study he describes his findings and how these findings relate to other studies that have been conducted on playground behaviors. Of the following, which best describes Jeremy's research?
 - a. Narrative
 - b. Experimental
 - c. Survey
 - d. Qualitative
- 23. Juanita recently told me that 98% of businesses emit toxins into the environment. I informed her that I thought that number had to be incorrect because not 98% of businesses are manufacturers. She said, hastily, "well that is the figure the EPA is using". Which method of knowing is Juanita relying upon?
 - a. Tradition
 - b. Expert authority
 - c. Intuition and personal experiences
 - d. Scientific method

- 24. Kai is a qualitative researcher. The topic of his study is the homework strategies used by middle school children in an after-school homework club. He has reviewed the literature on both homework strategies and after-school programs and he has selected five children to study over the next 3 months. Of the following, which is most likely the next step in Kai's study?
 - a. Random assignment of participants to condition.
 - b. Reporting his results.
 - c. Collecting data.
 - d. Conducting statistical analyses.
- 25. Jill is a first grade teacher. Her class is a bit out of control and she needs a classroom management strategy. Which of the following strategies illustrates inductive reasoning?
 - a. Jill decides to use 'time out' because her mother, a veteran teacher said to use 'time out'.
 - b. Jill asks the other first grade teachers in the building what they use and determines she will use assertive discipline because the majority use it.
 - c. Jill determines she will use proximity approaches to management since it seems to be working for her so far.
 - d. Jill decides she will use home-based contingencies because teachers use them and she is a teacher so she should use them.
- 26-28. Katelin is interested in examining the relationship between years of gymnastics classes taken as a child and osteoporosis as an adult. She is concerned only with females because more girls take gymnastics than do boys and more women have osteoporosis than do men.
- 26. Katelin addressing this concern and then developing research questions and hypotheses involves which step of the research process?
 - a. Recognition and identification of a topic to be studied
 - b. Description and execution of procedures
 - c. Analysis of data
 - d. Stating the results or implications
- 27. Based upon this description, what type of research is Katelin conducting?
 - a. Basic
 - b. Applied
 - c. Evaluation
 - d. Research and development
- 28. What type of research method is Katelin employing?
 - a. Narrative
 - b. Descriptive
 - c. Correlational
 - d. Causal-comparative

- 29-30. Ken is interested in determining if there are differences between men's occurrence of obesity and prior football team experience. He compares three different groups of men. In one group he has men that played football in jr. high, but not high school or post-high school. Those in the second group played in jr. high and high school but not post-high school. Those in the third group played all three. As part of the study he weighs the men to calculate obesity.
- 29. What type of research method is Ken employing?
 - a. Survey
 - b. Causal-comparative
 - c. Experimental
 - d. Correlational
- 30. The weighing of the men would be included in which step of the research process?
 - a. Recognition and identification of a topic to be studied.
 - b. Description and execution of procedures.
 - c. Analysis of data.
 - d. Stating the results or implications.
- 31. Kurt is interested in describing a typical day of a teacher in an ungraded school. He studies three teachers over the course of a full school year and collects data through the use of interviews and classroom observations. Of the following, which type is the most likely form of Kurt's research?
 - a. Correlational
 - b. Causal-comparative
 - c. Action
 - d. Narrative
- 32. Lisa is designing her dissertation. She is testing the strength of copper. She prepares samples and tests the strength of copper by applying random amounts of pressure on the samples. Her research is best described as
 - a. applied.
 - b. basic.
 - c. evaluation.
 - d. action.
- 33. Won is interested in academic procrastination. She provides her participants a number of instruments on academic procrastination and then examines the relationships among the answers they provide. Of the following, which type of research does Won's study represent?
 - a. Survey
 - b. Causal-comparative
 - c. Experimental
 - d. Case-study

- 34. Sally conducts narrative research. She is particularly interested in the challenges of school/community relationships as schools are redistricted. Which of the following approaches to data collection is Sally likely to most heavily rely on?
 - a. Tests and questionnaires
 - b. Participant interviews
 - c. Student achievement records
 - d. Broad based surveys
- 35. Leslie is finishing her final research report on challenges faculty face when using new technologies. She includes some direct quotations from her participants to best illustrate her main findings. Of the following, which type of research best represents Leslie's study?
 - a. Experimental
 - b. Research and Development
 - c. Survey
 - d. Narrative
- 36. Basic researchers collect data primarily to
 - a. determine methods for practical problems.
 - b. make decisions about programs.
 - c. develop theories.
 - d. develop educational 'best practices'.
- 37. Cameron is conducting a study that addresses the differences in achievement scores between schools that use block scheduling and schools that use a traditional scheduling format. He has accessed average achievement scores for 1200 schools and now is comparing the two groups. In which research step is Cameron engaged?
 - a. Recognize and identify a topic to be studied
 - b. Describe and execute research procedures
 - c. Analyze the collected data
 - d. State the results or implications
- 38. Brian has completed data collection for a study of college learners' self-regulation. Which of the following steps of the research process will Brian next approach?
 - a. Recognize and identify a topic to be studied
 - b. Describe and execute research procedures
 - c. Analyze the collected data
 - d. State the results or implications
- 39. Which of the following examples illustrates reliance on deductive reasoning?
 - a. Paul believes a vaccine works because his doctor says that it does.
 - b. Bill concludes that his car uses unleaded fuel because it is an Escort and all Escorts use unleaded fuel.
 - c. Juan assumes that black holes exist because scientists have told him that they do.
 - d. Jack concludes that all mammals have fur based upon observing his cat and dog.

- 40. Which of the following is an example of a correlational study?
 - a. Is there a relationship between amount of silent independent reading time allocated in a classroom and reading standardized test scores?
 - b. What are the characteristics of a typical classroom's silent independent reading session?
 - c. Are there grade level differences in the effectiveness of independent silent reading?
 - d. How many minutes is the typical independent silent reading session?

- 41. Of the following, which illustrates a causal-comparative study?
 - a. What is the typical classroom structure in a secondary mathematics classroom?
 - b. Is there a relationship between teachers' instructional style and classroom physical structure?
 - c. Are there differences in learners' mathematics achievement between classrooms that are structured with desks in rows or in small groups?
 - d. What are the notetaking behaviors of college students in lecture seating?

- 42. Of the following, which is most likely to be a survey study?
 - a. What are the behaviors users display while they play violent video games?
 - b. Is there a relationship between violent video game use and aggressive behavior in school?
 - c. How many hours per week does the average 6th grader play video games?
 - d. Are there gender differences in types of violent behavior of children who play video games?

- 43. The main purpose of research and development efforts in education is to
 - a. contribute to science.
 - b. formulate theory.
 - c. develop products.
 - d. make educational decisions.

- 44. Marge is conducting a study that addresses the effects of a funded program that recently concluded. The program was funded to develop and implement an after-school tutoring program. Marge is likely conducting
 - a. basic research.
 - b. experimental research.
 - c. formative evaluation.
 - d. summative evaluation.

- 45. Dean is a quantitative researcher who studies attitudes about computer use. Which of the following data collection strategies is most consistent with Dean's research philosophy?
 - a. Observe a few participants over an extended period of time as they work on computers.
 - b. Conduct focus group interviews to determine computer users' attitudes.
 - c. Interview a few participants and ask them to refer others to the study.
 - d. Develop and administer a Likert-type survey to collect attitude data.

46. Of the following, which is an overriding rule of research ethics as noted in your text?
- Maintain participants' anonymity
 - Divulge participants confidentiality
 - Obtain informed consent
 - Report data without identifiers
- 47. Of the following which is likely a statement made by a qualitative researcher in a study that addresses social skills training.
- I would like to interview a few of the participants to understand their training.
 - I would like to give participants a test to determine their skill level.
 - I would like to use teacher ratings to see if the program worked.
 - I would like to control which students get the training so we can compare groups of children that did and did not get training.
- 48. Of the following which is likely a statement made by a quantitative researcher in a study of cooperative learning.
- Let's follow the groups for the course of the project and take notes about their social interactions and dialogues.
 - Let's conduct some focus groups with college students about the types of cooperative learning they have encountered in their schooling.
 - Let's compare unit test scores of those who were placed in cooperative groups and those who were not.
 - Let's enroll in a course that uses cooperative groups and observe the nature of the instruction from a student perspective.
49. Correlational research is concerned with
- differences between conditions.
 - examining relationships among variables.
 - describing the preferences of some group of people.
 - controlling treatment conditions for appropriate comparison.
50. Action research is used to
- find and solve educators' problems.
 - control independent variables.
 - promote generalization of research findings.
 - examine historical educational trends.
- 51. Roger is a narrative researcher who studies the steeltown communities of the 1950's. Of the following which is a data source Roger will likely use in his work?
- A new book on the subject
 - A recording of a journalist's visit
 - A newspaper story written overseas
 - An interview with long time residents

- 52. Which of the following illustrates Aaron, a qualitative researcher, collecting data for an ethnographic study on alternative schooling.
 - a. Aaron sends out surveys to directors of alternative schools.
 - b. Aaron examines achievement measures of students enrolled in alternative schools.
 - c. Aaron invites students from alternative schools to visit him and conducts interviews.
 - d. Aaron goes to an alternative school and volunteers on the staff.

- 53. Of the following, which is a type of qualitative research?
 - a. Narrative
 - b. Causal-comparative
 - c. Experimental
 - d. Correlational

- 54. Experimental research differs from causal-comparative research in that
 - a. causal-comparative research is interested in statistical relationships between variables and experimental research is not.
 - b. experimental research relies on data collection from multiple pools of participants while causal comparative research relies on participants from a single pool.
 - c. experimental research controls the dependent variable in the study and causal-comparative does not.
 - d. experimental research controls the selection of participants from a single pool and divides them into groups while causal-comparative research does not.

- 55. Which of the following is a typical characteristic of a qualitative research study?
 - a. Data collection is ongoing
 - b. Control over contextual factors
 - c. Generalization of findings
 - d. Statistical procedures for data analysis

- 56. Given the following reference, what type of study does this title suggest was conducted? Ramalho, T., & Cullen, K. (2001). Study group in professional development school investigates the State of New York's Grade 4 English Language Arts Assessment. *Journal of Research in Education, 11*, 116-119.
 - a. Action research
 - b. Ethnographic research
 - c. Correlational research
 - d. Experimental research

- 57. Given the following portion of a research manuscript, "Three-hundred and sixty students were asked about their attitudes toward school." Findings indicate positive attitudes in the lower grades and more negative attitudes as learners' age" What type of study does this suggest was conducted?
 - a. Experimental
 - b. Correlational
 - c. Survey
 - d. Ethnography

- 58. Given the following research finding, “*Students in the treatment condition indicated significantly better achievement on the recognition assessment than those in the control condition.*” What type of research was likely conducted?
 - a. Survey
 - b. Action
 - c. Correlational
 - d. Experimental

- 59. What type of research does the following statement suggest was conducted? “A significant moderate relationship between text-based interest and achievement was indicated.”
 - a. Causal-comparative
 - b. Correlational
 - c. Survey
 - d. Experimental

- 60. Given the following reference, what type of study was most likely conducted? Wimer, J.W., Ridenour, C. S., Thomas, K., & Place, A. W.(2001). Higher-order teacher questioning of boys and girls in elementary mathematics classrooms. *Journal of Educational Research*, 95, 84-102.
 - a. Narrative
 - b. Experimental
 - c. Causal-comparative
 - d. Correlational

- 61. The method of knowing that relies on making decisions based upon the way things have always been done is
 - a. tradition.
 - b. inductive reasoning.
 - c. deductive reasoning.
 - d. scientific method.

- 62. Evaluation researchers collect data primarily to
 - a. determine methods for practical problems.
 - b. make decisions about programs.
 - c. develop theories.
 - d. Develop educational ‘best practices’.

- 63. Bakari (2003) published a study in *Urban Education* that queried preservice teachers’ attitudes toward African American students. Given her methodology, which of the following types of research did she likely complete?
 - a. Experimental
 - b. Causal-comparative
 - c. Survey
 - d. Correlational

- 64. Liben studies the experiences of Ben at his first sleep-away camp. He interprets the experience through stories told to him by Ben. He collects these experiences and shares them with others in the form of a story. Liben's research can best be described as
 - a. single subject.
 - b. ethnographic.
 - c. correlational.
 - d. case study.
- 65. In a causal-comparative study that examines differences in psychomotor skills between young, suburban, middle-class Hispanic children and young, urban, middle-class Caucasian children, the dependent variable is
 - a. Hispanic.
 - b. psychomotor skills.
 - c. urban.
 - d. middle class.
- 66. The type of qualitative research that includes conducting research on a unit of study or bounded system is most often referred to as
 - a. narrative
 - b. case study
 - c. ethnography
 - d. survey
- 67. According to your text, which of the following is the most accurate statement regarding ethical considerations in research studies?
 - a. Most studies do not involve ethical considerations.
 - b. Quantitative studies do not involve ethical considerations.
 - c. Qualitative studies do not involve ethical considerations.
 - d. All studies involve ethical considerations.
- 68. The federal government has enacted laws to protect research participants. These laws include
 - a. The National Research Act.
 - b. The National Rights Act.
 - c. The Family Research Act.
 - d. The Family Inquiry Act.
- 69. The U. S. Congress passed the Family Educational Rights and Privacy Act, also known as the Buckley Amendment in
 - a. 1954.
 - b. 1964.
 - c. 1974.
 - d. 1984.
- 70. Which of the following, by law, is a required characteristic of Institutional Review Board (IRB) membership composition?
 - a. a minimum of seven members
 - b. both qualitative and quantitative researchers
 - c. gender diversity
 - d. cultural diversity

71. IRB stands for
- Institutional Review Board.
 - Institutional Research Board.
 - Interagency Review Board.
 - Interagency Research Board.
72. The ethical principle that encourages psychologists to contribute a portion of their time is referred to as
- justice.
 - integrity.
 - fidelity and responsibility.
 - respect for people's rights and dignity.
73. The ethical principle that requires that psychologists try to eliminate the effect of biases in their work is referred to as
- respect for people's rights and dignity.
 - beneficence and nonmaleficence.
 - fidelity and responsibility.
 - integrity.
74. By law, an IRB must contain at least _____ members.
- 3
 - 5
 - 7
 - 9
75. Researchers seek approval from the IRB prior to
- generating hypothesis.
 - collecting research data.
 - developing a research plan.
 - conducting a literature review.
76. The Federal Act that protects privacy of educational records is referred to as
- The National Family Rights and Privacy Act
 - The National Family Research Act
 - The Family Educational Rights and Privacy Act
 - The National Research Act
77. In a research study, deception refers to
- telling participants that their data will be confidential when it will not.
 - telling participants that their data will be anonymous when it will not.
 - not conveying the true nature of the research study in which participants have consented.
 - not obtaining informed consent from participants but using their information as data.
78. The Buckley Amendment is designed to specifically to
- protect teachers participating in research.
 - protect students from deception.
 - protect the researcher from legal cases.
 - protect privacy of student records.

- 79. Jackie is conducting a study at the local skate park on youth's use of slang language. She is unsure if she needs to submit her research to the IRB and asks for your opinion. How would you respond?
 - a. She does not need IRB permission because of anonymity.
 - b. She needs IRB permission because of personal privacy.
 - c. She does not need IRB permission because she is observing only.
 - d. She does not need IRB permission because there is no deception.

- 80. Which of the following illustrates anonymity?
 - a. After interviewing participants, the researcher assigns each participant pseudonyms.
 - b. Although she can identify responses on the attitude measure by their handwriting, Kate does not report the names.
 - c. Kristi replaces the participants' names on their research materials with a random number.
 - d. Since Kelly does not know who participated in her study, she can't report their names.

- 81. Genna has told parents that their children's responses to a spatial ability measure that she used in research will not be reported in the research report. However, she intends to report the data. Genna is illustrating
 - a. anonymity.
 - b. confidentiality.
 - c. debriefing.
 - d. deception.

- 82. One of the reasons why ethical concerns for qualitative researchers are enhanced is because
 - a. the researcher is engaged with the collaborators.
 - b. the research generally addresses sensitive topics.
 - c. qualitative researchers do not obtain informed consent.
 - d. qualitative researchers generally employ deception.

- 83. Of the following which is true regarding confidentiality and anonymity?
 - a. The two terms refer to the same concept.
 - b. If there is anonymity then there must be confidentiality.
 - c. If there is confidentiality there must be anonymity.
 - d. There are no relationships between the two concepts.

- 84. Generally, in IRB approved classroom-based studies participants'
 - a. confidentiality is maintained.
 - b. anonymity is maintained.
 - c. both confidentiality and anonymity are maintained.
 - d. neither confidentiality nor anonymity is maintained.

85. Of the following, informed consent accurately refers to a
- minor child participant's agreement to participate in a study knowing the true nature of the study.
 - parent's legal permission for their children to participate in a study knowing the true nature of the study.
 - a school's formal agreement to allow researchers to conduct work in their school knowing the true nature of the study.
 - a teacher's formal permission to allow researchers in his or her classroom knowing the true nature of the study.
- 86. James conducted a qualitative study in a Fraternity House. As a researcher, he pledged the Frat and conducted an ethnography about the nature of fraternity life at a large University. When he wrote up the study he did not use 'real' names of the other members. He also did not identify the University in his research report. He did not tell the other Fraternity members he was a researcher and that he was collecting data. Which of the following addresses ethical considerations of James study.
- There are not ethical violations, it was an ethnography and participants were kept confidential.
 - There are not ethical violations, it was an ethnography and the participants were kept anonymous.
 - There are ethical concerns, participants did not given their informed consent for the study.
 - There are ethical concerns, clear potential to harm participants was included within the study design.
- 87. Julie has proposed to do research with socially rejected children. She wants to use a selection procedure where peers identify students who are socially rejected and then they become part of Julie's social skills intervention study. She will tell the children that they are participating in a study of children's social skills but she will tell them they were randomly selected for the study, not that they have been identified as needing an intervention. Of the following, which is true regarding the IRB review Julie will likely encounter?
- The IRB will not approve the study. It involves deception.
 - The IRB will not approve the study. It does not involve informed consent
 - The IRB will require full review prior to approval of the study because it involves deception.
 - The IRB will require a full board review prior to approval because there is not informed consent.
- 88. Bruce studies the effects of class size on standardized test scores. He recently approached a school district about conducting a study in their school. The school personnel were really excited to work with Bruce so they provided hard copies of students' individual standardized test results. Although the school district was being helpful this illustrates a violation of
- The National Research Act.
 - The Family Research Act.
 - The National Family Rights and Privacy Act.
 - The Family Educational Rights and Privacy Act.

89. Frank conducted a survey during first-year orientation. He asked students to answer questions about what made them decide to attend college. He did not ask for any identifying information on the survey and students dropped it off in campus mail so he could not identify any participants. Frank's study illustrates
- anonymity.
 - confidentiality.
 - neither anonymity nor confidentiality.
 - both anonymity and confidentiality.
- 90. William was conducting a study on preschool children's problem-solving and one of his participants unexpectedly broke into tears and sobbed uncontrollably saying, "I'm so stupid I can't get it." and ran out of the session. William was unsure what to do next. His study has violated which of the following Legislative Acts?
- The National Research Act
 - The Family Research Act
 - The National Family Rights and Privacy Act
 - The Family Educational Rights and Privacy Act
- 91. The primary role of the IRB is to
- ensure researchers awareness of Federal and State laws regarding the handling of data.
 - ensure protection of research participants from harm and invasion of privacy.
 - provide institution-specific ethical guidelines for use of human subjects.
 - uphold ethical guidelines of the American Psychological Association.
- 92. While conducting a study in a school setting a parent who provided consent for her child to participate asks to see her child's test results. Should you share these results?
- Yes, informed consent mandates it.
 - Yes, the child is a minor and this is her parent.
 - No, confidentiality requires you can not.
 - No, anonymity requires that you can not.
- 93. You have approached a school about doing a study that assesses their middle school students' proficiencies with advanced computer technologies. The school agrees but states their agreement is contingent on you 'giving back' to the school. Of those provided, which is the most ethical means of 'giving back'?
- Provide an individual profile score that illustrates strengths and weaknesses for each student to take home.
 - Provide a summary of individual student performance on your assessment so teachers can target interventions to help those struggling.
 - Provide individual sessions with students you identified through your study as weak in technology skills.
 - Provide sessions for teachers and parents on emerging technologies in education and means to get more information.

- 94. Michele wants to conduct a study in a local charter school. Which of the following is likely a ‘first step’?
 - a. Contact the parents by sending a mailing that introduces her study so they consent.
 - b. Determine required procedures for entry into the school for research.
 - c. Send a letter to the superintendent, the principal, and the classroom teacher introducing the study.
 - d. Arrive at the school, obtain a visitor’s pass, and observe several classrooms to assure this is an appropriate site.

- 95. In order to conduct a study in a school setting that uses student data, researchers generally need to obtain permission from
 - a. the superintendent and the classroom teacher.
 - b. a representative of the school and the parents.
 - c. a representative from the school, the parents, and the children.
 - d. the superintendent, the principal, and the classroom teacher.

- 96. The IRB has _____ levels of review of research proposals that vary based upon level of risk.
 - a. 2
 - b. 3
 - c. 4
 - d. 5

- 97. In addition to researchers the IRB or Human Subjects Board must include
 - a. a University administrator.
 - b. a State Legislator.
 - c. a nonscientist.
 - d. a psychiatrist.

- 98. Kyle, age 10, heard about a great research study and wants to participate. His parents do not wish him to participate and have not signed a consent form. Can Kyle participate?
 - a. Yes, Kyle is old enough that he does not need parental consent.
 - b. Yes, Kyle wants to participate and his assent overrides parental consent.
 - c. No, Kyle can not participate unless his parents consent.
 - d. No, Kyle can not participate because the study involves deception.

- 99. Zareb studies children’s social standing in their classes. He is interested in students who are rejected by their peers. He has designed an intervention to help such children. He is concerned, however, because he fears the potential effects of telling learners that their peers don’t like them. Therefore, he thinks it is important to deceive his study participants, and tell them that they were randomly selected to participate in his intervention, to maximize the study benefits and minimize the harm to the students. This decision best falls under which APA ethical principle?
 - a. Justice
 - b. Integrity
 - c. Beneficence
 - d. Fidelity

- 100. Sara conducted a study in her sixth grade classroom. The study focused on students' interests in Science classes. Sara shared what individual students said about their interest in science with the seventh grade teachers to help place students in next years' classes. What can one conclude about Sara's sharing this information?
 - a. In this case it was ethical to share students' data since it will help them in their education.
 - b. In this case it was ethical to share students' data since the study was conducted in school.
 - c. In this case, it was unethical to share students' data since that information was confidential.
 - d. In this case, it was unethical to share students' data since the information was anonymous.
- 101. Recently KyongNa conducted a study that examined students' learning from the Internet. She had volunteer students show up at a research session, enter their university access number, and then complete her study. In this study KyoungNa can assure the students of
 - a. anonymity.
 - b. confidentiality.
 - c. both anonymity and confidentiality.
 - d. neither anonymity nor confidentiality.
- 102. Josh studies students' emotional development. He wants to interview school-age children about their homesickness while they are at sleep-away camp. He is concerned, however, that by asking in depth questions, he may actually cause children to be more homesick. Which of the following ethical concerns is particularly relevant given Josh's study?
 - a. Human Relations
 - b. Scientific responsibility
 - c. Advertising and public statements
 - d. Concern for others' welfare
- 103. Nigel, age 17, is a high school student attending classes at a local community college. He was asked to sign consent to participate in a research study for one of his classes for extra credit. Can Nigel participate without his parent's consent?
 - a. Yes, because he is attending a post-secondary institution, his parent's consent is not necessary.
 - b. No, Nigel can only participate if his parents consent to his participation.
 - c. Yes, Nigel wants to participate and at his age his assent overrides parental consent.
 - d. No, it is always unethical for students to participate in studies for extra credit.
- 104. Jon conducted a survey study in his alternative high school on the benefits of service learning, which is a focus of the school. He shared what individual students said about service learning when he reported the study. What can one conclude about Jon's sharing of this information?
 - a. In this case, it was unethical to share students' data since that information should have been confidential.
 - b. In this case, it was unethical to share students' data since the information should have been anonymous.
 - c. In this case it was ethical to share students' data since they enrolled in this school.

- d. In this case it was ethical to share students' data since the study was conducted in an alternative school.
- 105. You have approached a outdoor school camp program about doing a study that explores students outdoor experience deficiencies. The program agrees but under the condition that you provide some benefit to the participants and the program. Of those provided, which is the most ethical means to provide benefit to the program?
 - a. Provide the school a summary of the findings as they relate to the program's objectives.
 - b. Advertise to the community that you are doing research with the students of the school to increase the status of the program.
 - c. Provide an individual profile score for each participant so the program can gauge outdoor experience deficiencies.
 - d. Provide individual sessions with students you identified through your study as high in deficiencies.
- 106. In a causal-comparative study that examines differences in mathematics achievement in low ability students in rural schools, given one of three packaged curriculum, the dependent variable is
 - a. curriculum.
 - b. achievement.
 - c. rural.
 - d. low ability.
- 107. Guthrie and his colleagues published a study that measured students reading attitudes.. Given his methodology, which of the following types of research did he likely complete?
 - a. Experimental
 - b. Causal-comparative
 - c. Survey
 - d. Correlational
- 108. Marley presented a study in which he randomly assigned students to one of three interventions designed to actively engage students as they solved mathematics problems. Given this description, which of the following types of research did he likely complete?
 - a. Survey
 - b. Ethnography
 - c. Case Study
 - d. Experimental
- 109. Patricia examined the role of discussion boards in online learning environments when compared to blended courses that cover the same content. She uses the number of discussion threads as the dependent variable. He research is best classified as
 - a. Causal-comparative
 - b. Experimental
 - c. Correlational
 - d. Survey

110. The philosophical assumption that addresses the nature of reality is referred to as
- a. epistemology.
 - b. phenomenology.
 - c. ontology.
 - d. methology.

Chapter 1 Answers

- | | | | |
|-----|---|-----|---|
| 1. | C | 30. | B |
| 2. | B | 31. | D |
| 3. | B | 32. | B |
| 4. | A | 33. | A |
| 5. | B | 34. | B |
| 6. | B | 35. | D |
| 7. | C | 36. | C |
| 8. | B | 37. | C |
| 9. | D | 38. | C |
| 10. | B | 39. | B |
| 11. | B | 40. | A |
| 12. | A | 41. | C |
| 13. | B | 42. | C |
| 14. | A | 43. | C |
| 15. | C | 44. | D |
| 16. | C | 45. | D |
| 17. | D | 46. | C |
| 18. | B | 47. | A |
| 19. | A | 48. | C |
| 20. | C | 49. | B |
| 21. | A | 50. | A |
| 22. | D | 51. | D |
| 23. | B | 52. | D |
| 24. | C | 53. | A |
| 25. | C | 54. | D |
| 26. | A | 55. | A |
| 27. | B | 56. | A |
| 28. | C | 57. | C |
| 29. | B | 58. | D |
| 59. | B | 76. | C |
| 60. | C | 77. | C |
| 61. | A | 78. | D |
| 62. | B | 79. | B |
| 63. | C | 80. | D |
| 64. | D | 81. | B |
| 65. | B | 82. | A |
| 66. | B | 83. | B |
| 67. | D | 84. | A |
| 68. | A | 85. | B |
| 69. | C | 86. | C |
| 70. | C | 87. | C |
| 71. | A | 88. | D |
| 72. | C | 89. | D |
| 73. | A | 90. | A |
| 74. | B | 91. | B |
| 75. | B | 92. | C |

93. D
94. B
95. C
96. B
97. C
98. C
99. B
100. C
101. A

102. D
103. B
104. B
105. A
106. B
107. C
108. D
109. A
110. C

Chapter 2 Selecting and Defining a Research Topic

Suggested Activities

1. Even after experience with Chapter 2, many students still struggle with topics and types of hypotheses. I find providing general research examples and asking students to generate a research topic, as well as accompanying null, nondirectional, and directional hypothesis facilitates their understanding. For this activity, use handout 2.1 as noted below and in the Appendix. These work well to do as guided practice or you can assign these for independent practice and follow up in class with the answers. Please note that some students may have difficulty with generating hypothesis for non-experimental studies. Handout 2.1 For each of the following general questions generate a research topic, and write a null, nondirectional, and directional hypothesis.

a. How does increased standardized testing relate to student motivation?

Research Topic:

Null Hypothesis:

Nondirectional Hypothesis:

Directional Hypothesis:

b. Are there gender differences in students' perceptions of Inquiry-based instruction?

Research Topic:

Null Hypothesis:

Nondirectional Hypothesis:

Directional Hypothesis:

c. Does reading-disabled students' comprehension benefit from guided notes?

Research Topic:

Null Hypothesis:

Nondirectional Hypothesis:

Directional Hypothesis:

d. Do puzzle experiences in the primary grades matter in students' later science interest?

Research Topic:

Null Hypothesis:

Nondirectional Hypothesis:

Directional Hypothesis:

- e. Are there differences in the number of discipline referrals per student in large versus small schools?**

Research Topic:

Null Hypothesis:

Nondirectional Hypothesis:

Directional Hypothesis:

Student answers will vary, however, example answers for Exercise 2.1 follow.

Handout 2.1 For each of the following general questions generate a research topic, and write a null, nondirectional, and directional hypothesis.

- a. How does increased standardized testing relate to student motivation?**

Research topic: This study examines the relationship between the number of standardized tests given and student motivation as defined by mastery orientation.

Null hypothesis: There is no relationship between the number of standardized tests given to students and students' mastery orientation.

Nondirectional hypothesis: There is a relationship between the number of standardized tests given to students and students' mastery orientation.

Directional hypothesis: As the number of standardized tests given to students increases, their mastery orientation decreases.

- b. Are there gender differences in students' perceptions of Inquiry-based instruction?**

Research topic: The purpose of this study is to investigate gender differences in students' self-reported opinions of Inquiry Physics lessons.

Null hypothesis: There are no gender differences in students' self-reported opinions of Inquiry Physics lessons.

Nondirectional hypothesis: There are gender differences in students' self-reported opinions of Inquiry Physics lessons.

Directional hypothesis: Girls' self-reported opinions of Inquiry Physics lessons are higher than are boys' opinions.

c. Does reading-disabled students' comprehension benefit from guided notes?

Research topic: This study investigates differences in reading-disabled fifth grade students' content area comprehension when they are provided guided notes compared to when they are not provided guided notes.

Null Hypothesis: There are no differences in fifth grade reading-disabled students' comprehension when they are provided guided notes as compared to when they are not provided guided notes.

Nondirectional Hypothesis: There are differences in fifth grade reading-disabled students' comprehension when they are and are not provided guided notes.

Directional Hypothesis: Fifth grade reading-disabled students comprehension is higher when they are provided guided notes versus when they are not provided guided notes.

d. Do puzzle experiences in the primary grades matter in students' later science interest?

Research topic: The goal of this research is to examine structured puzzle experiences in first grade and students' reported science interest in fourth grade.

Null hypothesis: There is no relationship between students' puzzle experiences in first grade and their reported science interest in fourth grade.

Nondirectional hypothesis: There is a relationship between students' puzzle experiences in first grade and their reported science interest in fourth grade.

Directional hypothesis: Students' with structured puzzle experiences in first grade report high science interest in fourth grade.

e. Are there differences in the number of discipline referrals per student in large versus small schools?

Research topic: This study examines differences in the number of per-student discipline referrals in large (greater than 500 students per grade) and small (less than 200 students per grade) schools.

Null Hypothesis: There are no differences in the number of per-student discipline referrals between large and small schools.

Nondirectional Hypothesis: There are differences in the number of per-student discipline referrals between large and small schools.

Directional Hypothesis: The number of per-student discipline referrals is greater in small schools.

2. Develop a discussion board for the course as a place for learners to post their questions for clarification or their fledgling ideas for feedback from their peers.

Most institutions now have course management systems that allow instructors and students to post to discussion boards for their classes. I have started to use this function more in my classes and students enjoy being able to seek assistance from peers with even simple questions or points of discussion. Edutopia provides a resource found at <http://www.edutopia.org/pdfs/stw/edutopia-onlinelearning-mastering-online-discussion-board-facilitation.pdf> that can assist faculty in incorporating discussion boards into their instruction. The site provides suggestions for best practices, strategies, and management tips. This site can be a benefit for both instruction and student learning.

3. Students can also greatly benefit from practice in identifying the structure of experimental hypotheses. Use the following three examples as class practice. I would post all three and have students work in pairs to complete them and then discuss them as a class or I would post them to a class discussion board for student independent practice and follow-up discussion.

For each of the following experimental study research statements identify P, X, and Y. Where P=the participants, X= the treatment or independent variable, and Y=the dependent variable.

- a. The purpose of this study is to investigate the effects of silent reading time on students' independent reading comprehension as measured by standardized achievement tests.
- b. The purpose of this research study is to investigate if colored font facilitates intermediate grade students' learning from educational games.
- c. The purpose of this investigation is to determine if there is an effect of students' participation in an anti-drug training program on the number of students' in school drug arrests

Answers: For each of the following experimental study research statements identify P, X, and Y. Where P=the participants, X= the treatment or independent variable, and Y=the dependent variable.

a. The purpose of this study is to investigate the effects of silent reading time on students' independent reading comprehension as measured by standardized achievement tests.

P=Students

X=Silent reading time

Y=Standardized achievement tests

b. The purpose of this research study is to investigate if colored font facilitates intermediate grade students' learning from educational games.

P=Students

X=Colored font

Y=Learning from educational games

c. The purpose of this investigation is to determine if there is an effect of students' participation in an anti-drug training program on the number of students' in school drug arrests.

P=Students

X=Anti-drug training program

Y=School drug arrests

Chapter 2 Test Items

1. According to your text the first step in applying the scientific method is
 - a. searching the existing literature.
 - b. generating and testing a hypothesis.
 - c. selecting and defining a research topic.
 - d. drawing conclusions from data.
2. One drawback of initial research topics is that they are often
 - a. not relevant.
 - b. too broad.
 - c. too narrow.
 - d. not ethical.
- 3. Chyna is conducting a study with college students reading science texts that explores the role of interest apart from knowledge as articulated in Patricia Alexander's Model of Domain Learning. Chyna's topic is best described as a study that
 - a. tests theory.
 - b. is a replication.
 - c. is developed from a library search.
 - d. comes from personal experiences.
- 4. Jill is a history teacher interested in whether differences exist in motivation to study history between students who are taught concepts sequentially through time and those who are taught concepts by geographic region. Jill's research topic is best described as a study that
 - a. tests theory.
 - b. is a replication.
 - c. is developed thorough library search.
 - d. comes from personal experiences.
- 5. Jack just read an interesting study regarding middle school children's use of computer-animated simulations to learn introductory chemistry. Although he is a physics professor he wants to see if the benefits of simulations are also found in college physics learners. Jack's research topic is best described as a study that
 - a. tests theory.
 - b. is a replication.
 - c. is developed thorough library search.
 - d. comes from personal experiences.
- 6. Paola is a ninth grade mathematics teacher. She is interested in the role of accommodation in learning geometry. She designs a study that examines this Piagetian concept in practice. The source of her study is best described as a study that
 - a. tests theory.
 - b. is a replication.
 - c. is developed thorough library search.
 - d. comes from personal experiences.

7. The first step in selecting a topic is
 - a. going to the library and searching.
 - b. asking an authority for opinion.
 - c. selecting a topic related to your interest and expertise.
 - d. reading theories and determining which to examine further

8. An organized body of concepts, generalizations, and principles defines
 - a. a theory.
 - b. a hypothesis.
 - c. an experiment.
 - d. a model.

9. Based upon your textbook's discussion, overview sources such as handbooks in a particular area of research can best assist you in
 - a. selecting a topic you will consider for further study.
 - b. narrowing a topic you are considering for further research.
 - c. developing a theoretical basis for a study you have conducted.
 - d. determining the best methodology for a study you have designed.

- 10. Which of the following is an example of a researchable topic?
 - a. Should children who are in the primary grades be allowed to walk to school?
 - b. Are children in the primary grades best taught to read by home-based experiences
 - c. Are there differences in the amount of time spent reading in classrooms of non-native speakers?
 - d. Should teachers hold parent teacher conference?

- 11. Which of the following is an example of a researchable topic?
 - a. Should homeschoolers include their children in cooperative schools for high school level courses?
 - b. Are homeschooled students happier than are students in traditional schools?
 - c. Should homeschooled students be included in our district's prom planning committee?
 - d. Are there differences in achievement test scores between those homeschooled for part of the day or not at all in our district?

- 12. Amanda must complete a research proposal for educational research class and does not yet have a research topic. She asks you for advice about how to 'figure out' her topic. Which of the following strategies, based upon your text, would you suggest?
 - a. Ask other students in the class what they are doing their topics on and pick one of those.
 - b. Go to the library and look through journals until you come up with a good one.
 - c. Consider what interests you related to educational practice and start there.
 - d. Search the internet with a keyword search 'education' until you get a topic.

13. A study conducted to extend the findings of previous research is termed a(n) _____ study.
 - a. generalization
 - b. replication
 - c. application
 - d. extension

14. Which of the following is **NOT** a characteristic of a good research topic?
- The topic has theoretical or practical significance.
 - The topic can be investigated through the collection and analysis of data.
 - The topic can be investigated within a year.
 - The topic of research is ethical.
- 15. Tito is an instructional design student. He needs a thesis topic. He is interested in the use of discussion boards for distance education. He approaches his advisor and the advisor sends him away to think some more. Of the following what is the most likely reason?
- The topic is not ethical.
 - The topic is too narrow.
 - The topic is too broad.
 - The topic is not significant.
- 16. Dabir is an educational psychologist. He needs a thesis topic. He approaches his advisor and tells her he wants to do a study on help-seeking in college students. His advisor sends him away to think some more. Of the following what is the most likely reason?
- The topic is not ethical.
 - The topic is too narrow.
 - The topic is too broad.
 - The topic is not significant.
- 17. Haider is a master's student deciding on his thesis topic. He approaches his advisor and pitches the idea of exploring the use of teacher feedback on subsequent self-confidence. He wants to erroneously tell students they performed poorly on a series of assignments and then examine changes in self-confidence. His advisor is skeptical and asks him to think about ways to tweak the topic. Of the following what is the most likely reason?
- The study is not ethical.
 - The study is too narrow.
 - The study is not significant.
 - The study is too broad.
18. According to your text the first step in identifying a topic is to
- go to the library and hand-search the journals.
 - read as many empirical studies as you can.
 - select something of interest to you.
 - ask your advisor or colleagues for ideas.
- 19. Sarah is really excited about her research topic. There are many homeschoolers in her state and she wants to research if homeschoolers should hire professional educators to assist them with curriculum development. Of the following, which is the most important problem with Sarah's topic as currently developed?
- It is not researchable.
 - It is not ethical.
 - It is not of interest to Sarah.
 - It is not relevant to educational theory or practice.

- 20. Of the following, which is a quantitative research topic?
 - a. The purpose of this study is to explore the experiences of first year principals.
 - b. This study describes the decision making process of school board members during redistricting.
 - c. The goals of this study are to report what nurse practitioner-teachers should do to prepare today's nurses.
 - d. This study tests the effects of a new alternative education program on students' self-esteem.

- 21. Of the following, which is a quantitative research topic?
 - a. The purpose of this study is to examine how teacher's should help students during office hours.
 - b. The purpose of the study is to explore the experiences of students who seek help from faculty during office hours.
 - c. The purpose of this study is to compare the grades of students who go to office hours and those who do not.
 - d. The purpose of this study is to suggest how many office hours faculty should hold each week.

- 22. Of the following, which is a quantitative research topic?
 - a. The purpose of the study is to study the characteristics of female students in advanced mathematics courses.
 - b. The purpose of this study is to examine relationships between future career goals and enrollment in advanced mathematics courses.
 - c. This study examines what teachers should do to enroll more female students in advanced mathematics courses.
 - d. The goals of this research were to describe two female students' experiences in advanced mathematics.

- 23. Stephanie has a research topic for her class paper. She wants to study the effects of alphabetic seating compared to other forms of class structure. She can find no research that addresses this topic. Her research advisor is likely to suggest which of the following strategies for her study.
 - a. Pick a new topic. Seating arrangements in classrooms are not of educational relevance.
 - b. Narrow her topic. It is too broad.
 - c. Expand the topic to include different types of class structure.
 - d. Pick a new topic. Seating arrangements are unethical to study.

- 24. Of the following which is **NOT** part of a research topic?
 - a. The data collection procedures.
 - b. The background of the topic.
 - c. The significance of the study.
 - d. The limitations of the study.

- 25. Of the following which is **NOT** a characteristic of a good hypothesis statement?
 - a. It is testable within a reasonable time frame.
 - b. It is supported by everyday experiences and intuition.
 - c. It provides a reasonable explanation for the predicted outcome.
 - d. It clearly states the expected relationship between the defined variables.

26. To *operationalize* a variable means to _____ the variable.
- manipulate
 - control
 - define
 - mediate
- 27. Identify the independent variable in the following hypothesis. Children who are given a free breakfast at school perform better on achievement tests and are more motivated for school than are those children who are not given breakfast.
 - achievement tests
 - free breakfast
 - children
 - motivation
 - 28.-29. Given this hypothesis answer the following two questions. Middle school students in an urban school who are trained in discussion techniques perform better on written tests of persuasive essays than those students who are not trained in discussion techniques.
 - 28. The independent variable in the above stated hypothesis is:
 - Urban school.
 - Training in discussion techniques.
 - Persuasive essay tests.
 - Middle school students.
 - 29. The dependent variable in the above stated hypothesis is:
 - Urban school.
 - Training in discussion techniques.
 - Persuasive essay tests.
 - Middle school students.
 - 30-31. Given this hypothesis answer the following two questions. Ninth grade students enrolled in large classes who are taught algebra through the use of interleaved worked examples for each lesson perform better on an end of course test than are those taught with a single modeled example for each lesson.
 - 30. The independent variable in the above stated hypothesis is:
 - Type of instruction.
 - Ninth grade students.
 - Algebra.
 - End of course test.
 - 31. The dependent variable in the above stated hypothesis is:
 - Type of instruction.
 - Ninth grade students.
 - Algebra.
 - End of course test.

- 32. Pedro studies inclusion. He needs to generate a directional hypothesis for his study. Which of the following is an appropriate research hypothesis for Pedro.
 - a. Children who are fully included do not learn in school.
 - b. There are no differences in student learning between children who are fully included and those who are not.
 - c. There are differences in learning between children who are fully included and those who are not.
 - d. Children who are fully included learn more than children who are not fully included.

- 33. Which of the following is a non-directional hypothesis?
 - a. There are no differences in motivation between students who are given a free breakfast at school and those students who are not given breakfast at school.
 - b. There are differences in motivation between students who are given a free breakfast at school and those students who are not given breakfast at school.
 - c. Children given breakfast at school are more motivated than children who are not given breakfast at school.
 - d. Children given breakfast at school are less motivated than children who are not given breakfast at school.

- 34. Which type of hypothesis involves making generalizations from observations?
 - a. Inductive
 - b. Deductive
 - c. Null
 - d. Speculative

- 35. The hypothesis statement, *Children in elementary school who exercise at least 5 hours a week are more popular in school than children who do not exercise at least 5 hours a week*, illustrates which type of hypothesis statement?
 - a. Null hypothesis
 - b. Nondirectional
 - c. Directional
 - d. Correlational

- 36. The hypothesis statement, *There are no differences in long term achievement between those who are taught through a face-to-face only class and those who are taught through blended instruction*, illustrates which type of hypothesis statement?
 - a. Null hypothesis
 - b. Nondirectional
 - c. Directional
 - d. Correlational

- 37. Which of the following is a nondirectional hypothesis?
 - a. There are no differences in reading comprehension between those taught a summarization strategy and those not taught the strategy.
 - b. Readers who are taught a summarizing strategy have higher reading comprehension scores than those not taught the strategy.
 - c. Readers taught a summarizing strategy have lower reading comprehension scores than those who were not taught the strategy.
 - d. There are differences in reading comprehension between readers who are taught a summarizing strategy and those who are not taught the strategy.

- 38. Which of the following is a null hypothesis for the research topic *Are there differences in final class grades between students who are taught psychology in a lecture format or self-paced?*
 - a. There are differences in final class grade between students taught psychology in lecture versus self-paced format.
 - b. There are no differences in final class grade between students taught psychology in lecture versus self-paced format.
 - c. Students taught psychology in lecture format receive higher class grades than those in self-paced conditions.
 - d. Students in self-paced conditions have higher class grades in psychology than those in lecture classes.

- 39. Which of the following is a nondirectional hypothesis for the research topic, *Are there differences in end of course biology test grades between those who use simulated labs and those who use traditional labs?*
 - a. There are differences in end of course biology test grades between those taught through the use of simulated versus traditional labs.
 - b. There are no differences in end of course biology test grades between those taught through the use of simulated versus traditional labs.
 - c. Those taught in simulated labs perform better on end of course biology tests than those taught in traditional labs.
 - d. Those taught in traditional labs perform better on end of course biology tests than those in simulated labs.

- 40. Lindsay studies community and school relationships. She is currently working on a qualitative study in a rural school district. Which of the following is likely true of her study?
 - a. Her hypothesis were stated prior to the start of data collection.
 - b. Her hypothesis determined her data collection procedures.
 - c. Her hypothesis were generated while she collected data.
 - d. Her hypothesis may be rejected after data collection.

- 41. Kyle is a quantitative researcher doing research in a relatively new area of study. He is testing his hypothesis with a study. Which type of hypothesis is he most likely testing?
 - a. Null
 - b. Directional
 - c. Nondirectional
 - d. Post-hoc

- 42. Of the following, which is most likely addressed as a quantitative research topic?
 - a. The purpose of the study is to examine the relationship between IQ score and Post-graduate GPA.
 - b. The purpose of the study is to describe the typical day of a high school history teacher.
 - c. The current study shares a summary of the coping strategies used by a n ADHD student in an inclusion classroom.
 - d. This work shares the history of the events that led to consolidation of two local rural high schools.

- 43. Dei read this really interesting study that examined the benefits of a structured program that taught problem-solving to disadvantaged children. Although the population that he works with is not considered disadvantaged, Dei would like to conduct a similar study at his school. Of the following types of studies, which best describes Dei's idea?
 - a. Replication
 - b. Generalization
 - c. Application
 - d. Extension
- 44. Servio is particularly interested in how families react to an initial learning disability diagnosis. Unfortunately he needs more participants than there are actual new diagnoses in his school. Therefore, in the design of his study he proposes to tell parents that their children have been tested and diagnosed as learning disabled and will conduct an interview with the parents to get their initial reactions. However, the children will not have been diagnosed. His advisor tells him that he cannot conduct the study. Of the following what is the likely reason why.
 - a. The study is too broad.
 - b. The study is not ethical.
 - c. The study is not relevant.
 - d. The study is too narrow.
- 45. Which of the following is an example of a researchable topic?
 - a. Should we teach children formal reading skills before they enter school?
 - b. Is there a relationship between SES and children's amount of reading in the home?
 - c. Are high school students best served by taking numerous electives or a core curriculum?
 - d. Should all children be exposed to exercise at school daily?
- 46.-47. Dom investigates how students with processing disorders read web pages. In a previous study, he found that elementary learning disabled students with processing disorders read web pages from top to bottom. In this current study he is testing how high school students read web pages.
- 46. Dom's study can best be classified as a _____ study.
 - a. replication
 - b. duplication
 - c. generalization
 - d. extension
- 47. Which of the following is the dependent variable in Dom's study?
 - a. Elementary grades
 - b. Processing disorders
 - c. Web page reading
 - d. High school grades

- 48. Candace is conducting a research study and is having trouble with her variable ‘self-concept’ she decides to define self-concept as *one’s beliefs about one’s capabilities in a given domain*. She will measure it using a common Likert-type scale. Candace is engaging in which of the following research tasks?
 - a. Generating hypothesis
 - b. Operationalizing variables
 - c. Defining a sample
 - d. Interpreting findings

- 49. According to your text which of the following is a characteristic of a good research topic?
 - a. Your topic is interesting to you.
 - b. Your topic relates to your advisor’s research.
 - c. Your topic is something you know little about.
 - d. Your topic is broad.

- 50. Of the following, which is the best example of a qualitative research topic?
 - a. The purpose of the study is to assess learning gains in students enrolled in a summer reading program.
 - b. This work addresses gender differences in spatial reasoning.
 - c. This study extends previous research on relations between student’s decision-making and creativity.
 - d. The goal of this study is to describe experiences of transgendered adolescents.

- 51. Which of the following is an example of a researchable topic?
 - a. Should all high school math and science teachers be required to take a national licensure exam?
 - b. Are children in America getting enough sleep?
 - c. Are there differences in time to graduate between those who declare a major on their application and those who do not?
 - d. Do children who speak a language other than English in the home benefit socially?

- 52.-54. Given the hypothesis statement: *Male principals with at least six years of teaching experience display less stress as measured by a general health survey than those who have less than six years of teaching experience.*
- 52. This study is best described as a _____ study.
 - a. narrative
 - b. correlational
 - c. causal comparative
 - d. experimental
- 53. The dependent variable in this study is:
 - a. Teaching experience.
 - b. Principals
 - c. Health survey causal-comparative
 - d. ethnographic
- 54. This hypothesis statement can best be classified as which type of hypothesis statement?
 - a. Null
 - b. Directional
 - c. Correlational
 - d. Nondirectional
- 55.-56. Given the hypothesis statement: *Those students enrolled in instrumental music programs experience less transition anxiety as they enter middle school in a large urban district than do those students not enrolled in instrumental music programs.*
- 55. The dependent variable in this study is:
 - a. Middle school students
 - b. Urban district
 - c. Transition anxiety
 - d. Instrumental music programs
- 56. This hypothesis statement can best be classified as which type of hypothesis statement?
 - a. Null
 - b. Directional
 - c. Correlational
 - d. Nondirectional

Chapter 2 Answers

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|-------|-------|
| 1. C | |
| 2. B | |
| 3. A | |
| 4. D | |
| 5. B | |
| 6. A | |
| 7. C | |
| 8. A | |
| 9. B | |
| 10. C | |
| 11. D | |
| 12. C | |
| 13. C | |
| 14. B | |
| 15. C | |
| 16. C | |
| 17. A | |
| 18. C | |
| 19. A | |
| 20. D | |
| 21. C | |
| 22. B | |
| 23. A | |
| 24. C | |
| 25. B | |
| 26. C | |
| 27. B | |
| 28. B | |
| 29. C | |
| | 30. A |
| | 31. B |
| | 32. D |
| | 33. B |
| | 34. A |
| | 35. C |
| | 36. A |
| | 37. D |
| | 38. B |
| | 39. A |
| | 40. C |
| | 41. C |
| | 42. A |
| | 43. A |
| | 44. B |
| | 45. B |
| | 46. A |
| | 47. C |
| | 48. B |
| | 49. A |
| | 50. D |
| | 51. C |
| | 52. C |
| | 53. C |
| | 54. B |
| | 55. C |
| | 56. B |