

Designing and Conducting Research in Health and Human Performance: Book Review

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Abstract

In the first edition of *Designing and Conducting Research in Health and Human Performance* authors Matthews and Kostelis have created a useful and practical text for the undergraduate student in the fields of health and human performance. By using relevant and practical examples and by including each aspect of the research process from identifying the problem to presenting the research, Matthews and Kostelis keep student learning at the forefront of the book. Although difficult to highlight many errors with, or omissions in, the text a few minor technicalities arise. However, the authors have placed emphasis where it should be placed and in the end the reader of this text can more fully engage in the undergraduate research process.

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Introduction

Undergraduate research has been identified as one of the ten high-impact educational practices in achieving excellence in educational settings (Kuh, 2008). Undergraduate research in this regard is defined as occurring both within a course and independent efforts. The benefits of undergraduate research include enhanced disciplinary skills, intellectual skills, information literacy, communication skills, and team work skills. According to Lopatto (2010) undergraduate research efforts also build self confidence. These benefits are important in developing citizens that are capable of engaging in evidence-based reasoning in order to deal with the complex issues that face the world (Elrod, et al., 2010). In order to reach these lofty goals students and faculty alike need a equally exceptional text to serve as a guide. Matthews and Kostelis have crafted this in their text *Designing and Conducting Research in Health and Human Performance*.

A course in research methods for undergraduate students in health related disciplines is often challenging to instruct. Finding the appropriate

balance between content and practical application proves endlessly difficult. There is a need for an understanding of basic statistical concepts as well as proven writing skills. As a result currently available textbooks are caught in between presenting introductory research concepts in order to ensure basic understanding and favoring too heavily on an advanced statistical approach. Too often the term “research methods” is used interchangeably with statistics and this is incorrect.

Designing and Conducting Research in Health and Human Performance bridges a textbook gap in this much needed area of instruction. Taking the reader through each key step of the research process allows for a deeper understanding and learning on the student’s part. The book’s authors, Tracey Matthews of Springfield College and Kimberly Kostelis of Central Connecticut State University have written a text that is both relevant and practical. Matthews and Kostelis state “After you have used this book, we hope that you have a better appreciation of and excitement for research. We believe this text can provide a context for you to comprehend the research process and how it can be implemented

in our fields of health and human performance.” (p. xiv) Many other texts in the area of research methods and physical activity are content rich and learning poor. By keeping student learning at the center of this book in conjunction with its applicability and practicality, Matthews and Kostelis have accomplished their stated goals.

The text opens with discussion on general research in health and human performance and basic research concepts (chapters 1 and 2) and ends with a discussion on presenting the research (chapter 15). In the intervening chapters all aspects of the research process, from reviewing the literature and writing a literature review to understanding research designs both quantitative and qualitative, are covered. In addition to wanting the reader to become excited about research, Matthews and Kostelis also want readers “to become excellent consumers of research.” (p. xiv) In order to accomplish this lofty goal the reader must first understand all that is involved in the research process by completing it themselves. To complete this task a text must be written like a guidebook, defining terms, laying information out in easily digestible formats, and by providing context. The current text is written in five parts with appropriate chapters in each. By organizing the text in this way the student is taken through the research process step by step in an easily understandable manner.

Part 1

Understanding Important Research Components

The introductory chapters on research in health and human performance and general concepts in research design refresh the reader on basic concepts such as the scientific method (p.5), the research continuum (p. 10), and research designs (p. 19). By reintroducing these topics to the reader early in the text a more in depth and nuanced view can take place in later chapters. Reviewing the basics also ensure that all readers on an even playing field as the text advances through more challenging concepts.

Matthews and Kostelis experience in educating students in research methods is apparent through their effective use of tables. Tabled information

is clear and brief allowing the reader to quickly grasp the important aspects presented within in each chapter. Table 2.1 (p. 19) is an example of this. Basic research designs are deftly summarized and reference to more detailed information in later chapters.

Part 2

Reviewing the Literature

Chapters 3 (Developing Your Research Topic and Interpreting Research Reports) and Chapter 4 (Writing the Review of Literature) is where Matthews and Kostelis text separates itself from other available textbooks. Too often authors in the allied health field assume that undergraduate students can effectively communicate through writing. The authors here do not make this assumption, guiding students through the process of identifying a problem to investigate (p. 36) and finalizing the research question (p. 43). These building blocks are an essential part of writing effectively as they provide the basis for which following discussion can take place.

Today’s undergraduate student operates in a world of information overload. Access is not a common problem, rather, filtering and deciphering all the information available is the issue. The ability to filter begins with determining where to access information (Google and Wikipedia vs. Sport Discus and PubMed) and ends with deciphering what is discovered.

In terms of access I feel this one area in need improvement in the current text. While the authors address the use of primary and secondary sources (p. 44) and warn the reader “If you wish to use Google to search for primary research, we emphasize that you should proceed with caution,” (p. 47) the fact remains that today’s students want information and they want it now. I would encourage the authors in subsequent editions to provide relevant comparative examples on searches completed via Google and established databases (i.e. show results of a Google search and a Sport Discus search on the same issue.

The issue of deciphering (i.e. interpreting) research gathered via various searches is a

vexing one for undergraduates. Students get lost in language, statistics, and interpretation. Table 3.3 (p. 55) takes these issues head on and provides a reference tool that everyone, students and more seasoned observers) can benefit from. Understanding research articles and relating it to your own research question often prove difficult and yet it is vital in order to get your research on the correct footing.

Upon exhaustively conducting appropriate searches and completing interpretation of what was discovered, the writing of the review of literature begins. Again, this is where Matthews and Kostelis shine. Not only is the reader taken through the writing step by step, tips on how to write scientifically are presented (p. 69) as well as extensive notes on grammar, diction, and punctuation are shared. This is the art of the writing and it is often neglected in discipline specific texts of this nature. The highlight of this chapter is the “Most Common APA Corrections” on pages 74-78. Readers can look to these common miscues in order to improve their own writing skill. These corrections again demonstrate the experience and wisdom of the text’s authors. APA style is ubiquitous in manuscript’s, however, it shouldn’t be regarded as the only citation style appropriate for this type of writing. Mention should be made of other popular styles utilized in health related professions.

Part 2 of the text provides separation from other texts available in this area. By focusing on an issue that troubles us all, writing, the authors allow students to improve their skills through the use of relevant examples, grammar discussions, and correction of common mistakes.

Part 3 Understanding and Developing Research Design

This section of the text brings the reader back to a more in depth discussion of research designs briefly mentioned in the introductory chapters. A solid understanding of each type of design presented (quantitative, qualitative, and mixed methods) is necessary to draft an appropriate research proposal. Again, a hallmark of this text is its “travel guide” mentality, pointing out all

crucial avenues to success, and this trend continues in the opening chapters of the third section.

Research methods texts are typically strong in their evaluation and discussion of quantitative research designs, however, when it comes to qualitative and mixed methods approaches many textbooks fall short. Matthews and Kostelis avoid this pitfall by carefully defining each type of design and providing extensive examples of both. Although not incredibly common in health and human performance, more qualitative and mixed methods research is necessary and the topics discussed within these chapters introduces undergraduates to these concepts.

When developing a research study the question “How many participants will I need?” is often asked. A difficult question to respond to for even the most seasoned instructor of statistics, the answer depends on numerous factors. However, a discussion of effect size and statistical power are not present in this text and this is problematic. Although difficult concepts to explain without some basic understanding readers are left with an important question unanswered. It is hoped that in future editions of this text this important topic is addressed.

Part 4 Exploring Measurement and Analysis

The chapters included in this section of the book include the requisite information on topics such as validity, hypothesis testing, and data analysis. However, three key differences exist when comparing the current text with others available: clear and straightforward tables that answer the most common questions and allow for easy interpretation, a focus on qualitative data analysis, and step by step SPSS instructions combined with appropriate data sets. Each of these differences advances student learning in ways that other texts do not. Again, by keeping student learning at the center of each chapter, practical questions are addressed and create deeper understanding. The authors do not get lost in the content, but rather appropriately synthesize difficult material into easily understandable formats.

In regards to the ubiquitous type I and II error grids so prevalent in other texts, it is heartening to see it absent in this text. However, in attempting to keep concepts simplified, I feel that Matthews and Kostelis glanced over this topic without adequately addressing the issue. In the annals of hypothesis testing I am unaware of any text that answers student's questions appropriately on this topic. Taking into account Matthew and Kostelis' combined experience, it is hoped that a creative way to address this topic is included in future editions.

Part 5

Putting it All Together

As was stated previously, undergraduate research has been identified as a top ten high impact educational practice. Presenting of research is often the most daunting and fear inducing aspect of the research process for undergraduate students. In order for the research environment described in this text to be complete and to fully engage in students in the learning process students need to become comfortable with public displays of their work. This presentation allows students to engage in constructive criticism with their peers and for meta-cognitive reflection (Anderson, 2000). Guiding students through the process of presenting their research, both by poster and orally, Matthews and Kostelis again demonstrate they are in tune with student needs and learning. Too often these aspects are not given the attention they deserve. Figure 15.1 (p. 291) is an excellent illustration of keeping student learning in focus. The presented template aptly demonstrates the requisites of a successful poster presentation.

What You'll Learn and Research to Practice sections

The quality and simplicity of the tables and figures in this text have been applauded throughout this review yet it is worth

mentioning other recurring aspects of the book. These include the "What You'll Learn" cues that begin each chapter and the Tip and Research to Practice boxes embedded in nearly every chapter. Successful pedagogy suggests that stating objectives up front enhances learning. As a college level instructor, I am pleased to see them included in this text. The author's objectives are clear, simple, and brief.

The Research to Practice boxes offer practical applications to the issues addressed within each chapter. Matthews and Kostelis provide ample examples in these boxes to enhance student learning. These include examples of correlation research designs (p. 103), using a table of random numbers (p. 164), and SPSS instructions for various statistical analyses (pgs. 233, 238, 242). By including such practical applications many pitfalls of the undergraduate research process are avoided.

Conclusion

Designing and Conducting Research in Health and Human Performance by Tracey Matthews and Kimberly Kostelis is a comprehensive guide to the undergraduate research process, from generating the first ideas to presenting research. The text appropriately covers necessary information such as hypothesis testing and basic statistics, yet extends student learning through a full discussion of qualitative research, searching the literature and writing the literature review, and appropriate public dissemination. They have created an incredibly practical, applicable, and useful text.

Undergraduate research is a vital component to student success, learning, and understanding. This type of research is truly a high impact educational practice and Matthew and Kostelis provide ample support to further impact student engagement and learning.

References

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