Strategies for Incorporating Theoretical Concepts to Survey Questions and Design

Rama Radhakrishna brr100@psu.edu, Kaila Thorn, kvt5218@psu.edu

The Pennsylvania State University

217 Agricultural Administration Building

University Park, Pa 16802

814-865-3136

Strategies for Incorporating Theoretical Concepts to Survey Questions and Design

Introduction

Almost all research studies in social and behavioral sciences regardless of disciplines require a rationale or base for conducting research (Radhakrishna, Yoder, & Ewing, 2007). Review of literature not only provides a strong base for identifying a research topic, but also helps identify theories related to the topic. A theory generalizes about observations and consists of an interrelated, coherent set of ideas and models (Maxwell, 2005; Knobloch, 2009). Further, it also helps to develop theoretical framework which informs questions to be asked and methodology to be used. According to Mehta (2013), theories are constructed in order to describe, predict, explain, and control phenomenon. A theoretical framework is a conceptual model of how one theorizes or makes logical sense of the relationships among several factors that have been identified as important to the problem (Sekaran, 2000).

Although theoretical framework helps build a base for the study, very few studies have discussed linkages between theoretical framework, survey questions and design, and statistical analysis. Logical and sequential linking of theory/theoretical frameworks to survey questions and design helps answer several questions in a research study: 1) did the concepts derived from theory/theoretical frameworks help identify key variables, 2) did it help in operationally defining key variables, 3) did it help in asking valid questions that reflect the purpose of the study, 4) did it help craft survey questions based on the concepts gleaned from the theory or theoretical framework, 5) did it help in creating a valid and reliable measures, and finally, 6) did it help in understanding the key findings of the study and their connections to the theory and theoretical framework. Answers to these questions will help design a rigorous research study that can withstand the scrutiny of scholars and manuscript reviewers. According to Camp (2001), guidance provided to researchers, graduate students, and manuscript reviewers in career and technical education is inadequate and needs to be addressed. Similar concerns were expressed by Kitchel and Ball (2014) in their study of theoretical frameworks in agricultural and extension education.

How it works

The purpose of this abstract presentation is to describe the connection between theory/theoretical concepts to survey questions and design, and measurement through logical and sequential steps. (see Figure 1). As shown in Figure 1, the steps begin with the identification of a theory or framework for a research study with a solid review of literature.

Figure 1| Schematic Description of Linking Theory to Survey Questions and Design

Once this is completed, the most important step is to glean concepts from the theory as it relates to the research study. In this step, key variables and its classification into independent, dependent, and moderator variables are made. In the next step, objectives/research questions/hypotheses are crafted keeping in mind the concepts derived from theory and

operational definitions of variables. Developing and understanding of these initial steps will help craft survey questions that help collect information/data to answer the objectives/ research questions/hypothesis. Next step is to decide on the survey questions and the scale of measurement for each of those questions. For example, if you are using Azen's theory (1985) of planned behavior, the questions should reflect on the concepts derived from Azen's theory—attitude, perceived intent, and behavior. Similarly, one can glean concepts from Bandura's social cognitive theory (1986) or stages of change or readiness for change theory by Prochaska, DiClemente and Norcross (1992). In order to facilitate this step, we created a matrix (See Table 1) to describe the connection between theory, survey questions, design, and data analysis.

Table 1: Matrix for Linking Theory to Survey Questions to Data Analysis

Theory/Theoretical Framework	Concepts used from the Frameworks	Research Questions/ Objectives/ Hypothesis	Variables (IV,DV, MV,CV)	Survey Questions and Design	Scales of Measurement for IV, DV, MV	Data Analysis
Azen's Theory						

Results to Date

These logical and sequential steps of linking theory/theoretical framework to survey questions and design and data analysis will go a long way in developing a sound rationale and for linking findings/conclusions of the study back to the theory from which the study originated. Understanding of these key steps will also help develop valid and reliable measurement tools that help achieve findings that mirrors the key concepts gleaned from theory/theoretical frameworks (see Figure 1 and Table 1). We have used this strategy in a master's thesis relative to climate change (see Table 2).

Table 2: Sequencing Theory to Tools Climate Change Perceptions

Incremental Adaptation (IA) Cycle (Park et al., 2012)	Adaptation Cycle (Wheaton & MacIver, 1999)	Research Objectives	Variables	Tool	Scale of Measurement	Analysis Method
Problem structuring and establishing the IA arena	Who or what system adapts?	RO 1 RO 3	(IV) Farm & Farmer Demographics	Survey: Q1-7, Q20-30	Nominal Ordinal Interval/ Ratio	Descriptive Statistics: Freq, %, mean, SD

Building a sound theoretical/conceptual framework for a research study is very important. Equally important is to glean concepts from theories to develop valid and reliable questions that not only reflect the framework, but also the goals of the study. By following the sequence described above the relevance and value of a research study is enhanced. In addition, the proposed sequence help answer the six questions stated in the introduction section of this abstract. Graduate students, novice researchers, junior faculty and faculty teaching research methods course will immensely benefit from using this approach of linking theory to survey questions and data analysis. As Boone Safrit and Jones (2002) stated that "theory provides uniformity and becomes a predicator of facts and stimulates and guides scientific inquiry and analyzes and explains its findings (p. 65) Following the proposed sequence will help graduate students get a clear picture of what their study will look like or take shape as they prepare for carrying out their study that will withstand the scrutiny of reviewers, scholars, and their peers.

References

Azen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl and J. Beckmann (Eds). Action Control: From cognition to behavior (pp 11-39). Heidelberg: Springer.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ. Prentice-Hall Inc.

Boone, E., Safrit, D., & Jones, J. (2002). Developing programs in adult education: A conceptual programming model (2nd ed.). Long Grove, IL: Waveland Press.

Camp, W.G. (2001). *Formulating and evaluating theoretical frameworks for career and technical education research*. Journal of Vocational Education Research, 26, 1-17.doi:10.5328/JVER26.1.4

Kitchel, T., & Ball, A. (2014). *Quantitative theoretical and conceptual framework use in agricultural education research*. Journal of Agricultural Education, 55(1), 186-199. doi: 10.5032/jae.2014.01186186

Knobloch, N. (2009). *Using Conceptual and Theoretical Frameworks to Inform Inquiry*. American Association for Agricultural Education Conference, Louisville, Kentucky.

Maxwell, J. A. (2005). Qualitative Research Design: An Interactive Approach (2nd Ed. ed.). Thousand Oaks, CA: Sage.

Mehta, R.S. (2013). Conceptual and theoretical framework. Technologie, Gesundheit & Medizin

Park, S.E., Marshal, N.A., Jakku, E., Dowd, A.M., Howden, S.M., Mendham, E., & Fleming, A., (2012). Informing adaptation responses to climate change through theories of transformation *Global Environmental Change* V.22 Pg. 115-126.

Prochaska, J.O., DiCllemente, C.C. & Norcross, J.C. (1992). In search of how people change: Applications to the addictive behaviors. American Psychologist, 47, 1101-1114.

Radhakrishna, R.B., Yoder, E.P. & Ewing, J.C. (2007). Strategies for linking theoretical framework and research types. Proceedings of the 34th Annual National Agricultural Education Research Meeting, 34, 692-694.

Sekaran, M. (2000). Research methods for business: A skill building approach. New York: John Wiley

Wheaton, E.E., & MacIver, D.C., (1999). A framework and key questions for adapting to climate variability and change. *Mitigation and Adaptation Strategies for Global Change* V.4 215-225.