Enhancing the Field Moment of Quantitative Research with Tools and Techniques from the Project Management Body of Knowledge: A Primer

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Abstract

A review of mainstream and avant-garde research methods texts as well as the scholarly survey methodology space has highlighted the importance of managing the survey field moment of the quantitative research process. This same review has also revealed the absence of any sophisticated techniques and tools within these spaces that can enhance the survey field moment. To address this gap, the goal of this article is to introduce the discipline of quantitative research methods to the project management body of knowledge. Through the use of the autoethnography methodology, we draw on ten years of experience, observation, and reflexive work in the field, working along with colleagues and students who have applied the principles of project management to the execution of quantitative field work. We argue that project management offers quantitative researchers a wide array of tools and techniques to undertake a survey field exercise within time, quality, and cost parameters. The article concludes that the application of project management tools can significantly enhance the field moment of quantitative researchers.

Keywords: Quantitative, Project, Management, Research, Autoethnography, Survey

1.0 Introduction

In the last decade or so, the field moment of quantitative research (whether conducting face-to-face surveys on the ground, over the phone or somewhere online) has received much attention in the mainstream and avant-garde research methods texts as well as within the research methods scholarship space (Couper, 2005, p. 21; Harris et al., 2012; Kennedy, Tarnai, & Wolf, 2010; Rosen, Murphy, Peytchev, Riley, & Lindblad, 2011). Much of what is written about quantitative research have largely been centered on demonstrating ways of acting, organizing and carrying out data collection strategies. The goal of most authors has been to demonstrate ways of achieving quality work within time and cost considerations. Balancing cost, time, and quality in the execution of tasks has been the goal of the discipline of project management for decades. Despite the benefits of the project management body of knowledge, it has yet to be given recognition by the quantitative research scholarship, pedagogy or praxis. Unarguably, many disciplines such as engineering, information systems and development assistance have all significantly benefited from the incorporation and/or adoption of various aspects of project management.

The goal of this article therefore is to introduce the discipline of quantitative research methods to the project management body of knowledge. Using autoethnographic methodology, we draw on ten years of experience, observation, and reflexive work in the field, working along with colleagues and students who have applied the principles of project management to undertake quantitative field work in the Caribbean, New Zealand as well as the United States of America. This autoethnographic experience was guided by the following research question - How and in what ways can the project management body of knowledge add value to the field moment of the quantitative research process?

2.0 The Field Moment of Quantitative Research as a 'Project'

The field moment of the quantitative research process can be basically characterized as all activities associated with collecting data in the field.

This often involves several individuals working synchronously in teams, and is based on an organizational structure, which sees the lead researcher, team leader or survey designer overseeing the data collection process, and in some cases actually participating in the data collecting activities (Fuller, Valacich, & George, 2008).

It includes plans to engage research participants through the development of a "Sample Design" (a strategy or plan for identifying, calculating, locating a sample from a population), and thereafter engaging this sample of participants either face-to-face in the field using the traditional pen and paper techniques, or through the use of some electronic hand held device. Engagement may also be based on the use of mediums such as a computer, a telephone or a mobile phone to ask questions about a particular topic (Ice, 2004; Shields, 2003).

We have conducted surveys on issues ranging from agricultural development to sexually transmitted diseases. These surveys have been undertaken across various spaces - government, non-government, business organizations, and in many places around the world. Furthermore, we have consulted on many other studies around the world. From these experiences, we observed that there are a standard set of rituals, beliefs, processes, practices, norms, values and roles associated with collecting data in the field across these spaces and places. These are particular global discourses surrounding ways of doing and organizing a survey field research. These global discourses and associated social practices originate from several authoritative sources. Examples of such sources include textbooks that are used in classrooms as 'good guides' to instruct students in the art and science of data collection, or used in the field as 'best practices' by practitioners undertaking surveys for commercial and other purposes. Other sources can be found in journal articles which provide guidelines for researchers to use in replicating a study, or in undertaking a study of an almost similar nature. In addition to this there are thousands of online resources or websites that provide similar information about how to operate in the field. Across all these texts, there is an agreement by the authors that the 'field moment' primarily begins with designing the sample frame to guide field activities, and ends with a completed set of data collection instrument such as questionnaires or an electronic form of some sort (if an online questionnaire is used). The field moment can thus be described as a 'project'.

A project is defined as a temporary set of activities undertaken to accomplish a particular goal; hence this 'field moment' we speak of can be best described as a 'Project', and, the application of the tools, techniques and skill articulated in the discipline of Project Management can be employed. Project management is "the application of knowledge, skills, tools, and techniques to project activities to meet project requirements" (Project Management Institute, 2008, p. 435). Project management emerged out of the field of engineering and architecture in the1950s. Since then it has transcended these disciplines and has been "extended to such diverse fields such as software development, maintenance planning, space vehicle deployment, and complex surgery" (Babu & Suresh, 1996, p. 1). Other disciplines include geography, management studies, accounting, information systems, military defense, public sector management, and even political science to name a few. Today, the value of project management is being articulated in many other spaces, (organizations, groups, societies) and across these many different disciplines. Over the years, many of these academic disciplines, organizations, groups and societies have included either the whole or different aspects of project management into their curriculum or operational processes.

The Project Management Institute (PMI) is globally recognized as one of the world's largest and leading professional association of its kind. The PMI offers training and capacity building in this discipline as well as standards and principles in the implementation, executing and monitoring of projects. The website of the PMI outlines the vast pantheon of resources, partners, networks and possibilities that project management has to offer to business, government, and society (Project Management Institute, 2008). The text "A Guide to the Project Management Body of Knowledge" (the PMBOK Guide for short) is the primary project management book which outlines the standards, guidelines, strategies, concepts, tools and techniques for managing projects and is viewed by many as one of the most authoritative project management texts.

Despite the obvious benefits of the project management body of knowledge, not much has been written about the use of project management tools and strategies to undertake any aspect of quantitative research. What does exist can best be described as the proverbial tip of the iceberg, as this body of work does not in any way cover the gamut of tools, techniques and strategies offered by project management (Abdulah, 1992; Kennedy, et al., 2010; Lindsay, 1978). It is this gap that the present article seeks to address.

3.0 Research Design

This study uses a small scale descriptive research design to describe our experiences with the application of the project management body of knowledge to the field moment of quantitative research. The methodology used for this study is autoethnography (C. Ellis, 2004; C. S. B. A. P. Ellis, 2006; Hayano, 1979). Indeed, given the objective of the study as well as the unit of analysis, autoethnography was the only methodology, which could answer the research question formulated for this study.

Following the tradition of ethnography, autoethnographies "are highly personalized accounts that [unlike ethnography specifically] draw upon the experience of the author/researcher for the purposes of extending sociological understanding" (Sparkes, 2000, p. 21). In other words, autoethnography can best be described as a form of postmodern methodology, which allows researchers to play the role of participant and researcher-as-observer while reflexively constructing and understanding a phenomena by focusing on holistic environments, naturally occurring processes, objects, subject, events, meanings and understandings of the observed world based on their own personal experiences (Chang, 2008; Duncan, 2004; Wall, 2006).

Autoethnography is a way of 'knowing and researching', which is recognized as legitimate within the field of qualitative research. Nevertheless, many positivists and postpositivists have argued that autoethnography is too political, self-indulgent, individualized, subjective (involving the use of the subjective self), and too subject to prejudice to qualify as 'real science' (Holt, 2003; Wall, 2006). In preparing this article however, we realized that the self-reflexive systematic approach which autoethnography offers, was perhaps the only way of leveraging our personal experiences to demonstrate the utility of project management for conducting field surveys, while legitimately advancing the disciplines of project management and quantitative research.

For this particular study, data was collected over a 5- year period. We used ourselves, our reflections, and our observations as the primary source of data. This was triangulated with data from our field notes, lecture notes, consultations memos, personal communications (emails), reflexive thinking, archival records as well as interviews from eleven purposively selected participants regarding the use of the project management body of knowledge to undertake survey field exercises. These respondents were colleagues, associates, students, and members of our research staff, several of whom had been introduced to the project management body of knowledge through various training sessions and workshops that we conducted over the last five years, and who used this knowledge in executing their own survey field projects. This form of data and methods triangulation helps to (1) mitigate the concerns about the "scientific" value of autoethnography as a methodology being self-indulgent, bias, subjective, overpersonalized and individualized (Atkinson, 1997; C. Ellis, 1991; Holt, 2003; Sparkes, 2000), (2) add to the trustworthiness, coherence, and verisimilitude of the work (Richardson, 2000, p. 11), and (3) confirm or triangulate the opinion of others (Duncan, 2004).

Data analysis consisted of a rigorous process of thematic categorization and data reduction using a juxtaposition of the constant comparative analysis approach of grounded theory (Corbin & Strauss, 2008) as well as the *Matrix Analysis* of Miles and Huberman (Miles, Huberman, & Saldaña, 2013). This form of data analysis triangulation (Leech & Onwuegbuzie, 2007) facilitated deeper and substantive reflections of our experiences with the field moment of quantitative research over a ten year span in the Caribbean, New Zealand as well as the United States of America (the study boundaries).

4.0 Reflexive Notes

Both authors are methodologists. We research, teach and utilize qualitative, quantitative and mix-methods research in our work. And between both of us, we have approximately 20 years of experiences with these research strategies. We were both introduced to the discipline of project management at different stages of our careers. Similarly, we were required to take several project management courses for various reasons, and one of us eventually ended up teaching project management to business managers. Since our introduction to this discipline, we have been slowly integrating much of what we know about project management to undertake the field component of various quantitative research projects. In the next section we will draw on our experiences in articulating how this fusion (the application of project management tools, strategies and techniques to the field moment of the quantitative research process) enriches the sample design and data collection component of the quantitative research process.

5.0 Experiencing the Quantitative Field Moment with Project Management



All projects have five phases: initiation, planning, execution, monitoring and control as well as closure. This is represented in Figure 1. Each phase is governed by a set of rules, regulations and tools that are used to facilitate and foster effective project management (P. C. Dinsmore, 1993; Newell & Grashina, 2004). All surveys whether simple or complex can be broken down into these five stages. This is outlined below.

5.1 Initiating a Survey Project

The project initiation stage otherwise referred to as 'beginning your project' or 'the birth of a project' or 'launching a project', typically outlines all the activities involved in starting your project. At this stage of the project, there are many critical decisions which will need to be considered to ensure a positive outcome. This stage of a project is the "What? Why? Who? How? When?" of the project (Kennedy, et al., 2010). Essentially at this stage, project managers begin exploring the strategies that will be used to execute the project, outlining the goals and objectives, deliverables, budgeting concerns, timelines and scope. When applied to 'field survey experience' or 'field survey exercise' or 'field survey activities' (terms that we will use interchangeably), it means: 'What' is the purpose of the research? 'Why' is the research necessary? 'Who' will be collecting the data? 'Who' will be designing the sample frame? 'Who' is the research being conducted for? 'Who' will be supervising the field activities? 'Who' will be managing the field project? 'Who' will the sample consist of? 'How' the activities will be undertaken and 'When' the field project should start and finish?

There are many critical tools that are offered by the discipline of project management, which make the survey field moment much easier in terms of considering, mapping, measuring and outlining the "What? Why? Who? How? When?" of a project. These tools help to provide a greater level of clarity regarding the roles and responsibilities of individuals, processes, schedules and procedures as well as to assist in evaluating risks and assumptions before beginning the survey project. One of these tools for example is the *project initiation document* (PID) or the *project charter*.

The project charter or *The Charter* for short is a structured way of organizing the What? Why? Who? How? and When? of a project. *The Charter* formally and officially sets out the project objectives, helps to communicate the purpose of the project, identifies the key performance indicators and targets (both financial and non-financial), team members, supervisors, roles and responsibilities of actors, deliverables, assumptions, constraints, risks, interdependencies, scope and timelines. *The Charter* in effect serves as a contract between the project team and the project sponsor. This particular tool has been used to ensure that projects have very clearly defined and agreed parameters by those involved, and helps to increase the likelihood of project success from the start. It can also be used to identify who will participate in the project, and how they will be engaged. Based on our experiences with the application of this tool to the survey experience, we can attest that this tool serves as an excellent means of addressing the typical problems of cost, time and quality that survey managers may encounter.

Having a project charter has helped us over time to clearly outline: the purpose of a project, the key deliverables to the interviewers; the expected outcomes; the possible risks and mitigation strategies; the flow of the survey, areas/spaces to cover (scope); the dependencies, the role and responsibilities of each individual; the expected schedule, the characteristics of the interviewees, and the interview quota.

5.2 Planning a Survey

The planning stage is indeed the most critical phase of a survey, as without proper planning the field can become challenging. As surveyor managers, we faced some challenges during the life of our work.

These include; surveyors sampling outside the spatial barriers provided to them (wrong location); surveyors sampling the wrong classification of participants (wrong age, wrong gender, wrong income groups etc); unintended oversampling due to negligence of the field manager; poor or inadequate communication between surveyors, supervisors or survey designers; failure to set or manage the expectations of the surveyors, supervisors or survey processes; the field exercise runs longer than expected due to several factors; and the cost of the field exercise exceeds what was originally expected. The discipline of project management however offers a wide array of techniques and tools that can assist in preventing these errors and can simplify the survey planning process. We have incorporated these in the planning component of many of our survey projects and they have significantly contributed to enhancing the discursive operations of the field moment. The most substantive of these tools has been the *project plan*.

The project plan is the central project planning tool in the discipline of project management. It systematically arranges the activities, tasks, processes and resources of a project. The project plan often begins with identifying the goal(s), objective(s), and scope of work of a project and then breaks them down into smaller pieces of work or activities that are more manageable, executable and *monitor-able*. The project plan also includes sub-plans that are central to the successful completion of a project. These include: *project integration management; project scope management plan; project time management plan; project cost management plan; project quality management plan; project human resource management plan; project communications management plan; project risk management plan* (Project Management Body of Knowledge 2013). Our experience with each aspect of this particular project management tool to undertake survey field activities has been more than rewarding in terms of cutting cost, completing surveys on time and managing the scope as well as the quality of a survey.

5.2.1 Project Integration Management Planning

Over the years, we have seen from experience where poor management particularly as it relates to "managing" large national or cross national complex surveys has been one of the primary sources of field delays, confusion and a major contributing factor to multiple errors in the field. We addressed this problem with the use of *project integration management*. The project integration management plan outlines the activities necessary for projects to be properly coordinated. This plan shows how activities are synchronized and/or sequenced, how tasks, resources, and responsibilities of individuals will be unified and consolidated as well as how persons will work in groups and the associated or linked dependencies between and among tasks. This tool also demonstrates how and in what ways activities, resources, tasks and people will be coordinated and monitored in order to achieve the overall project goals. On reviewing our field notes of the various surveys that we have undertaken, we discovered that in instances where we have an integration plan, and also follow the plan as best as we can, we find that the survey field activities have generally been issue or problem free and have been completed within cost, time, and quality parameters. And, in those few instances where we executed a survey field project without the use of this particular tool, we suffered severe setbacks, and had to deal with cost overruns and quality issues as it relates to the outcome of the survey.

5.2.2 Project Scope Management Planning

Every survey is unique and very often requires its own specific set of objectives, activities, tasks, tools, techniques and processes to ensure that the required work is completed within the established cost, time, and quality limitations. Together, these techniques, processes, tools, tasks, objectives and activities are known as the 'scope' of the survey. The project scope is what a project contains and delivers, and can be managed through the use of a *scope management plan*. In other words, it is a project management tool, which outlines the activities, tasks, processes that govern how the project's scope will be defined, verified as well as monitored and controlled in order to ensure successful project outcomes. Scope management therefore provides the stakeholders with a detailed plan describing the project scope and how it will be managed, monitored, changed and controlled as well as how tasks, processes and activities will be verified throughout the life of a project.

5.2.3 Project Time Management Planning

The field moment is not finite, and for the most part, survey managers or survey designers undertake a field assignment with a specific timeframe in mind. In some of our field assignments, we observed that the field aspect of a study can take more time than expected. This is often (but not always) the case when survey managers or survey designers fail to adequately plan for the timely implementation and execution of a project. It can also be the result of a failure to adequately manage the survey field activities.

Project time management is the detailed scheduling and sequencing of the activities, processes, events, tasks and the multiple components of a project that are necessary for the timely completion of this project. Project time management or project time management planning usually involves 6 steps. As they relate to the field moment, they include, activity definition (the identification and scheduling of the activities necessary for the successful completion of the field exercise of a survey project); activity sequencing (outlining the sequence in which the field tasks and activities must be completed; activity resource estimating (estimating the resources needed to complete each task); activity duration estimation (estimating the duration for each survey task and activity); schedule development (analyzing and scheduling the order of survey field activities, tasks and outputs) and schedule control (identifying strategies to mitigate changes in the schedule of activities) (Gido & Clements, 2006; Nagarajan, 2004; Reid, 1999).

5.2.4 Project Cost Management Planning

The adage 'time is money' is one that we in the field of quantitative research are too familiar with. Surveys such as national surveys or cross-national studies can be very costly because of the enormity of elements that are involved. We have observed situations where failure to adequately plan and manage the financial activities associated with the field moment of a survey have led to severe cost over-runs. However we have also experienced the opposite. When we have a well thought out project cost management plan there is no cost overrun. As a matter of fact, not only is the project completed within budget but in some instances there are savings. Project cost management planning is identifying, estimating, calculating, planning, controlling and managing all costs associated with the scope of the project such as people, equipment, materials and other resources (Kloppenborg, 2011; Kousholt, 2007). The process includes the identification of alternative resources to complete a project (Kloppenborg, 2011; Kousholt, 2007; Nagarajan, 2004; Reid, 1999). There are usually four categories of cost. These include; (1) Direct costs such as printing of questionnaires, per diem of surveyors, phone charges and so on; (2) Variable costs such as the training of surveyors, and project meetings; (3) Fixed costs such as the rental of equipment and consultant's fee, and (4) Indirect costs such as software license and sometimes paying for additional data collection to be done (Bruce & Langdon, 2000; Kousholt, 2007; Reid, 1999).

5.2.5 Project Quality Management Planning

The adage "garbage in garbage out" when applied to quantitative research can essentially be taken to mean if you have bad data you will have an output or bad report of the findings. In other words, the quality of a quantitative survey report is inherently dependent on the quality of the data collected and used (Babu & Suresh, 1996; Klein, 2000). Therefore managing the quality of survey is a critical activity. The field moment of a quantitative survey involves many different processes, tasks, activities and actors all happening simultaneously. Many of these processes, tasks, activities and actors are interconnected and some are dependent on others to ensure quality. Consequently, if one thing goes wrong it can in some instances have a negative and damaging ricochet effect on other processes, tasks, activities and/or actors. Based on our experiences in the field, project quality management planning can provide survey managers with the tools needed to effectively manage the quality of a survey.

5.2.6 Project Human Resource Management Plan

Many of the larger surveys that we have worked on have usually been face-to-face interaction by a team of surveyors. Although the activity is a temporary one, managing a team of diverse surveyors scattered across tens, hundreds (or in the case of cross-national surveys) thousands of miles has proven to be on several occasions, a challenging task. We have come to recognize the value of team work, and the importance of effectively managing teams. This is the core function of *project human resource management planning* - planning how to manage the human resources of a project (P. C. Dinsmore, 1990; Paul C. Dinsmore, 2010; K. Schwalbe, 2000; Kathy Schwalbe, 2010). Generally speaking, this process begins with staffing requirements and includes the use of incentives and sanctions, responding to staff needs, conflict resolution and intervention, encouraging participation, mentoring and counseling as well as monitoring and controlling the staff activities of a project. More specifically and as it relates to survey projects we have found that Project Human Resource Management Planning is an important ingredient for a successful survey project particularly as it relates to larger projects.

5.2.7 Project Risk Management Planning

Risks are unwanted circumstances which may have a negative effect on a project outcome. Some risks are avoidable while others are unavoidable.

A good project manager however will tell you that you can minimize, avert or even eliminate risks if you know how to recognize their existence, anticipate their presence, analyze their implications, and adequately plan for effectively managing them (Gido & Clements, 2006; Kloppenborg, 2011; Reid, 1999). This process is called risk management planning. Surveys can be a high risk business, and as such there exist many unwanted circumstances in the field which can threaten the quality, cost and schedule of a survey. Based on our experience and our knowledge of other surveys these risks can include anything from unexpected weather, curbstoning (falsifying of questionnaires), loss of data collection equipment, major sampling errors and an uncooperative sample.

5.2.8 Project Communications Management Planning

Information distribution plays a critical role when conducting field surveys. Survey managers often spend a great deal of time communicating with their supervisors and surveyors. Our experience in the field has taught us that recognizing the needs of a surveyor, supervisor or even participant, the specific information they require and when this information is needed helps to enhance the quality of field surveying, as well as to minimize the cost and time of collecting data in the field. Accordingly, we utilized the *project communication management planning* tool to accomplish these goals. Project communication management planning takes into account planning the communication configurations of a project that often involves several steps. These include: (1) meeting with your project team to identify what are the communication needs and expectation; (2) determining the flow of both vertical and horizontal information; (3) scheduling information flow; (4) identifying information channels and mediums especially for large projects (5) determining who is responsible for the management of communications for the duration of the project (6) collecting the information, (7) analyzing the information (8) disseminating this information, (9) identifying reporting formats channels, and (10) monitoring this entire process.

5.3 Executing and Controlling a Survey

Once the plan and all the necessary components (and subcomponents of the plan) are in place, the project execution begins. This is the fourth phase of the project management process. This is referred to in the literature as *project execution*. A Guide to the Project Management Body of Knowledge defines project execution as coordinating people, activities and other resources to carry out the tasks outlined in the project plan to meet the project objectives conceptualized during the project initiation phase of the project. Applied to quantitative field survey it literally means carrying out or conducting the survey. And once the project begins (Project Execution), the planning documents guide all participants ensuring that the project operates within the scope configurations ensuring that instructions are clear, outlining a clear chain of command, communication lines, lines of authority, other inputs, outputs and expected outcomes.

Project execution requires the project manager to monitor and control the project activities. This is referred to as *project control*. Project control is a management action which is taken to correct project deviations that may undermine the project objectives (Globerson & Zwikael, 2002; Shtub, Bard, & Globerson, 2005). In essence then, controlling is evaluating where you are in terms of where you are supposed to be. Project control is usually necessary when unexpected technical, quality, cost and schedule problem arise or, there is need for a change in the scope of a project. Although project control runs through the entire life of the project, it is at the execution stage where it is most critical.

With project control, the project manager ensures adherence to the project planning process by monitoring the process against the plan to identify issues in a timely manner (Kennedy, et al., 2010). When applied to survey field management, executing and controlling your field exercise means, engaging field supervisors, monitoring the progress of the data collection and data collection team, ascertain whether or not things are on track, and to identify any possible risks that might occur, deal with these issues (issues management) as they arise, formulate mitigation plan and strategies with the survey team and prepare regular reports for stakeholders. This involves moving to and where necessary enact the sub sections of the *project plan – time management, cost management, quality management, communication management and risk management -* to address challenges. There are several tools at the project execution and control stage which can greatly enhance the survey field execution phase of a quantitative exercise. These include task lists and milestones, as well as project plan status updates.

5.4 Project Closure

Project closure has proven to be a useful tool for survey managers as it assists in ensuring that all projects activities have been completed and objectives are met. This is a critical and important step as it validates the work that was done in the earlier stages of the project and confirms that the client is satisfied with the deliverables.

Without this prescribed step, stakeholders may strive to include 'one last piece' or 'just a few more touch-ups'. This may have serious implications on the project as most of these 'last pieces' and 'touch-ups' may be unbudgeted for which may cause sponsors to become jaded (Babcock & Morse, 2002; Meredith, 2000).

Within the quantitative experience, project closure is normally executed in two stages. In stage one, survey managers usually focus on completing all internal activities such as ensuring that all questionnaires were validated, that the report corresponds with the project's terms of reference and that all the deliverables such as datasets, completed questionnaires, final draft of report, power point presentation have been completed and packaged for the client. During this stage, a final project meeting should be held in order to highlight the challenges faced throughout the project and to determine the best course of action for improvement. At stage two, final tasks such as outstanding payments and the termination of all project accounts and contracted should be executed. Most importantly, confirmation should be received as to whether or not the client is satisfied with all the project deliverables.

6.0 Conclusion

Project management is a relatively new dynamic and ever evolving discipline. Since the launch of the Project Management Institute's first handbook, project management tools and techniques have been incorporated as indispensable ways of working and organizing in many spaces. The discipline of research methods is yet to formally incorporate these critical tools and techniques. Our experiences and our observations of how the tools and techniques of project management have enhanced other survey projects suggest that the discipline of quantitative research methods, particularly the field component would benefit significantly from adopting the project management way. Going forward, as quantitative research re-centers and quantitative researchers attempt to enhance validity and reliability (quality), the project management body of knowledge is an excellent tool for practitioners to employ. In this article we have outlined how these tools have been used to enhance the quality while reducing the cost, and time associated with the execution of our own work. We hope that this article will help quantitative researchers understand the utility and application of the project management body of knowledge in conducting surveys. It is also our hope that the article will inspire more quantitativists to explore and experiment with the many other aspects, tools, techniques and strategies located in the project management body of knowledge as we have done over the years and provide details regarding their experiences for further analysis and perhaps future application.

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