

Chapter 1 : Managing mixed methods projects

Mixed methods research is increasingly being used in business and management disciplines, in spite of positivist traditions. The aim of the study is twofold: (1) to examine the types of mixed methods approaches being used, and (2) to determine the quality of the reporting of mixed methods studies published in the field of project management.

When to Use Mixed Methods When to Use Mixed Methods The following module includes a discussion on when to use mixed methods in research and why it may be advantageous. Discuss the strengths and weaknesses of mixed methods research. Explain the ways in which qualitative and quantitative methods may be combined to create mixed methods research. Give examples of the application of mixed methods and explain the benefits of using mixed methodology. Creswell, provides an example of mixed methods research. Following through the steps in a specific research project, Dr. Creswell demonstrates when and why using mixed methods is advantageous in a research project. Mixed methods research includes collecting, analyzing and interpreting data using both quantitative and qualitative methods in a single study or series of studies in order to investigate a phenomenon or attempt to answer a research question. In successful mixed methods research, the methodologies chosen will have complementary strengths and nonoverlapping weaknesses. This will result in a comprehensive look at the research problem from many perspectives and will offer a more complete picture when analyzing results. To determine whether or not mixed methods are appropriate for a particular research project, the researcher needs to understand the strengths and weaknesses of a mixed methods approach. Following is a list of common strengths and weaknesses to consider: Data is more comprehensive. It can include numbers, statistics, words, pictures and narrative. Can be used to answer a broader range of research questions because the researcher can use more than one approach. The strengths of one method can be used to overcome the weaknesses of another method. The results from the methods may validate each other each and provide stronger evidence for a conclusion. Can add insights and understanding that may be otherwise missed. Increases the generalizability of the results. Researchers may only be trained or familiar with quantitative or qualitative methods. Choosing the appropriate methods and creating the overall design of the research project may be more challenging. May be difficult to manage the projects if both methods are being used simultaneously. May be more time-consuming and require additional funding. Researchers should consider these strengths and weaknesses as they examine the best way to study their own research question. The researcher will have to decide if using mixed methods is appropriate and necessary in order to gather the evidence needed in their study. Considering the following list of common rationales for using mixed methods research may be helpful: Triangulation “The researcher needs to use mixed methods to converge, corroborate or validate results from different methods. Complementarity “Mixed methods may be useful when the researcher wants to elaborate, enhance, further illustrate or clarify the results of a method. Development “The researcher may need to use one method to help develop the other method. A great example of this was shown in the video above where Dr. Creswell used journals and focus groups to develop a better survey to distribute to a wider audience in order to obtain the data he was seeking. Initiation “Researcher may use mixed methods when looking for contradictions and new perspectives. The results of one method may be used to examine and change the questions for the other method. The intention is to obtain divergent information. Expansion “A researcher may want to expand the breadth, depth, and range of the research by using different methods and different ways of inquiry, resulting in more comprehensive results. This will expand the scope of study. As shown in this lists, there are numerous reasons and rationales for choosing a mixed methods approach. Creswell could have developed his final survey without the qualitative input from the journals and focus groups. However, that input was vital in the survey development and led to more accurate results and a more comprehensive and reliable set of data to answer the research question. Once the researcher has determined that a mixed methods approach would be advantageous to their project, the next step is to choose the appropriate research design. Research design will be covered in the next module. Advances in mixed methods research: Qualitative, quantitative, and mixed methods approaches. Designing and conducting mixed methods research. Toward a definition of mixed methods research. Journal of mixed

methods research, 12, A research paradigm whose time has come. Educational researcher, 337, Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. Quality and quantity, 361, Major issues and controversies in the use of mixed methods in the social and behavioral sciences.

Chapter 2 : Mixed Methods Research Designs | Research Rundowns

Mixed methods research is increasingly being used in business and management disciplines, in spite of positivist traditions. The aim of the study is twofold: (1) to examine the types of mixed.

Projects may be audited or reviewed while the project is in progress. Formal audits are generally risk or compliance-based and management will direct the objectives of the audit. An examination may include a comparison of approved project management processes with how the project is actually being managed. If project control is not implemented correctly, the cost to the business should be clarified in terms of errors and fixes. Control systems are needed for cost, risk, quality, communication, time, change, procurement, and human resources. In addition, auditors should consider how important the projects are to the financial statements, how reliant the stakeholders are on controls, and how many controls exist. Auditors should review the development process and procedures for how they are implemented. The process of development and the quality of the final product may also be assessed if needed or requested. A business may want the auditing firm to be involved throughout the process to catch problems earlier on so that they can be fixed more easily. An auditor can serve as a controls consultant as part of the development team or as an independent auditor as part of an audit. Businesses sometimes use formal systems development processes. These help assure systems are developed successfully. A formal process is more effective in creating strong controls, and auditors should review this process to confirm that it is well designed and is followed in practice. A good formal systems development plan outlines: Designing a new car, writing a book. Project Complexity[edit] Complexity and its nature plays an important role in the area of project management. Despite having number of debates on this subject matter, studies suggest lack of definition and reasonable understanding of complexity in relation to management of complex projects. Level 2 Project “ develop and improve compliance to a business process with targeted completion time from 3 months to 1 year. Level 3 Project “ develop, change and improve a business process with targeted completion time from 1 to 2 years. Level 4 Project “ develop, change and improve a functional system with targeted completion time from 2 to 5 years. Level 6 Project “ develop, change and improve a whole single value chain of a company with targeted completion time from 10 to 20 years. Level 7 Project “ develop, change and improve multiple value chains of a company with target completion time from 20 to 50 years. Project managers are in charge of the people in a project. People are the key to any successful project. Without the correct people in the right place and at the right time a project cannot be successful. Project managers can have the responsibility of the planning, execution, controlling, and closing of any project typically relating to the construction industry, engineering, architecture, computing, and telecommunications. Many other fields of production engineering, design engineering, and heavy industrial have project managers. A project manager needs to understand the order of execution of a project to schedule the project correctly as well as the time necessary to accomplish each individual task within the project. A project manager is the person accountable for accomplishing the stated project objectives. A project manager is required to know the project in and out while supervising the workers along with the project. Typically in most construction, engineering, architecture and industrial projects, a project manager has another manager working alongside of them who is typically responsible for the execution of task on a daily basis. This position in some cases is known as a superintendent. A superintendent and project manager work hand in hand in completing daily project task. Key project management responsibilities include creating clear and attainable project objectives, building the project requirements, and managing the triple constraint now including more constraints and calling it competing constraints for projects, which is cost, time, and scope for the first three but about three additional ones in current project management. A typical project is composed of a team of workers who work under the project manager to complete the assignment. A project manager normally reports directly to someone of higher stature on the completion and success of the project. A project manager is often a client representative and has to determine and implement the exact needs of the client, based on knowledge of the firm they are representing. The ability to adapt to the various internal procedures of the contracting party, and to form close links with the nominated representatives, is essential in ensuring that

the key issues of cost, time, quality and above all, client satisfaction, can be realized. Project management types[edit] Project management can apply to any project, but it is often tailored to accommodate the specific needs of different and highly specialized industries. For example, the construction industry, which focuses on the delivery of things like buildings, roads, and bridges, has developed its own specialized form of project management that it refers to as construction project management and in which project managers can become trained and certified. Biotechnology project management focuses on the intricacies of biotechnology research and development. It focuses on three important goals: Successful projects are completed on schedule, within budget, and according to previously agreed quality standards. This allows project plans to become very thorough and highly repeatable, with the specific intent to increase quality, lower delivery costs, and lower time to deliver project results. Project management success criteria[edit] There is a tendency to confuse the project success with project management success. They are two different things. Project management success criteria is different from project success criteria. The project management is said to be successful if the given project is completed within the agreed upon time, met the agreed upon scope and within the agreed upon budget. Meanwhile, a project is said to be successful, when it succeeds in achieving the expected business case. Project risk management An example of the Risk Register that includes 4 steps: Risk management applies proactive identification see tools of future problems and understanding of their consequences allowing predictive decisions about projects. Work breakdown structure[edit] Main article: Work breakdown structure The work breakdown structure WBS is a tree structure that shows a subdivision of the activities required to achieve an objectiveâ€”for example a program, project, and contract. It is an essential element in assessing the quality of a plan, and an initial element used during the planning of the project. For example, a WBS is used when the project is scheduled, so that the use of work packages can be recorded and tracked. There have been several attempts to develop project management standards, such as: This is the first project management ISO.

Chapter 3 : When to Use Mixed Methods - Center for Innovation in Research and Teaching

Mixed methods research requires meticulous planning if a project is to be conducted successfully. Beyond the general requirements of research, in terms of having a realistic problem of sufficient interest and the.

Basic Characteristics Design can be based on either or both perspectives. Sample sizes vary based on methods used. Data collection can involve any technique available to researchers. Interpretation is continual and can influence stages in the research process. Why Use Mixed Methods? The simple answer is to overcome the limitations of a single design. A detailed answer involves: To explain and interpret. To develop and test a new instrument. To serve a theoretical perspective. To complement the strengths of a single design. To overcome the weaknesses of a single design. To address a question at different levels. To address a theoretical perspective at different levels. What are some strengths? Can be easy to describe and to report. Can be useful when unexpected results arise from a prior study. Can help generalize, to a degree, qualitative data. Helpful in designing and validating an instrument. Can position research in a transformative framework. What are some weaknesses? Resolving discrepancies between different types of data. Some designs generate unequal evidence. Can be difficult to decide when to proceed in sequential designs. Little guidance on transformative methods. Methodologist John Creswell suggested a systematic framework for approaching mixed methods research. His framework involves four decisions to consider and six strategies. What method takes priority during data collection and analysis? What does the integration stage of finding involve? Will a theoretical perspective be used? Sequential Explanatory Characterized by: Collection and analysis of quantitative data followed by a collection and analysis of qualitative data. To use qualitative results to assist in explaining and interpreting the findings of a quantitative study. Sequential Exploratory Characterized by: An initial phase of qualitative data collection and analysis followed by a phase of quantitative data collection and analysis. To explore a phenomenon. This strategy may also be useful when developing and testing a new instrument 3. Sequential Transformative Characterized by: Collection and analysis of either quantitative or qualitative data first. The results are integrated in the interpretation phase. To employ the methods that best serve a theoretical perspective. Concurrent Triangulation Characterized by: Two or more methods used to confirm, cross-validate, or corroborate findings within a study. Data collection is concurrent. Generally, both methods are used to overcome a weakness in using one method with the strengths of another. Concurrent Nested Characterized by: The purpose of the nested method is to address a different question than the dominant or to seek information from different levels. Concurrent Transformative Characterized by: The use of a theoretical perspective reflected in the purpose or research questions of the study to guide all methodological choices. To evaluate a theoretical perspective at different levels of analysis.

Chapter 4 : "Managing mixed methods projects" by Elizabeth J Halcomb

Managing Mixed Methods Projects Sharon Andrew RN RM DipAppSc(NursEd), BAppSc, MSc(Hons), PhD, FRCNA Senior Lecturer Head and Elizabeth J. Halcomb RN BN(Hons), GradCert IntCareNurs, PhD, MRCNA Senior Lecturer.

Find Answers Using the Quantitative Method written by: This can be done in a variety of ways and here, Jean Scheid discussed the best practices for using such methods based on factual data that is easily analyzed. In order for any quantitative research method to work, one must first establish the baseline of what will be analyzed. For example, will a certain widget sell as is? To find out, quantitative methods pool participants in various ways and match actual and factual numbers to the questions asked. Here, questions on market share, market demographics, and customer satisfaction can be achieved and those results used to improve the widget or change the widget or elements of the widget entirely. Her idea incorporated a stuffed animal pet with Velcro which opened up into a sleeping pillow. Using the Pillow Pet example, we must first look at the qualitative method first. Most likely in developing her first Pillow Pets, Ms. Telfer looked at gender-specific designs. After all, girls may not like giraffes as much as boys or boys may want to skip the panda, etc. Qualitative research always comes first, so in our scenario to determine the problems with low sales of the Pillow Pet qualitative research shows the reason for the low sales. For example, perhaps a focus group of children were gathered with a variety of designs to determine favorites and the not so favorites. Once qualitative researched showed no child wanted the polar bear or snake pillow pet, each were specifically questioned on why to determine the exact reasons. Once these reasons are discovered, quantitative research can begin. No child of either gender liked the way the snake pillow felt when unfolded and found it uncomfortable. Females thought the snake looked mean. The polar bear was not white and black in color. From here, the quantitative research method can begin by using various methods to determine why faults occurred and ways to fix them. Qualitative research shows what is wrong, where quantitative methods reveal ways to improve products based on end-user input; or numerical data that can be analyzed. Hybrid Sampling

â€” For the uncomfortable Pillow Pet design, a new design offered a bigger pillow-head area, the pillow snake was given a happier smile and the Panda Pillow Pet was offered in recognizable black and white colors. The focus group needed to answer specific questions about what they liked about the new Pillow Pets including questions such as, do you think the snake pillow is comfortable and why? Does the snake look happy or scary? What if we made the Panda red and yellow? Here, through learned responses, the new design, if developed using the quantitative method will help to increase sales. The answers provide quantitative numbers to increase sales based on pooling a group. Parent Surveys

â€” Telephone or online surveys are developed to be answered by parents of the original focus group of children. Through these surveys, parents are asked what specifically they think their child would rather see in the snake or the panda. Again, survey data analysis reveals if indeed a redesign would work or fail. The production cost of the scary snake is dropped and the designers can focus on what children like best based on parental input. These surveys, once analyzed, reveal quantitative facts based on numerical data and show what parents will buy their children based on known likes and what they will avoid. If surveys or questionnaires revealed an elephant was missing from the Pillow Pet line via suggestions by a panel, this product could be introduced. These surveys are easily designed to simply explain what the Pillow Pet is and does, likes and dislikes and the ever importantâ€”what would you like to see different question. Again via analysis, the appropriate product line could be produced. In this quantitative method, the number of people asking for an Pillow Pet elephant would be overwhelming, making it a perfect new product line choice. These methods show actual number results, meaning the project can focus on how many to produce and which kind will sell best. What can make the quantitative method fail is not analyzing the data and using the results to ensure the product will indeed sell.

Chapter 5 : "Managing mixed methods projects" by Elizabeth J. Halcomb and Sharon Andrew

Mixed methods research requires meticulous planning if a project is to be conducted successfully. Beyond the general requirements of research, in terms of having a realistic problem of sufficient interest and the ability and resources to gather the required information, consideration needs to be given to the management of the extensive data collected during the course of a mixed methods.

Received Apr 22; Accepted Jul This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are properly cited. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>. The project trained and equipped community health workers CHWs according to national guidelines. In project districts, Kabeho Mwana staff also trained CHWs to conduct household-level health promotion and established supervision and reporting mechanisms through CHW peer support groups PSGs and quality improvement systems. The and Demographic and Health Surveys were re-analyzed to evaluate how project and non-project districts differed in terms of care-seeking for fever, diarrhea, and acute respiratory infection symptoms and related indicators. We developed a logit regression model, controlling for the timing of the first CHW training, with the district included as a fixed categorical effect. We also analyzed qualitative data from the final evaluation to examine factors that may have contributed to improved outcomes. While there was notable improvement in care-seeking across all districts, care-seeking from any provider for each of the 3 conditions, and for all 3 combined, increased significantly more in the project districts. The iCCM model implemented by Kabeho Mwana resulted in greater improvements in care-seeking than those seen in the rest of the country. The PSGs were a unique contribution of the project, playing a critical role in improving care-seeking in project districts. Finally, re-analysis of national survey data improved evaluation findings by providing impact estimates.

INTRODUCTION Integrated community case management iCCM is an equity-focused strategy designed to increase access to effective treatment for the leading causes of under-5 mortality by training and supporting front-line community health workers CHWs to identify and treat children for malaria, diarrhea, and pneumonia at the household level. Over the past 2 decades, the Rwandan Ministry of Health MOH placed a strong emphasis on accessible care at the community level, holding the initial election of 12, volunteer CHWs in This was the start of a national community health strategy that led to the provision of iCCM to all communities. National election of 12, volunteer community health workers CHWs , with the initial task of community sensitization on preventive measures such as immunization, hygiene, and nutrition. Pilot of home-based management of malaria HBM in 3 districts. HBM pilot expanded to 2 additional districts, and community case management of diarrhea with oral rehydration solution ORS and zinc piloted in 1 district. HBM scaled up to all 19 malaria endemic districts. Treatment of community case management for diarrhea with ORS and zinc approved. Treatment of acute respiratory infection presumed pneumonia with amoxicillin approved. National rollout of iCCM in initial 10 districts. Between and the Rwanda national iCCM program expanded and evolved into a robust community health network. CHWs received a 4-day training on iCCM, covering topics such as recognition and referral of danger signs, assessment and treatment, drug management, reporting, and community mobilization. CHWs were not paid for their services, but they did receive modest per diem for participation in official trainings. The main strategy for motivating the CHWs was a community performance-based financing PBF system, funded by government and donor resources, whereby CHWs were organized into cooperatives and received small payments into group accounts based on reporting and achievement of treatment and referral targets. The project covered 6 districts in Rwanda—Gisagara, Kirehe, Ngoma, Nyamagabe, Nyamasheke, and Nyaruguru—representing one-fifth of all districts and about 1. According to the statistics and the project budget of the Organization for Economic Cooperation and Development, Kabeho Mwana support represented 3. To do so, Kabeho Mwana trained more than 6, CHWs in the national iCCM curriculum and provided tools required for the provision of iCCM, including a lockable box for storing drugs and supplies, respiratory timers, a spoon and cup for mixing oral rehydration solution ORS , and treatment registers. The project supported the initial procurement of zinc, amoxicillin, ORS, and,

later, rapid diagnostic tests for malaria and related supplies. These products then became part of the regular national supply chain, but the project continued to monitor stock levels and worked with district management to help prevent stock-outs. Beyond training and equipping CHWs to implement iCCM consistent with the national guidelines, Kabeho Mwana established a strong presence with field offices in each district, allowing project staff to provide regular, intensive technical support to each of the MOH district offices and regular visits to each of the 88 health centers. Project interventions designed to strengthen the community health system included training key health center staff in iCCM supervision, with financial support in the first years of the project given directly to facilities to pay for supervision visits. Project staff also initiated quarterly data reviews with health center staff and the cell coordinators. All interventions and services were carried out through structures in the national health system. The project prioritized community mobilization strategies designed to promote healthy behaviors and create demand for CHW services. Within the framework of the national health system, Kabeho Mwana introduced CHW peer support groups PSGs , bringing together an average of 20 CHWs from 2 to 4 neighboring villages for monthly meetings. Peer support groups were designed primarily to support health promotion activities; however, they also served as fora for increased interaction between CHWs, encouraging problem-solving and mutual accountability. During group meetings, CHWs were trained in health promotion, guided through joint planning of home visits to deliver messages on healthy family practices and to monitor their adoption, and they worked together to compile monthly reports. Three project promoters per district supported the formation and training of PSGs. Meeting facilitation was primarily the responsibility of the elected cell coordinators, who, under the supervision of the community health in-charge, were already tasked with collecting information from and supervising CHWs. The additional work of leading the PSGs was fairly limited; in fact, the meetings allowed cell coordinators time to collect, review, and discuss reports from all PSG members together at a single location, thus easing the work of reporting.

Chapter 6 : Simple Examples of Quantitative Research Methods

This three-step project management method is designed to take a project from the planning stage through to completion. 12 - Crystal The crystal method places a major emphasis on team communication and low priority on project processes and tasks.

This article has been cited by other articles in PMC. Summary Mixed methods research is the use of quantitative and qualitative methods in a single study or series of studies. It is an emergent methodology which is increasingly used by health researchers, especially within health services research. There is a growing literature on the theory, design and critical appraisal of mixed methods research. However, there are few papers that summarize this methodological approach for health practitioners who wish to conduct or critically engage with mixed methods studies. The objective of this paper is to provide an accessible introduction to mixed methods for clinicians and researchers unfamiliar with this approach. We present a synthesis of key methodological literature on mixed methods research, with examples from our own work and that of others, to illustrate the practical applications of this approach within health research. We summarize definitions of mixed methods research, the value of this approach, key aspects of study design and analysis, and discuss the potential challenges of combining quantitative and qualitative methods and data. One of the key challenges within mixed methods research is the successful integration of quantitative and qualitative data during analysis and interpretation. However, the integration of different types of data can generate insights into a research question, resulting in enriched understanding of complex health research problems. Introduction Mixed methods research is the use of quantitative and qualitative methods in one study. Research is often dichotomized as quantitative or qualitative. Quantitative research, such as clinical trials or observational studies, generates numerical data. On the other hand qualitative approaches tend to generate non-numerical data, using methods such as semi-structured interviews, focus group discussions and participant observation. Historically, quantitative methods have dominated health research. However, qualitative methods have been increasingly accepted by the health research community in the past two decades, with a rise in publication of qualitative studies. This paper is aimed at health researchers and practitioners who are new to the field of mixed methods research and may only have experience of either quantitative or qualitative approaches and methodologies. We wish to provide these readers with an accessible introduction to the increasingly popular methodology of mixed methods research. We hope this will help readers to consider whether their research questions might best be answered by a mixed methods study design, and to engage critically with health research that uses this approach. Methods The authors each independently carried out a narrative literature review and met to discuss findings. Literature was identified via searches of PubMed, Google and Google Scholar, and hand-searches of the Journal of Mixed Methods Research, with relevant publications selected after discussion. An important consideration was that papers either had a methodological focus or contained a detailed description of their mixed methods design. For PubMed and Google searches, similar terms were used. For example, the PubMed strategy consisted of title and abstract searches for: We also drew upon recommendations from mixed methods conferences and seminars, and reference lists from key publications. What is mixed methods research? A recent innovation in mixed methods research is the mixed methods systematic review, which sets out to systematically appraise both quantitative and qualitative literature on a subject area and then synthesize the findings. Why are mixed methods approaches used? The underlying assumption of mixed methods research is that it can address some research questions more comprehensively than by using either quantitative or qualitative methods alone. How are general practitioners GPs responding to possible child maltreatment in England? A mixed methods study There is considerable debate about the role that GPs should play in the management of child maltreatment abuse or neglect. This study aimed to describe and understand the types of responses that GPs were making when faced with a child or family who prompted concerns about child maltreatment. The broad research question about GP responses to child maltreatment prompted several sub-questions; each answered by either a quantitative or qualitative methodology. In this study, there were two stages of analysis. First, we analysed the data from each study separately and presented

findings from each of the data as answers to the sub-questions. Secondly, we integrated the two data and findings to provide a multi-faceted insight into the broader research question about GP responses to maltreatment. A mixed methods design was chosen to facilitate increased breadth and range of study findings; both illuminated different aspects of the same complex issue. In this case, the two methods allowed access to data and insights that each method alone could not provide. Insights from the mixed methods design included differences between the type of maltreatment concerns that are recorded by GPs in the quantitative dataset and the types of concern that were preoccupying and resource-intensive according to the interviews. The interview and observation data also provided an understanding of a wide range of relevant GP responses, from the perspective of the primary care team, whereas the quantitative dataset could only provide data about recording practices. This is a complex question encompassing medical and sociocultural factors. Each type of data was analysed separately with findings from one analysis informing the other. Data were also compared and contrasted at the interpretation stage. Where appropriate and feasible, the quantitative and qualitative data has been presented in an integrated way, rather than as separate studies. The quantitative phase enabled us to identify potentially important disparities in outcomes and health care access. The qualitative phase allowed us to understand what may be driving these disparities, whilst also identifying previously neglected aspects of pregnancy in this group of women such as stigma within health care settings.

Usually, quantitative research is associated with a positivist stance and a belief that reality that can be measured and observed objectively. Strengths of quantitative research include its procedures to minimize confounding and its potential to generate generalizable findings if based on samples that are both large enough and representative. It remains the dominant paradigm in health research. However, this deductive approach is less suited to generating hypotheses about how or why things are happening, or explaining complex social or cultural phenomena. Qualitative research most often comes from an interpretive framework and is usually informed by the belief that there are multiple realities shaped by personal viewpoints, context and meaning. In-depth qualitative research aims to provide a rich description of views, beliefs and meaning. It also tends to acknowledge the role of researcher and context in shaping and producing the data. High-quality qualitative research can generate robust theory that is applicable to contexts outside of the study area in question, helping to guide practitioners and policy-makers. Mixed methods research therefore has the potential to harness the strengths and counterbalance the weaknesses of both approaches and can be especially powerful when addressing complex, multifaceted issues such as health services interventions and living with chronic illness.

Using data obtained by one method to illustrate results from another. An example of this would be a survey of adolescents with epilepsy demonstrating poor levels of adherence. Semi-structured interviews with a sub-group of those surveyed may allow us to explore barriers to adherence. Using results from one method to develop or inform the use of the other method. A focus group conducted with a group of adolescents with epilepsy may identify mobile phone technology as a potentially important tool in adherence support. Using results from different methods specifically to look for areas of incongruence in order to generate new insights. An illustration of this would be a study exploring the discrepancy between reported adherence in clinic consultations and actual medication adherence. Setting out to examine different aspects of a research question, where each aspect warrants different methods. We may wish to conduct a study that explores adherence more broadly. A large-scale survey of adolescents with epilepsy would provide information on adherence levels and associations whilst interviews and focus groups may allow us to engage with individual experiences of chronic illness and medication in adolescence. Using data obtained by both methods to corroborate findings. For example, we could conduct a clinical study measuring drug levels in individuals and documenting self-reported adherence. Qualitative methods such as video diaries may confirm adherence levels. To this list we would also add political commitment. That is to say, researchers may recognize, and wish to deploy, the strengths of quantitative research in producing generalizable results but may also be committed to representing the voice of participants in their work. Whatever the reasons for mixing methods, it is important that authors present these explicitly as it allows us to assess if a mixed methods study design is appropriate for answering the research question. When embarking on a mixed methods research project it is important to consider: A wide variety of methods exists by which to collect both quantitative and qualitative data. Both the research

question and the data required will be the main determinants of the methods used. Priority of methods relates to the emphasis placed on each method in the study. For instance, the study may be predominantly a quantitative study with a small qualitative component, or vice versa. Alternatively, both quantitative and qualitative methods and data may have equal weighting. The emphasis given to each component of the study will be driven mainly by the research question, the skills of the research team and feasibility. Finally, researchers must decide when each method is to be used in the study. For instance a team may choose to start with a quantitative phase followed by a qualitative phase, or vice versa. Some studies use both quantitative and qualitative methods concurrently. Again the choice of when to use each method is largely dependent on the research question. The priority and sequence of mixing methods have been elaborated in a typology of mixed methods research models. See Table 1 for typology and specific examples. Examples of studies using mixed methods.

Chapter 7 : Alon DC - Cybersecurity, Digital Ethnography, Mixed-Method, Project Management

Mixed methods research is likely to be more costly to conduct in terms of the time, skills and resources required compared to a purely qualitative or quantitative study. However, this should be outweighed by the greater insight into the research problem than would have been achieved with a purely quantitative or qualitative investigation.

Fortunately, following a project management methodology can help you organize your project into a structured, streamlined process. It makes team collaboration more efficient and projects become better organized. Project management experts agree that most projects benefit when a recognized methodology is followed. While there are dozens of project management methods available, the majority of projects can be managed efficiently by following one of the thirteen methods below. Understanding project management Project management plays a crucial role in accomplishing goals and following through with plans and expectations. Project management methodology helps managers through every stage of a project. It begins with helping the manager plan, initiate, and implement the project. Methodologies even take the project to closure. They are models that project managers can use to plan and achieve task goals. Different projects benefit from different methodologies. Not every style of project management will work for every assignment. In order to recognize which method will work best for your project, you need to be familiar with these common project methodologies and their differences. Commonly used for in-house teams, agile project management was created for projects where there is no need for extensive control over the deliverables. Because it simply assesses the various tasks required for a project, and provides a process to oversee and monitor the completion of those tasks, traditional project management works well. While the project is in development, the role of the project manager is to provide coaching and feedback to the team members carrying out their tasks. This helps the project reach its desirable outcome. If communications within the team can remain minimal, traditional project management can run smoothly. With the waterfall approach, it is assumed that team members are reliant upon the completion of other tasks before their own tasks can be completed. Tasks must therefore be accomplished in sequence and it is vital that team members correspond with one another. Everyone contributes to the overarching goals of the project and as they complete their tasks, they enable other team members to complete theirs, which opens up opportunity to begin larger tasks. With waterfall project management , team size will often grow as the project develops and larger tasks become a possibility. As these opportunities open up, new team members are assigned to those tasks. Project timelines and dependencies need to be tracked extensively. With adaptive project management the scope of a given project can vary. While the time needed to complete the project and the cost of the project are constants, the project scope can be adjusted as it is being executed. Businesses commonly do this to get maximum value out of each project, such as when new ideas or opportunities are unlocked during the development of a project. With the critical path managing style, interdependent activities are easily managed. The work can be broken down using a structure that tracks the timeline needed for completion of these dependencies, their milestones, and their deliverables. Critical path project management is a style that outlines the critical and non-critical activities needed for the project by calculating which ones have the longest and shortest time to accomplish various tasks. This project management style is commonly used by scientists and manufacturers because there is such a heavy emphasis on task duration. Measuring and prioritizing tasks results in a faster completion time. This project management style is commonly found in developmental processes and manufacturing. It is especially useful for businesses like these who plan to expand in the near future, or would at least like to keep that possibility open. Project managers are expected to differentiate between events, and to measure the progress of activities and tasks being completed. By closely analyzing and estimating the amount of time it should take for each event to be completed, the manager can then easily create realistic timelines and budgets for those aspects of the project. Its iterative style allows for cyclical projects requiring beta testing or feedback from users of the project, which may have an effect on the product and change production. RUP project management is similar to the waterfall method, except there is a major emphasis on transitioning the project at the end of every cycle, where users will be testing and evaluating its performance. RUP allows for the future

evolution of a project and accounts for rapid growth and expansion. When used for software development, users may report bugs or have suggestions that could impact the project and change its direction. With this methodology, project managers can create goals and assemble teams based around their budget or other project constraints. Rather than determining the shortest possible project length, as is the case with critical path projects, project managers use their data to find areas where cost savings and benefits can be had. Changing elements and eliminating portions of projects is common. Critical chain project management is also very popular in highly competitive industries. Many consumer electronics companies use this project management to lower costs and compete within the aggressive technology world. Regardless of whether a cycle has been completed or reached functionality, project managers will often assign a name or number to it. These types of projects need to be updated regularly, sometimes even nightly. Project managers then use these updates as hallmarks and during this time, user requests can be taken into account for inclusion in future cycles. These sprints are used to prioritize various project tasks and ensure they are completed within this time. Rather than being project manager, a Scrum Master should facilitate the process and assemble small teams that have oversight of specific tasks. The teams should communicate with the Scrum Master to discuss task progress and results. These meetings with the Scrum Master are ideal times to reprioritize any backlogged tasks or discuss tasks that have yet to be pooled into the project. Their overall goal was to reduce waste, improve their project processes, and increase profits. Six sigma is a data-driven project management method with three essential components: This three-step project management method is designed to take a project from the planning stage through to completion. Instead, the project is centered on the skills and interactions between the people who are assigned to the project. This project management method is often used among businesses with creative talents within their organization. By focusing on the skillsets and traits of team members, projects are more flexible and far more unique. The team and client are to have meetings or sessions where both can collaborate freely. This allows the client to contribute ideas to the project and also give feedback on how things are progressing. Joint application development relies on the client contributing and holding sessions with team members throughout the entire lifecycle of the project. A business can vary according to type, size, industry, and many other factors. Rather than looking for a methodology that is best, businesses should learn these methodologies, how they are used, and how they can be applied. Consider some of these factors for determining which methodology might be right for you:

Chapter 8 : SoTL: Using Mixed Methods - UCF Faculty Center for Teaching and Learning

Project management methodology Project management methodology is defined by Project Management Institute as set of methods, techniques, procedures, rules, templates, and best practices used on a project (Project Management Institute,).

Chapter 9 : Project management - Wikipedia

While implementing a mixed methodology approach will have its challenges, it can be greatly simplified by using a project management software that can handle both Agile and Waterfall, including integrating and enabling the communication flow between the different styles.