



Mixed Methods Approaches to Developing Grounded Theory

Dr. Elizabeth G. Creamer (creamere@vt.edu),
Professor Emerita, Virginia Tech

Senior Visiting Scholar, University of Michigan
MMIRA/IIQM Webinar, March 13, 2018

Goals

1. Provide an overview of the potential value-added of a combining QUAL and QUANT data to develop and refine theory.
2. Ground my examples in a research project about the undergraduate research experience and its impact on interest in careers in science.
3. Provide details about some of the steps that can be used to develop a theoretical GT model.
4. Introduce some procedures that are uniquely adaptable to integrating QUAL and QUANT data through **theoretical memoes** and **theoretical coding**.

Public Folder on Google Drive*

https://drive.google.com/drive/folders/1WZbT_5E24FMPPbfzBdG5E_qBEv3mihSP?usp=sharing

- Has PPTs (as PDF)
- Creamer, E. G. (in press). **Enlarging the conceptualization of mixed method approaches to grounded theory with intervention research.** In E. G. Creamer & J. L. Schoonenboom (Eds). Special Issue: Methodological Innovations in Mixed Method Research. American Behavioral Scientist.
- Reference List

AUTHOR PROFILE ON AMAZON



Books ▾



Free eBook with Prime

Departments ▾

Browsing History ▾

Elizabeth's Amazon.com

Today's Deals

Gift Cards

Registry



Hello, Elizabeth

Account & Lists ▾

Orders

Prime ▾



Books

Advanced Search

New Releases

NEW! Amazon Charts

Best Sellers & More

The New York Times® Best Sellers

Children's Books

Textbooks

Textbook Rentals

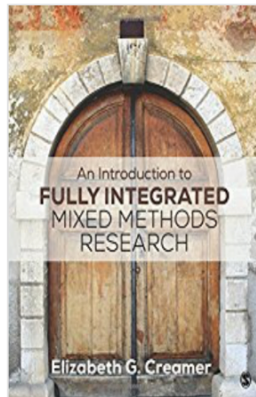
Sell Us Your Books

Elizabeth G. Creamer



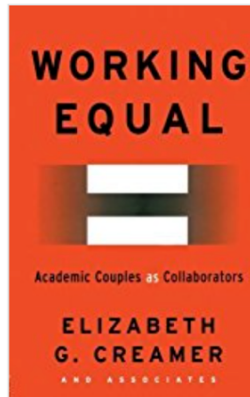
✓ Following

Elizabeth G. Creamer grew up near Rumson, New Jersey and had the benefit of attending a high school with progressive and engaged teachers during the height of the Civil Rights Movement. This was followed by a four year degree in English literature from Northwestern University and a doctorate from Virginia Tech and, ultimately, a nearly forty year career as an academic. An avid journal keeper and frenetic note taker, she taught herself to type on an old manual typewriter in third grade so that she



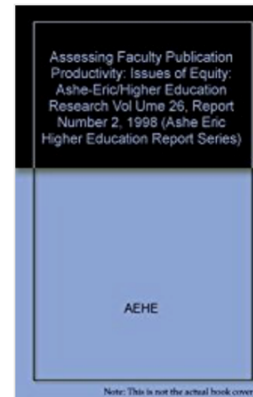
\$68.98

Paperback



\$16.82

Paperback



\$0.99

Paperback

Author Updates



Blog post

[Researching Mindfulness with Mixed Methods](#)

Recent research from the Stanford Compassion Cultivation Program (CCT) indicates that people who develop compassion for others gain physical and emotional advantages, includ

Blog post

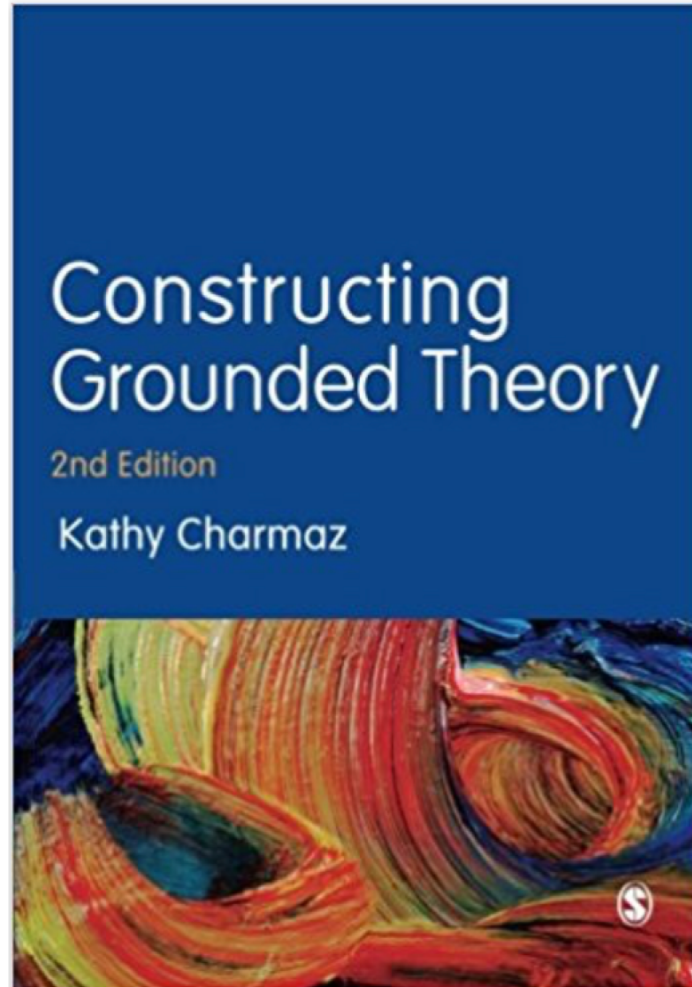
[Hatching Theory to Explain Diverse Bird Egg Shapes: Lessons for the Social Science Researcher](#)

An interdisciplinary team of researcher led by an assistant professor of biology and evolutionary ecology at Princeton University in the US explored mu

Blog pos

[MMIRA 2](#)
The Mixe
Research
affi
the
locations
and Mala

My Orientation to GT

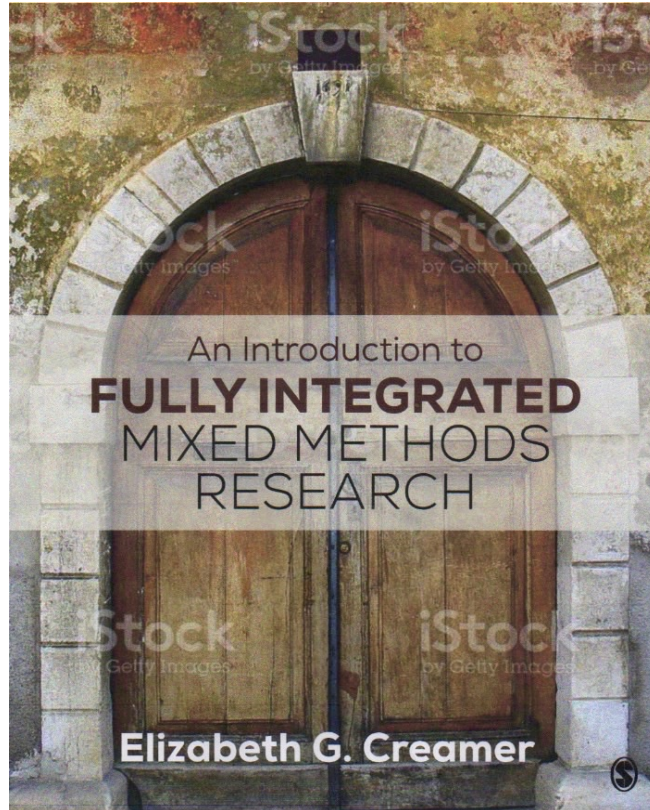


E. G. Creamer, MMIRA Webinar, March
2018

Tackling Definitions- My Definition of MMR

A systematic approach to data collection and analysis that **combines** qualitative and quantitative data and analytic procedures with a **commitment to *meaningfully engage multiple perspectives*** while respecting the methodological assumptions of each method.

The Idea of Fully Integrated MMR



[Link to Amazon](#)

Terminology

Term	Definition
CONCEPTUAL FRAMEWORK	A system of inter-related constructs that offer a coherent explanation for why and how an activity/intervention is associated with an outcome in specific settings.
THEORY	A well-substantiated set of inter-related constructs that offer an explanation for a phenomenon.
GROUNDED THEORY	An inductively or qualitatively derived set of inter-related constructs using grounded theory methods.

Defining MMR-GTM

- A type methodological mixing that uses grounded theory and mixed methods methods & methodology.

Distinguishing Methods from Methodology: Little and Big GT

gt

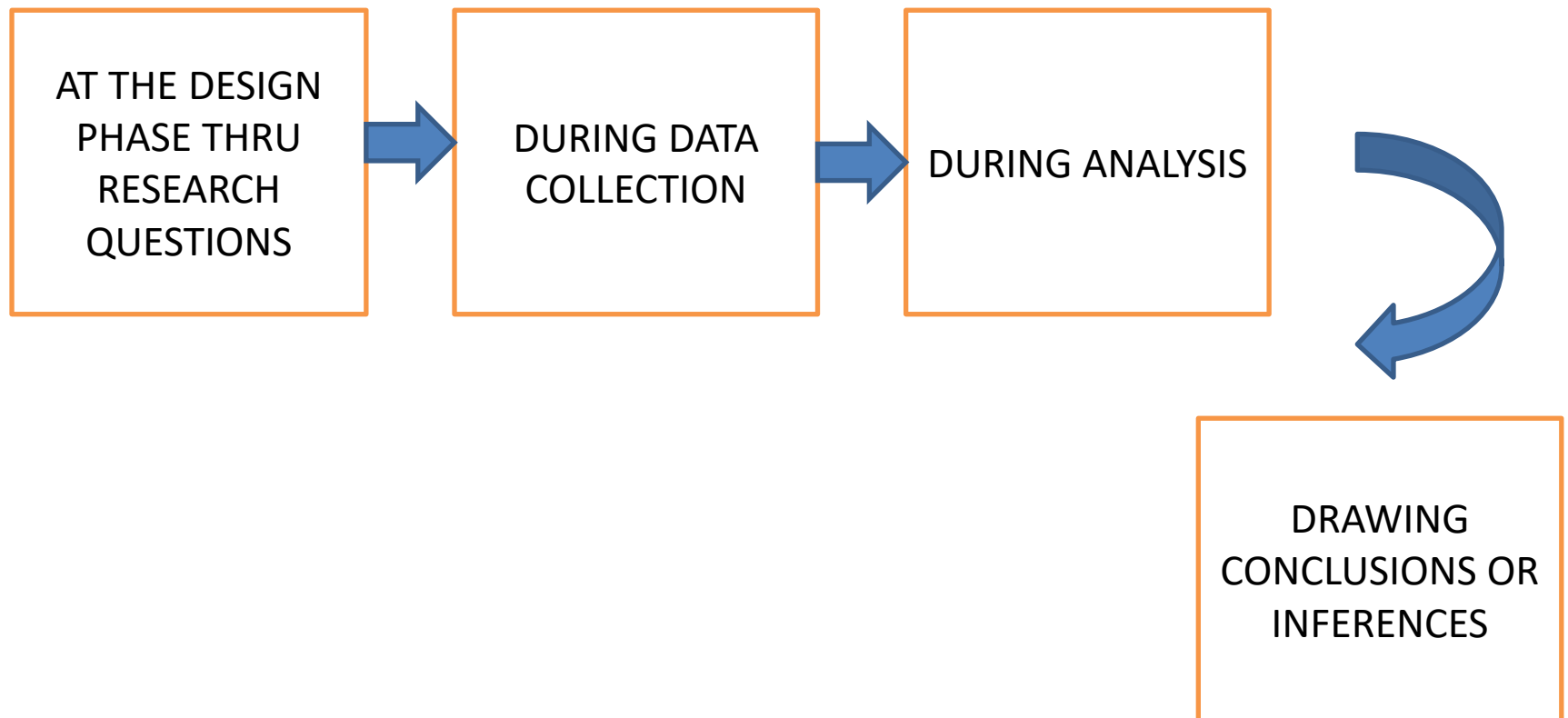
≠

GT

Grounded theory: both a method and a methodology

TRADITIONAL WAY THE METHOD IS CONCEIVED	METHODOLOGY
PROCEDURES FOR DATA ANALYSIS	INDUCTIVE LOGIC; CAUSALITY PRODUCED BY THE ENTIRE MODEL
BEGIN WITH OPEN CODING	NO PRESUPPOSITIONS OR HYPOTHESIS
MOVE TO FOCUSED AND AXIAL CODING	END POINT: THEORY

Fully Integrated MM-GT (FIMM-GT^M)-Envisions Opportunities for Mixing at all Phases



Envisioning the Purposes of a Theory Across Phases

DESIGN	DATA COLLECTION	DATA ANALYSIS	META INFERENCES	FUTURE RESEARCH
<p>Identify key constructs.</p> <p>Refine, focus RQ.</p> <p>Help design Intervention.</p>	<p>Design data collection instrument so QUAL and QUANT data on many key constructs.</p>	<p>Guide theoretical coding.</p> <p>Lead to theory refinement.</p>	<p>Explain Fundamental mechanism and underlying processes.</p> <p>Explain unexpected findings.</p>	<p>Contribute to practice.</p> <p>Pathway for future research.</p>

Envisioning Multiple Reasons for Mixing in MMR-GT

TRIANGULATION	COMPLEMENTARITY	EXPANSION	INITIATION
Seek to enhance validity by confirming constructs with both QUAL & QUANT data	QUAL and QUANT constructs are kept separate but build a more comprehensive explanation.	Multi-level data from different constituencies used to build a stronger theory.	Theory building is enhanced by pursuing contradictory data.

A Composite MM-GT Model from Kawamura et al. (2009)

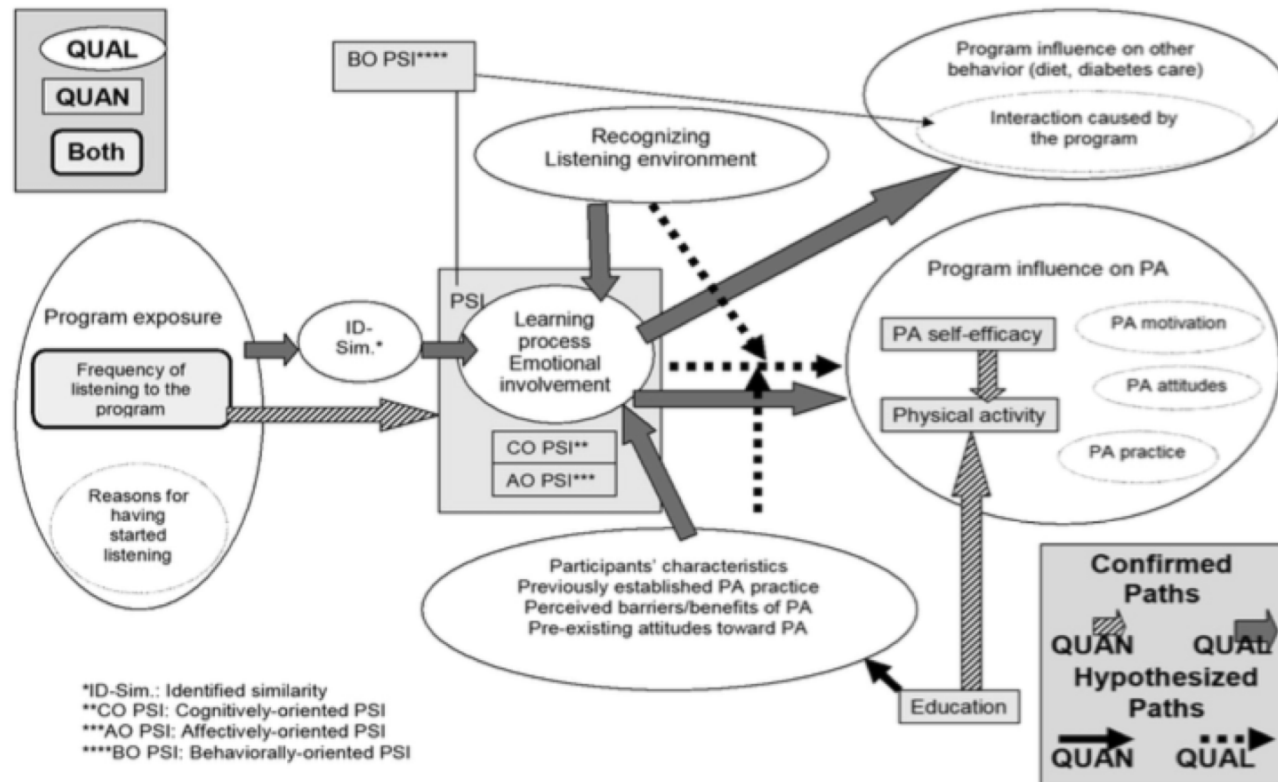


FIGURE 4: WORKING INTEGRATION MODEL

Note: QUAL = Qualitative; QUAN = Quantitative; PA = physical activity; PSI = parasocial interaction

What Can be Added by Creatively Integrating QUAL and QUANT Data in MM-GT?

1. Strengthen evidence of construct validity through triangulating QUAL and QUANT Data on the same constructs.
2. Add constructs to the model that unexpectedly prove relevant.
3. Remove constructs from the model that unexpectedly prove irrelevant.
4. In a sequential design, use QUANT data to pick a sub-sample to pursue qualitatively to explain unexpected findings.

QUESTIONS???



Part 2: Examples of Models

A Three-Way Compatibility: MMR and Intervention & Evaluation Research

1. **MMR and GT:** Both used to address complex, multi-layered problems in educational and health related settings.

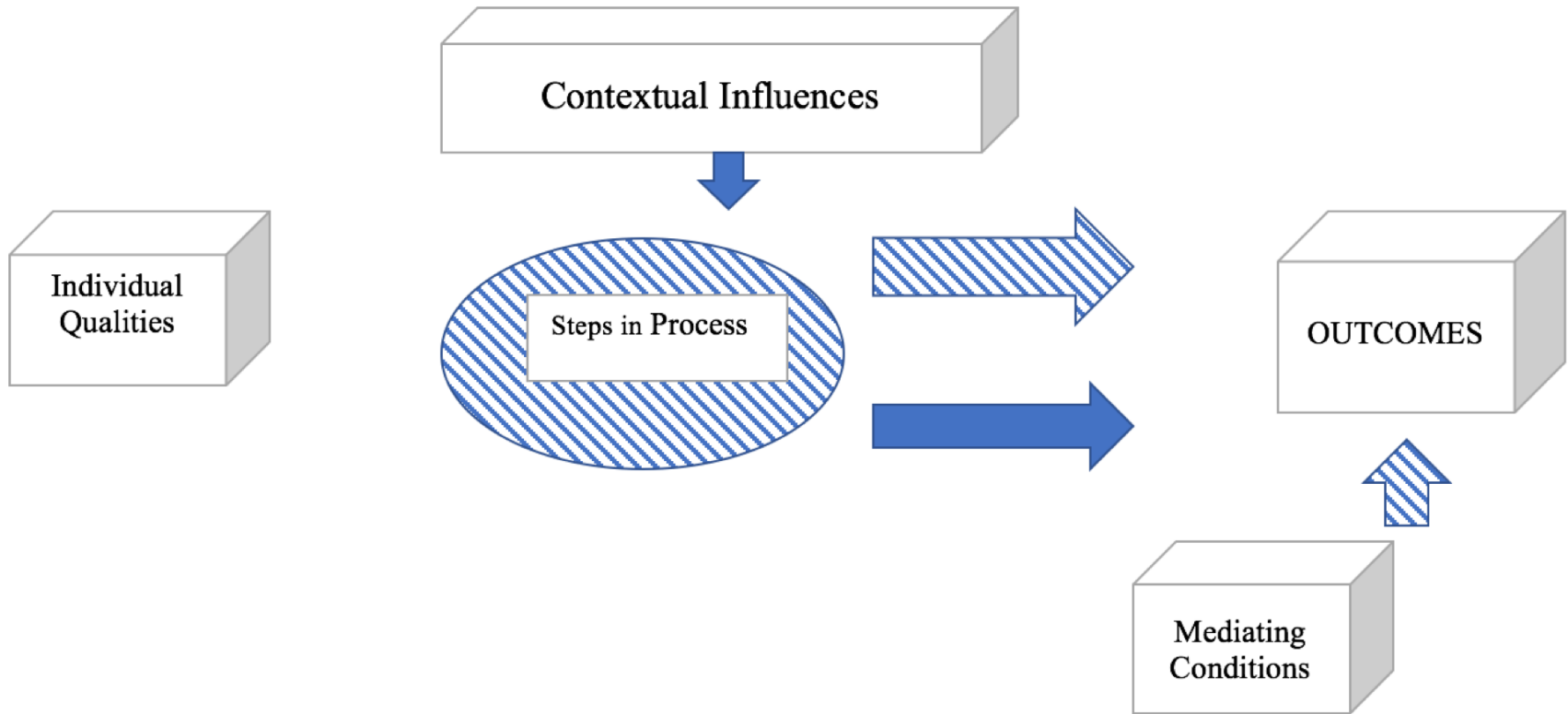
2. **Evaluation Research- MMR- GT**




1. Interested in both anticipated and unanticipated outcomes.
2. Trying to uncover an underlying process that explains a change in attitudes or behavior.
3. Understand the role context and individual qualities play in the process.

A Generic Set of Research Questions that are Compatible with GT

1. Does the intervention result in change in attitudes, knowledge, and/or behaviors?
2. What strategies are associated with the changes in attitudes, knowledge, and behavior?
3. What individual and contextual variables influence the effectiveness of the intervention?

A GENERIC GT MODEL



Legend*	QUAL	QUANT	BOTH
			

Note: Idea for legend originates with Kawamura et al. (2009)

Shim's MMR-GT Model of Dealing with Dance Therapy to Deal with Chronic Pain

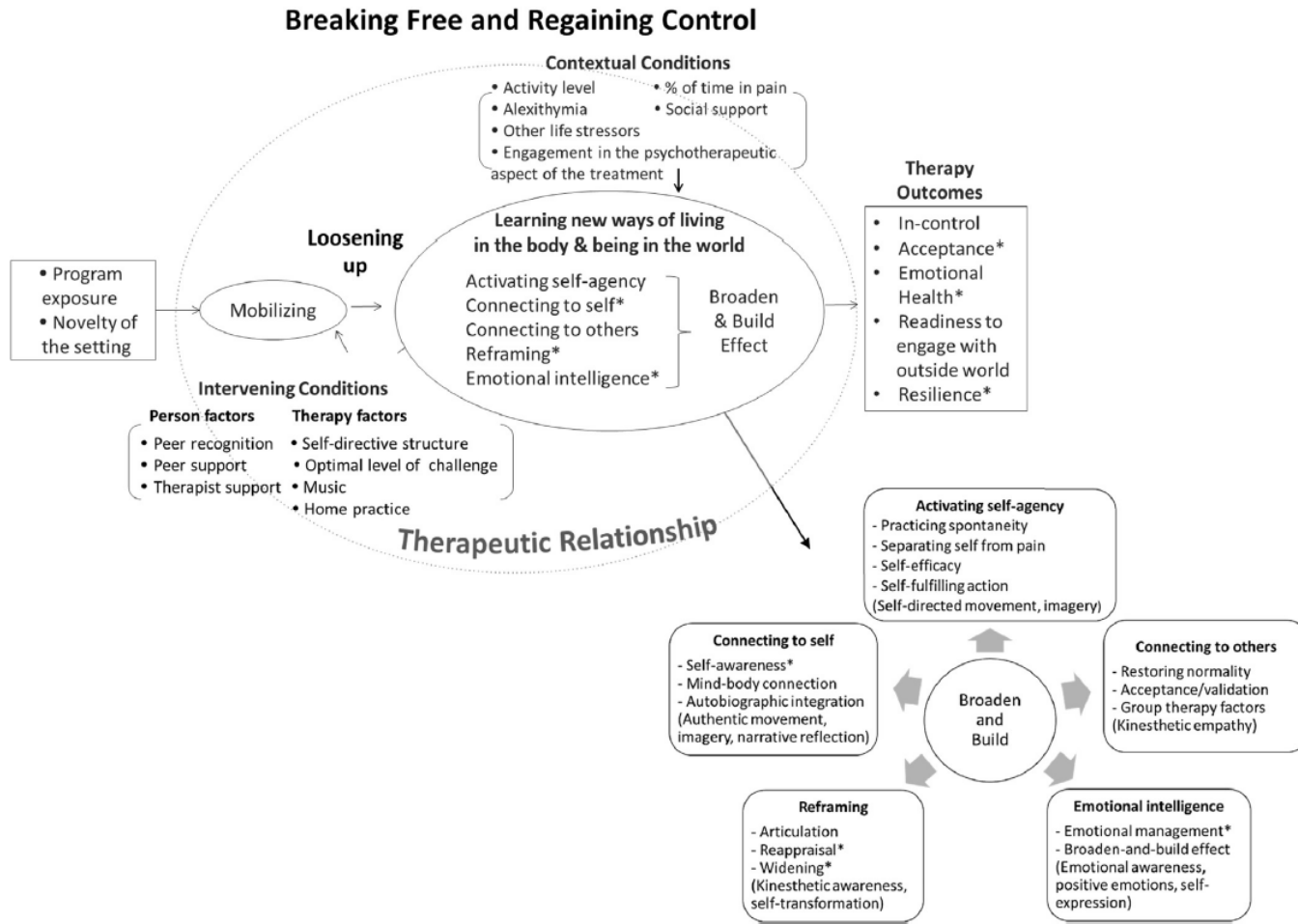
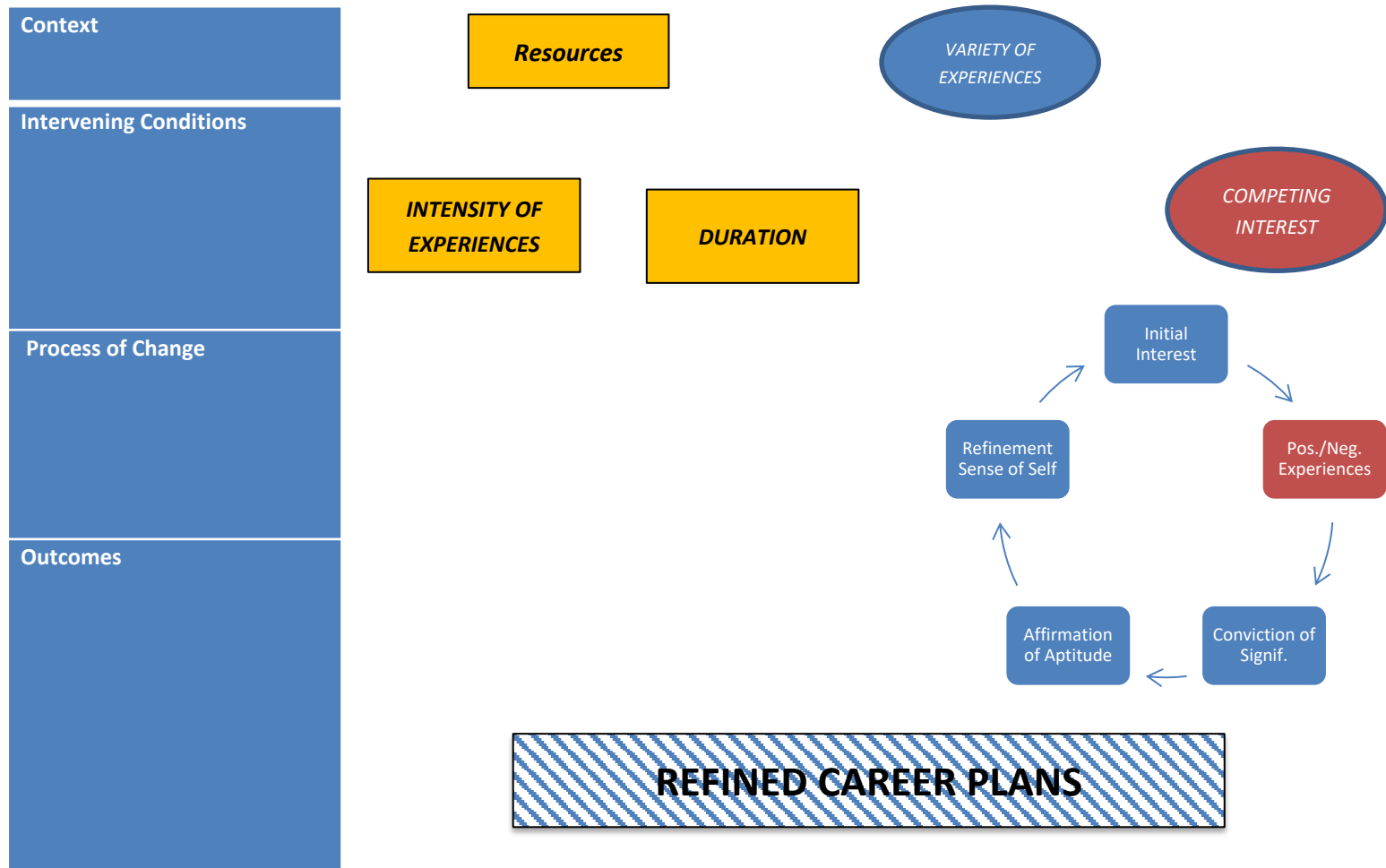


Fig. 4. Final Composite Model of DMT for Resilience-building in People with Chronic Pain (** indicates the variables that were tested quantitatively and qualitatively).

Theoretical Model: Impact of the Undergraduate Research Experience on STEM Career Interests



Legend: Rectangle=QUANT; Oval=QUAL; Shaded=Both. Pink=unexpected

Maximizing the Potential for Creative Opportunities for Integration



1. ***Overlapping QUAL-QUANT samples.***
2. ***QUAL and QUANT data on the same constructs.***
3. ***A validated QUANT instrument.***

Mixing at the Inference Stage: A Composite Model from Kawamura et al. (2009)

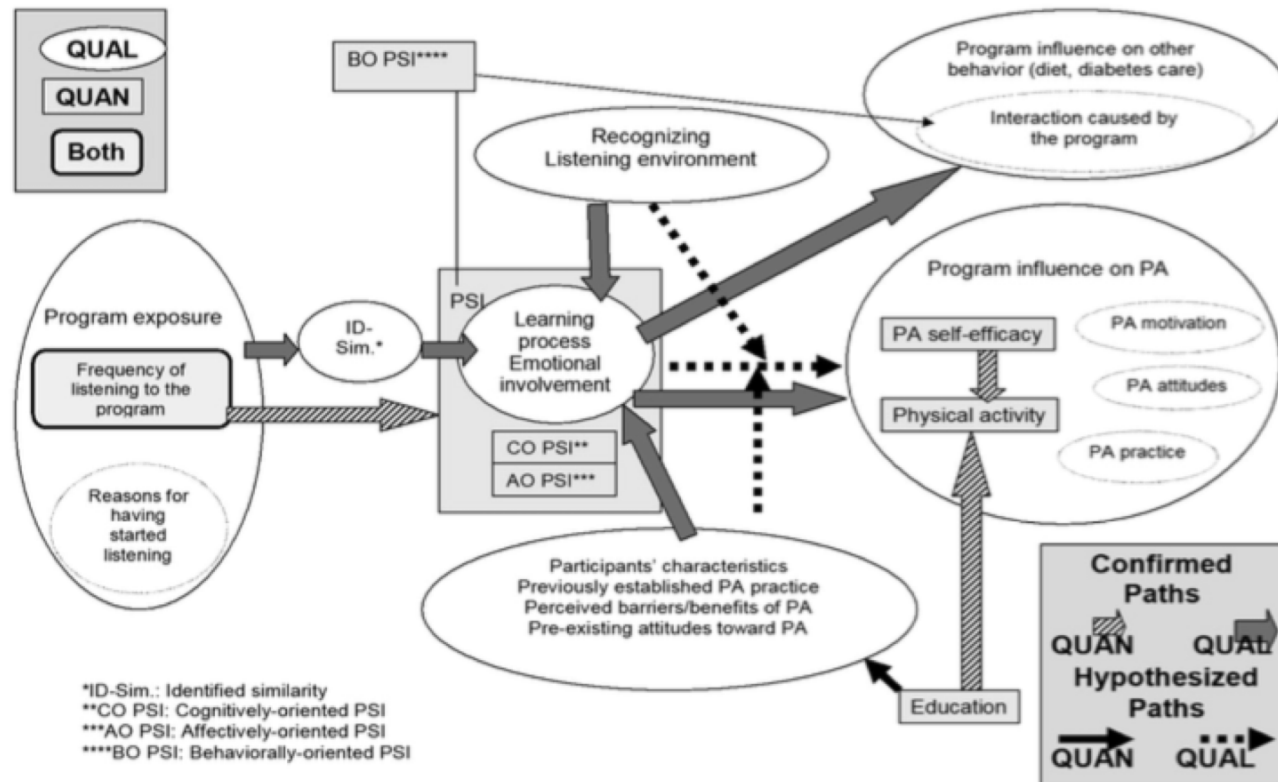


FIGURE 4: WORKING INTEGRATION MODEL

Note: QUAL = Qualitative; QUAN = Quantitative; PA = physical activity; PSI = parasocial interaction

Part 3: Some Key Steps in the Process of Developing MM-GT

Reviewing Steps in the Process of Developing a MM-GT

STEP 1: Constructing multi-level research questions

STEP 2: Constructing an initial model (from the literature & experience)

STEP 3: Collecting and analyzing QUAL and QUANT data

STEP 4: Constructing Theoretical Memos

STEP 5: Coding, including theoretical coding

STEP 5: Pursuing congruent and incongruent QUAL and QUANT data.

STEP 6: Theoretical sampling

STEP 7: Constructing a final model

Example of Integrating QUAL and QUANT Data in a Theoretical Memo

Semesters in Lab	Research Identity	Highest Level of Responsibility	Career Plans
4	2 of 4	Designed own experiment	Changed-no longer interested

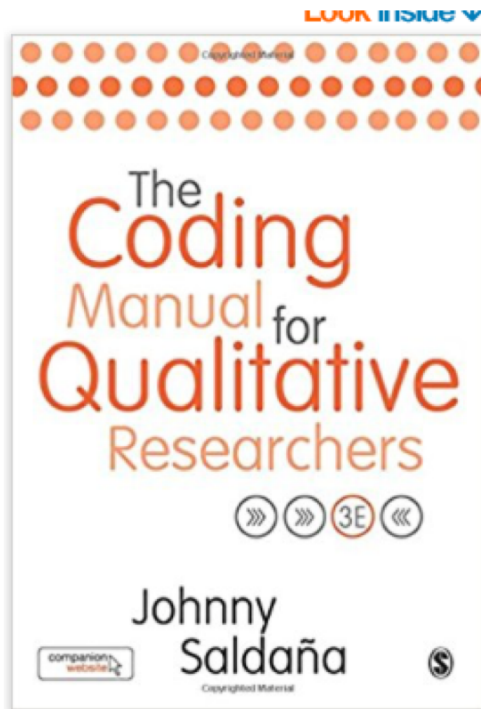
Justine has worked in the same research lab for two years. During her senior year, she applied for and earned a monetary grant to do her own individual project. She combined her previous knowledge in chemistry and animal physiology with her personal interest in animals to work on a project to implant artificial hearts in dogs. In her senior year, Justine designed and prepped the entire experiment herself. She did not have the resources, however, to present her research in a public venue or at a research conference.

Apart from her individual project, Justine was mainly responsible for setting up the experiments and collecting data, rather than data analysis. **Justine believes that researchers should enjoy all areas of research to some extent.** She expressed that she greatly enjoyed that aspect of her research experience (setting up tests and collecting data); however, does not enjoy the other aspects of research. Those aspects she does not like include reading through the literature, analyzing data, presenting the results, and writing papers..

Theoretical Coding

1. A key step in grounded theory methods.
2. Could consider it a type of axial coding because it **links constructs** .
3. It can be used *inductively*, to generate propositions about links between constructs; and/or
4. It can be used *deductively* to test propositions about links between construct that emerged in an earlier phase of analysis.

Examples of 2 Different Strategies for MMR Theoretical Coding



1. Intensity Coding for Confirmatory Purposes
 1. Strength of Support (0=absent; 1=implicit; 2= explicit) for hypothesis.
 2. Distinguishing Ranked Levels
2. Linked Coding for Exploratory Purposes
 1. Mechanism (i.e. process) – Outcome
 2. Context (i.e. location) – Mechanism (i.e. process) - Outcome

Context-Mechanism-Outcome Coding

Monica is a double major in mathematics and computer science. Monica compares two research experiences in terms of their practical applications. The most important thing that affects my decision on what I want to do [OUTCOME] and where I want to go is will I be doing something that impacts others [MECHANISM].. My research on Ramsey numbers had no practical applications at all [CONTEXT]That made it very frustrating and hard to get motivated. Sometimes in the morning I would play Free Cell while I waited for myself to wake up because I was not motivated [MECHANISM] to work on the research. Whereas for my recognition software, there are so many applications that I was totally interested in. I knew I was making a difference and a contribution. (Monica, double major in mathematics and computer science)

CODE/THEME: work with no practical impact on others-low motivation-not the kind of work I want to do

Same Passage/ Intensity Coding for Confirmatory Purposes

Monica is a double major in mathematics and computer science. Monica compares two research experiences in terms of their practical applications.

The most important thing that affects my decision on *what I want to do* [**OUTCOME**] and where I want to go is will I be doing *something that impacts others*

[**MECHANISM**]. My research on Ramsey numbers had no practical applications at all. That made it very frustrating and hard to get motivated. Sometimes in the morning I would play Free Cell while I waited for myself to wake up because I was not motivated to work on the research. Whereas for my recognition software, there are so many applications that I was totally interested in. I knew I was making a difference and a contribution.

Scoring for Confirmatory Purposes:

1. No link.
2. Mention of Link is implicit (not directly linked by participant)
3. Mention of Link is explicit (explicit)

Example: Intensity/Scale Coding to Test a QUAL Theme: Assigning a Level of Responsibility

Level 1: Review literature

Level 2: Collect data; run experiment

Level 3: Design own study

Level 4: Executing own study

Level 5: Presenting study or contributing to a manuscript

I started fall of my sophomore year, I was in a child development class and my teacher said does anybody want to be in my experience lab group? And I said yes, I'll do it. We started helping her with **little lab tasks**. Then the next semester I started doing **a literature review** what I was interested in; I did the stereotypes of autism spectrum disorder. Last semester **I piloted the study** and started it all. **Now I collected the data and now I'm cleaning it and writing a manuscript** so we can get it published at the end of break, which is pretty intense. [Lauren, senior, psychology]

Example: Intensity/Scale Coding for Level of Responsibility – Student 2

Level 1: Review literature

Level 2: Collect data; run experiment

Level 3: Design own study

Level 4: Executing own study

Level 5: Presenting study or contributing to a manuscript

We had a partner and we would come in, one of us had to come in, or both of us every day for 30 minutes and we had to **feed and water our rats**. We had to take them out and we had to socialize with them and well not like rats, but anyway I thought they were really cute. And we had to **pet them and get them used to us** and we as the semester went on we had more responsibilities. And we had to keep staying longer and longer. We ultimately ended up doing like **weighing them every day** and we had to make sure they had food and water and when we started them on their drinks
(Meg, senior psychology)

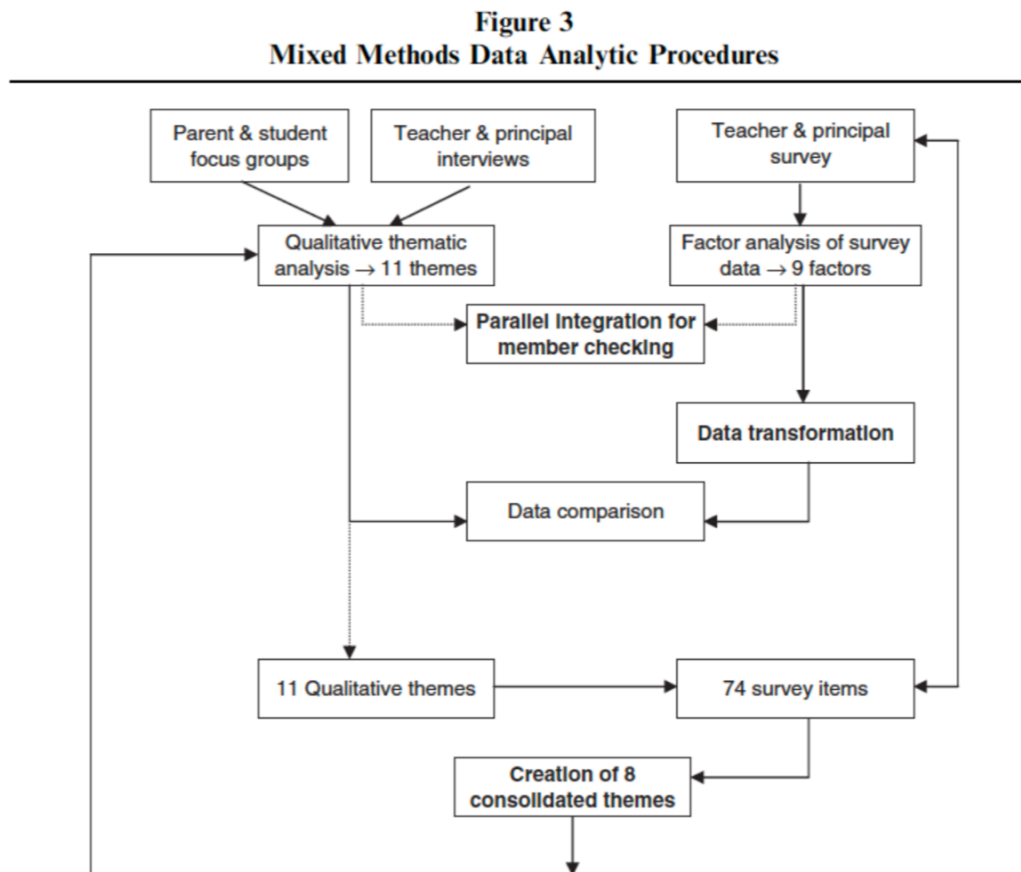
Other Examples of Integrating QUAL and QUANT Data

1. Developing QUAL themes and testing them with factors created by selecting matching survey items.
2. Identifying consistencies and inconsistencies between QUAL and QUANT through a joint display.
3. Creating a composite model.

Example: Testing QUAL Themes with QUANT Survey Items

Figure 9.2.

Figure Illustrating Steps in the Process of Mixing from Jang, McDougall, Pollon, Herbert, and Rusell (p. 230, 2008)



Integrating by Picking Survey Items to Match QUAL Derived Themes

QUAL

Proposition/Hypothesis:

The perception that research has important practical and social implications is critical to the drive to pursue research.

Matching Survey Items from the URSSA (1-4 Scale)

Gains in Skills (5-point scale)

3.12. Conducting database or internet searches.

3.11. Understanding journal articles.

3.9. Calibrating instruments

3.1. Writing scientific

reports.

Summary: Types of Theoretical Coding

1. Exploratory - Generate QUAL Themes

1. Process (i.e. activity) – Outcome Coding
2. Context (i.e. where) - Process – Mechanism (i.e. WHY)- Outcome

2. Confirmatory – Test Hypotheses or Themes

1. Any time of scale coding

QUESTIONS???



Tensions

1. Developing a preliminary model from the literature (or with interview data) and then testing it may seem at odds with conventional views of GT.
2. The QUAL view of causality is very different from the QUANT view of causality.
3. Researchers using context-mechanism-outcome coding have reported few duplicate paths.

Summary/Conclusions

1. MM-GT offers guidelines about a systematic way to develop theory qualitatively that sets the stage for further testing quantitatively.
2. MM-GT applies readily to intervention and evaluation research.
3. Group and individual differences in outcomes, offer valuable theoretical insight into the *conditions* that influence an interventions effectiveness.
4. QUAL and QUANT data can be collected about many elements of theoretical model.

Mixed Method Research in the News

<https://mixedmethodresearch.wordpress.com>

Mixed Methods Research in the News

Out of the Way Stories about Quirky Research

[HOME](#)

[ABOUT THE AUTHOR](#)

[TEXTBOOK](#)



Home

As an academic with wide-ranging interests, I have this eccentric idea that there is enough enthusiasm about mixed methods research in our world today that people will be interested to read little snippets from the popular media about the ways the approach is being used to study

RECENT POSTS

[Companion Site to New Textbook](#)

March 29, 2017

[Customize](#) [Edit](#) [Stats](#) ...



An Introduction to Grounded Theory Methods and Methodology

14 views

Like 1, Comment 0, Share, and other interaction icons.



Elizabeth G. Creamer
Published on Jan 4, 2018

EDIT VIDEO

This video provides an overview of grounded theory as both a method and methodology. The emphasis here is on it as a qualitative method, with only a slight mention of the potential of MMR approaches with grounded theory.

SHOW MORE

Up next

AUTOPLAY



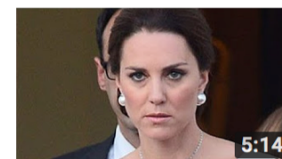
Overview Chapter 2 - Purposes for Using MMR
Elizabeth G. Creamer
21 views



The Real Reason Daniel Day-Lewis Quit Acting
Looper ✓
Recommended for you



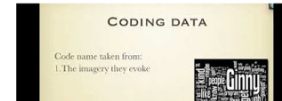
Chapter 3 Overview - Mixed Methods and Paradigms
Elizabeth G. Creamer
12 views



The Untold Truth Of Kate Middleton
Nicki Swift ✓
Recommended for you



Queen Elizabeth II funny moments
HM The King
Recommended for you



Introduction to Grounded Theory
Gary Gramenz

Third Global Conference of the Mixed Methods International Research Association



© Universität Wien/ Peter Wienerroither

Gaining New Ground: Deepening and Expanding the Field of Mixed Methods

August 22-24, 2018: Conference