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Idea Puzzle software: A new approach to research design based on Philosophy of Science

EUA-CDE Annual Meeting
Tallinn, 15.6.2017

Salzburg Principles

ii. **Embedding in institutional strategies and policies:** universities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges and include appropriate professional career development opportunities.

viii. **The promotion of innovative structures:** to meet the challenge of interdisciplinary training and the development of transferable skills.



Philosophy of Science

'PhD' means 'Doctor of Philosophy'. Yet, most doctoral students have never attended a course on Philosophy of Science, disregarding the link between epistemology, methodology, ontology, and axiology. They thus perceive their research project as a sequence of tasks such as literature review, methodological choice, and data collection, rather than a system of interdependent decisions that integrates theory (epistemology), method (methodology), data (ontology), rhetoric (axiology of the audience), and authorship (axiology of the author).



Theoretical framework of 21 questions

IDEA PUZZLE[®] SOFTWARE FOR RESEARCH DESIGN

IDEA PUZZLE[®] SOFTWARE FOR RESEARCH DESIGN

Key words

1/21. Theoretical question: which theoretical keywords are implicit in your research?

Pyramid segments (clockwise from top):

- Key words
- Unit of analysis
- Streams of thought
- Level of analysis
- Research gap
- Paradigm
- Nature of data
- Research question or hypothesis
- Logic
- Ethics
- Origin of data
- Date of the science
- Wisdom
- Trust
- Time
- Philosophical stance
- Research strategy
- Collection techniques
- Analysis techniques
- Quality criteria
- Sample

Help to answer the 21 questions

www.idea-puzzle.com/gethelp.php?myhelp=area_4



Key words

1/21. Theoretical question: which theoretical keywords are implicit in your research?

In order to answer this question, write down (with complete references):

A relationship between two defined concepts that captures the focus of your research design.

Click [here](#) and [here](#) to see two examples of answer to this question, one from Social Sciences and another from Engineering.

Definition

In the Idea Puzzle® software "theoretical keyword" is defined as "a scientific concept for a phenomenon".

Introduction

Theoretical keywords are important for your research because they specify your focus in terms of theory. In general, scientific publications include theoretical as well as empirical and methodological keywords in order to specify the research focus in terms of theory, method, and data, respectively.

The theoretical keywords specify your research topic and should be included in the title of your research design. Without definitions, your theoretical keywords have no meaning (e.g. Daft, 1995). Definitions, in turn, are the basis for your theoretical contribution (e.g. Whetten, 1989; Sutton & Staw, 1995; Weick, 1995; Smith & Hitt, 2005).

Tips

1. Make a list of theoretical keywords related with your research interests in general and with your postgraduate degree in particular;
2. Ensure that each theoretical keyword is subject of scientific publication, preferably in English;
3. Check the novelty of each theoretical keyword with queries in Internet in general and scientific data bases in particular;
4. Consider adding words to each theoretical keyword in order to increase its novelty and focus (e.g. "contacts" > "personal contacts" > "international personal contacts");
5. Draw a conceptual map in order to visualise direct and indirect relationships between the theoretical keywords;
6. Choose one relationship between two theoretical keywords as the focus of your research;
7. Adopt a working definition for each theoretical keyword (original or cited);
8. Avoid tautological relationships between theoretical keywords, that is, the relationships between similar meanings (e.g. "the influence of personal contacts on communication" when personal contacts are themselves defined as "an instance of communication" translating into "the influence of communication on communication");
9. Choose one of two possible directions for the relationship between the two theoretical keywords because they represent two different research topics (e.g. "the influence of personal contacts on multinational coordination" is a different research topic from "the influence of multinational coordination on personal contacts");
10. Adopt a title for your research design which includes the two theoretical keywords and reflects the direction of the relationship between them (e.g. "the influence of personal contacts on multinational coordination").

Bibliography

1. Daft, R. 1995. Why I recommend that your manuscript be rejected and what you can do about it. In Cummings, L. & Frost, P. (Eds.) *Publishing in the Organisational Sciences*: 164-182. Newbury Park: Sage Publications.
2. Smith K. & Hitt, M. 2005. (Eds.) *Great Minds in Management: the Process of Theory Development*. Oxford, NY: Oxford University Press.
3. Sutton, R. & Staw, B. 1995. What theory is not. *Administrative Science Quarterly*, 4(3), 371-384.
4. Weick, K. 1995. What theory is not, theorizing is. *Administrative Science Quarterly*, 4(3), 385-390.
5. Whetten, D. 1989. What constitutes a theoretical contribution? *Academy of Management Review*, 14(4), 490-495.

Feedback

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Self-evaluation of the 21 answers

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EXAMPLE

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SELF-EVALUATION

100% - totally decided

evaluate

Key words

1/21. Theoretical question: which theoretical keywords are implicit in your research?

Help	Evaluation	Next question
<p>The focus of my research is the relationship between personal contacts and multinational coordination.</p> <p>Personal contact is defined as an instance of communication between two people.</p> <p>Coordination is defined as any means of integration between different entities (Martinez & Jorillo, 1989).</p> <p>References: Martinez, J & Jorillo, J. 1989. The evolution of research on coordination mechanisms in multinational corporations. Journal of International Business Studies, 20(3), 489-514.</p>		

Pyramid segments (clockwise from top):

- Unit of analysis
- Level of analysis
- Nature of data
- Origin of data
- Sample
- Quality criteria
- Analysis techniques
- Collection techniques
- Research strategy
- Methodological stance
- State of the science
- Research question or hypothesis
- Wholeness
- Trust
- Time
- Logos
- Ethos
- Pathos
- Research gaps
- Streams of thought
- Key words

Visual research design



Example
 Author: Ricardo Morais
 Date: 07/11/2017 - 18:00:00
 Self-evaluation: 0%



Ray words

11.1 Theoretical question: which theoretical approach is implicit in your research?

The topic of my research is the relationship between national identity and institutional isomorphism.

Theoretical approach: institutional isomorphism (DiMaggio & Powell, 1983).

Contributed to what: it explains why firms in emerging markets adopt institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). The isomorphism of collective rationality in organizational fields. *Journal of American Sociological Association*, 78(2), 147-160.

Self-evaluation: 0%

Streams of thought

11.2 Theoretical question: which stream of thought is implicit in your research?

The specific stream of thought that is implicit in my research is institutional isomorphism (DiMaggio & Powell, 1983) and the related concept of institutional change (DiMaggio & Powell, 1983).

How can I better explain this? I can explain it better by understanding the relationship between institutional isomorphism and institutional change (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *Isomorphism and collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *Isomorphism and collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Research gap

11.3 Theoretical question: which research gap is implicit in your research?

The research project focuses on the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Research question or hypothesis

11.4 Theoretical question: which research question or hypothesis is implicit in your research?

My research question is how national identity influences institutional isomorphism.

Self-evaluation: 0%

State of the science

11.5 Theoretical question: which is the current power to your research question or hypothesis?

The current state of my research question is that institutional isomorphism is a dominant theoretical approach in organizational fields (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Philosophical stance

11.6 Theoretical question: which philosophical stance is implicit in your research?

The topic of my research is the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Research strategy

11.7 Theoretical question: which research strategy is implicit in your research?

My research strategy is case study (Yin, 2003).

Reference: Yin, R. K. (2003). *Case Study Research: Design and Methods*. Sage Publications, Thousand Oaks, CA, Sage.

Self-evaluation: 0%

Collection techniques

11.8 Theoretical question: which data collection techniques are implicit in your research?

The data collection techniques implicit in my research are collection of documents and interviews (Yin, 2003).

Reference: Yin, R. K. (2003). *Case Study Research: Design and Methods*. Sage Publications, Thousand Oaks, CA, Sage.

Self-evaluation: 0%

Analysis techniques

11.9 Theoretical question: which data analysis techniques are implicit in your research?

The data analysis technique implicit in my research is thematic analysis (Crabtree, 2000). The software implicit in my research is QSR NVivo (Crabtree, 2000).

Reference: Crabtree, S. (2000). *Using NVivo in Qualitative Research*. Melbourne: QSR International.

Self-evaluation: 0%

Quality criteria

11.10 Theoretical question: which quality criteria are implicit in your research?

The quality criteria implicit in my research are reliability, validity, and generalizability (Crabtree, 2000).

Reference: Crabtree, S. (2000). *Using NVivo in Qualitative Research*. Melbourne: QSR International.

Reference: Crabtree, S. (2000). *Using NVivo in Qualitative Research*. Melbourne: QSR International.

Self-evaluation: 0%

Level of analysis

11.11 Theoretical question: which level of analysis is implicit in your research?

The level of analysis implicit in my research is the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Level of analysis

11.12 Theoretical question: which level of analysis is implicit in your research?

The level of analysis implicit in my research is the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Origin of data

11.13 Theoretical question: which origin of data is implicit in your research?

The primary data collected in my research are national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Sample

11.14 Theoretical question: which sample is implicit in your research?

The sample implicit in my research is the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Logic

11.15 Theoretical question: which logic is implicit in your research?

The logic implicit in my research is case study (Yin, 2003).

Self-evaluation: 0%

Methods

11.16 Theoretical question: which methods are implicit in your research?

The methods implicit in my research are collection of documents and interviews (Yin, 2003).

Reference: Yin, R. K. (2003). *Case Study Research: Design and Methods*. Sage Publications, Thousand Oaks, CA, Sage.

Self-evaluation: 0%

Windows

11.17 Theoretical question: which windows are implicit in your research?

The windows implicit in my research are national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Trust

11.18 Theoretical question: which trust is implicit in your research?

The trust implicit in my research is the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Trust

11.19 Theoretical question: which trust is implicit in your research?

The trust implicit in my research is the relationship between national identity and institutional isomorphism (DiMaggio & Powell, 1983).

Reference: DiMaggio, P. J. & Powell, W. W. (1983). *The isomorphism of collective rationality in organizational fields*. *American Journal of Sociology*, 48(2), 147-160.

Self-evaluation: 0%

Review

Parente, C. & Ferro, L. 2016. Idea Puzzle (www.ideapuzzle.com), created by Ricardo Morais. *Academy of Management Learning & Education*, 15(3), 643-645.

"All-in-all, we believe Idea Puzzle is a very useful tool for research across a multitude of disciplines, not only for PhD students as they learn about all of the elements of research project design, but also for reviewers and research project teams as they work to move forward with their research and expand their existing skill sets."



Testimonial

Patrícia Rosado Pinto, Head of the NOVA Doctoral School, Portugal

"The support that doctoral students and supervisors can find in a tool such as the Idea Puzzle software lead NOVA Doctoral School to offer this resource that, in our opinion, has a solid theoretical framework and an undeniable usefulness, not only for the research design, but also as a roadmap for the thesis supervision and as a guide for the preparation of its defense."



Audiences

Currently, there are around 7000 users from all over the world registered at www.ideapuzzle.com thanks to several doctoral schools that license the Idea Puzzle software annually (1000 euros per year) for their doctoral students, methodology teachers, and doctoral supervisors.



Benefits

The main benefits of the Idea Puzzle software are:

1. The holistic diagnosis of the strengths and weaknesses of a research project;
2. The innovative teaching of research methods;
3. The structured peer review.



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