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Research questions

Anastássios Perdicoúlis
Assistant Professor, ECT, UTAD (http://www.tasso.utad.pt)
Senior Researcher, CITTA, FEUP (http://www.fe.up.pt/~tasso)

Abstract

A 'zoom-out' *typological* view on the variety of research questions, where they are coming from, and where they are heading.

1 Introduction

The *par excellence* personal and/ or collective reasons for carrying out research are the quest for understanding and pursuit of high-level competences. At a slightly more detailed level, the motive could be knowledge, information, or even just data (Perdicoúlis, 2013b). And at a meta-level, the motive behind research could be purely economic — plainly, research is a big industry (Munroe, 2013; Rabesandratana, 2013).

Asked in a functional perspective, such as '*... and what would you like to do in research?*', research becomes operational — ready to explore, describe (including measurements), design, or forecast. For the more 'practically' inclined, this could be more of a concrete intent, as it is at a more detailed level — on a par with information and data (Perdicoúlis, 2012a).

Returning to the higher, more abstract level, the grand objects of research are systems (Figure 1) and/ or processes (Figure 2). Smaller objects of interest could be the constituents of the larger ones — i.e. system elements, their relations (including actions), and/ or their states. At a more detailed level, the larger or smaller objects of research could take the shape of situations, phenomena, and/ or physical objects.

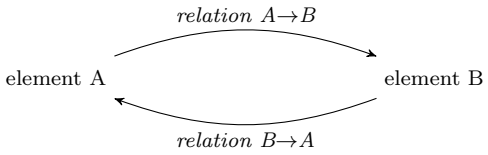

FIGURE 1 Elementary system with two elements and their relations

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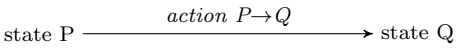

FIGURE 2 Elementary process with two states and one action

As systems involve processes, Figures 1 and 2 relate to each other. For instance, states P and Q may refer to the whole system (e.g. 'AB') or any one of its elements (e.g. either 'A' or 'B'); an action such as 'P→Q' could be the cause for the transformation of the entire system 'AB', or it could be the essence of the relation between two system elements (e.g. 'A→B').

After the objects of research have been defined, any research application would still need to specify the perspectives or facets of interest — generally these are form, function, and/ or structure (Perdicoúlis, 2010). For instance, measurements or description may refer to the form or function, while understanding probably needs to delve into structure.

2 One-part questions: identification

Extending research to fields beyond academia, we can accept different levels of complexity in the formulation of the research questions. For instance, we could just want to carry out an identification study, as in entry-level journalism, in which case a one-part question would suffice (Example 2.1).

EXAMPLE 2.1 SIMPLE 'JOURNALISTIC' QUESTIONS
Question 1: Who is [A]?
Question 2: Where is [A]?

[A] object of interest

3 Two-part questions: isolated relations

In a somewhat more advanced study, we could employ two-part research questions as in Example 3.1. Two-part questions tend to focus on the parts (e.g. 'A' and 'B') and/ or their relations. This focus may be advantageous in certain circumstances, as suggested by Examples 3.1 to 3.5.

EXAMPLE 3.1 ADVANCED 'JOURNALISTIC' QUESTIONS
Question 1: How is [A] doing [B]?
Question 2: When is [A] doing [B]?
Question 3: Where is [A] doing [B]?
Question 4: Why is [A] doing [B]?
Question 5: With whom is [A] doing [B]?

[A] object of interest
[B] action

Example 3.2 Terminal 'Yes/ No' answers
Question: Does [A] have [B]?

[A] object of interest
[B] property, quality

Example 3.3 Variation
Question: How does [A] vary along [B]?

[A] material, construction, etc.;
[B] time, market, weather, temperature, etc.

Example 3.4 Influence
Question: How does [A] serve/ influence [B]?

[A] international scientific publishing system, etc.
[B] quality of public-domain research information, etc.

Example 3.5 Properties
Question: What is the [A] of [B]?

[A] property, structure, etc.
[B] atom, molecule, material, etc.

4 Three-part questions: conditioned relations

Three-part research questions extend beyond the basic focus pair, generally introducing external conditions (e.g. part 'C') — Example 4.1. The formulation of this kind is encountered in many mature or complete research problems, including the 'XYZ' formulation (Perdicoúlis, 2010, pp.58–66).

Example 4.1 Tripartite problem
Question: What to do [A] to achieve [B] in conditions [C]?

[A] action
[B] objectives
[C] general concerns (e.g. mission elements, situations to overcome)

5 Discussion

'Let's see how people do this (or that)' would be a humble way to capture the essence of research. To be 'scientific', of course, research would need to be a *systematic* procedure, which would have to produce *trustworthy* results — and most likely that would create *specialised* knowledge on the particular topic researched (Perdicoúlis, 2013c, 2012a).

With the current hype about research and the associated publications (Perdicoúlis, 2013a) and PhDs (Cyranoski et al., 2011), it may appear that research is a booming activity in a wide open field. It would be unwise, though, to ignore that there are limits to which subjects could be researched, what questions could be asked, and what information could be made public (Malakoff, 2013). The deliberate restriction of information is an additional challenge to research, joining other major ones such as the scientific rigour (Perdicoúlis, 2012b) and the scientific proof (Perdicoúlis, 2013c).

Even with sensitivity restrictions, the amount of research topics still appears overwhelming — there is still so much to be discovered. And to find out, it is necessary to ask — in the right way, of course. Hence, the 'research question' becomes paramount, and itself the object of particular study — approached in every book on research (Preece, 1994; De Vaus, 2001). As it is to be expected, advice varies according to the field of speciality and the traditions established therein.

6 Challenges

Formulating the right question is enough of a challenge in every case. Guidelines and mentoring can help so that the question 'fits the purpose' and 'respects the traditions', but there is always innovation to be made — and this is a call for the daring ones. After all, research is a forward-facing experience with risks and rewards. Just ask the right question(s).

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