

Perceptions of Research

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Part 2

Initial Questions

This part of the discussion paper is informed by responses to the following scene-setting questions:

Post 1:

I am sure that many of you have come to educational technology via other disciplines. My first question aims to elicit this varied background so I can provide examples in follow up posts. Please respond in 24 hours.

Post 1:

What are your experiences with research in other disciplines?

Post 2:

These three questions overlap with each other, but I couldn't easily unpack them from each other. Answer them as best you can (but briefly).

What do you understand research to be? Consider:

What are the attributes that characterise research?

What skills are required to conduct research?

Characteristics of Research

I received a number of responses from ITForum participants to these two questions. I will thread responses to answers to the first question as the week goes by. Some of the answers to the second question were focused specifically on educational technology research, and I will respond to these later also. However, there were a number of responses about research at a generic level. From these responses, I was able to synthesise a set of characteristics and skills associated with the concept of research, although, as some respondents noted, there was some overlap.

Characteristics

The characteristics that distinguish research from other activities are:

- Curiosity. This was not specifically noted by respondents, but Jan Visser's "desire to understand the world and enhance existence in it" was similar.
- Creativity
- Experimentation
- A systematic approach and organised activity (rigour)

Skills

Skills that are required are:

- An open mind
- The ability to ask good questions
- Critical thinking
- Problem solving/identification skills
- Pattern recognition and analysis
- Knowledge of the relevant literature
- Appropriate collection and analysis methods
- professional/ethical standards, including the ability to draw honest conclusions
- The ability to synthesise findings and communicate results (written and verbal)
- Time and project management skills

And then there were two skills which came out of left field:

- diplomacy skills
- a really strong sense of humor.

Perhaps someone can explain why these skills are prerequisites for conducting research.

Formal vs informal research

Dan Surry's statement "A child who can't find their favorite toy and investigates its disappearance is conducting research on some level" deserves a rejoinder. I can agree with this statement, but for the purpose of this discussion, I want to restrict our consideration to what Shulman (1988) calls Disciplined Inquiry.

"Method is the attribute which distinguishes research activity from mere observation and speculation" (Shulman, 1988)

Definition of Research

The OECD has developed a definition of research called the Frascati Definition:

"Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications." (OECD, 2002)

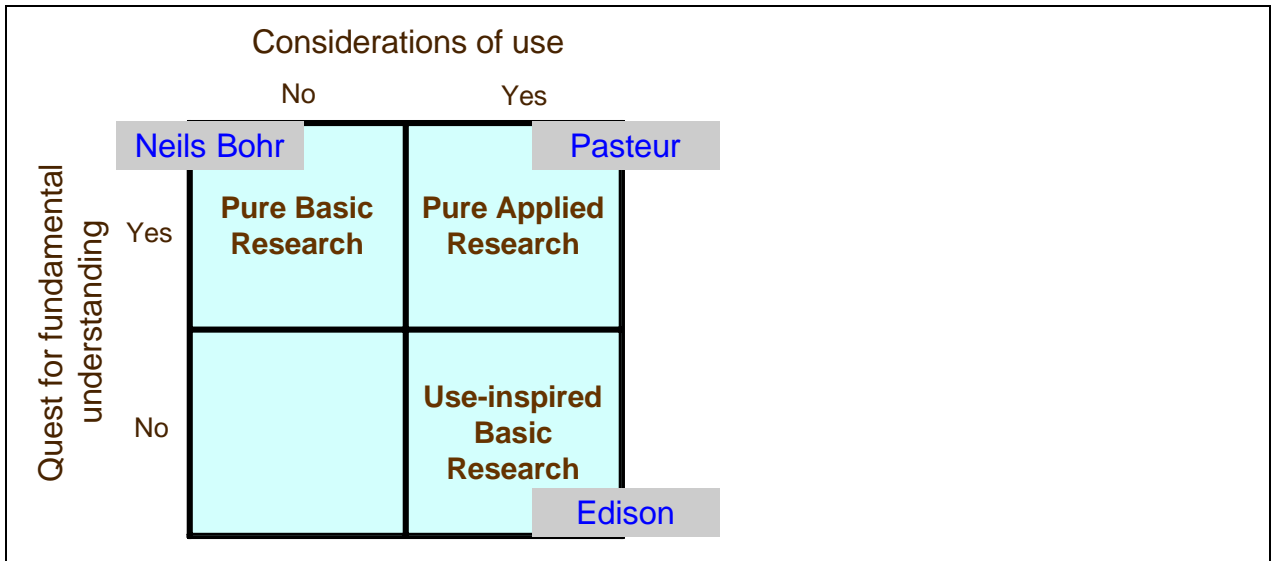
This is a nice motherhood statement. It allows us, perhaps, to determine what isn't research, but it doesn't enable us to analyse the nature of research in different disciplinary areas.

Lenses to Look Through

This section will summarise some of the different ways that people have looked at types of research. No one is necessarily better than any other, but they give us lenses through which we can view the problem space.

Pasteur's Quadrant

Many of you would be familiar with the concept of Pasteur's quadrant (Stokes, 1997) as a way of classifying different types of research. I know that Tom Reeves has made use of this in conferences and presentations over many years, and he has argued that much educational technology research is located in the bottom left quadrant, with no quest for understanding and no



consideration of use (Reeves, 1999; Reeves & Hedberg, 2002: 262). I also sensed a resonance with this view in several of the responses to date.

It is worth considering how our own experiences with research map onto this quadrant. In my case, my PhD work was pure-basic research, while my honours work was inspired by considerations of use: use-inspired basic research. Jan Visser's theoretical physics work was pure-basic, while Corrie Bergeron's aerospace engineering experiences are arguably pure-applied research.

Boyer's Four Scholarships

Ernest Boyer (1990) conceived of four different types of scholarship.

The **Scholarship of Discovery** is most recognizable as "research," that is, the pursuit of new knowledge. My honours work was the scholarship of discovery

The **Scholarship of Integration** involves connecting knowledge and discovery into larger patterns and contexts. My Ph D work was Scholarship of Integration, because I was attempting to integrate observations of a phenomenon with theories of the same phenomenon.

The **Scholarship of Application** (or **engagement**) involves engagement in problems that affect individuals, institutions, and society. This scholarship type has similarities to the consideration of use component of Pasteur's Quadrant.

The **Scholarship of Teaching** is perhaps the hardest to conceptualise. It is not scholarship *about* teaching, but the scholarship of disseminating the results of research, seeking to bridge the distance between intrapersonal and interpersonal understanding, but doing so in a way that is fully informed by the scholarships of discovery, integration, and application.

A lesson to be learnt from this notion is that we can do research which doesn't involve 'discovering' something.

Research in Different Disciplines

Becher, in his work on academic tribes and territories (Becher, 1989), identified disciplinary differences between types of academic work, including research. Jones, Zenios and Griffiths (2004) synthesised Becher's textual description into two dimensions: Pure vs Applied; and Hard vs Soft. I have presented these dimensions in the following table.

	Pure	Applied
Hard	<ul style="list-style-type: none"> • Pure Sciences • e.g. Physics • Cumulative; • atomistic (crystalline/tree-like) • concerned with universals, quantities, simplification; • Outcomes: discovery/explanation 	<ul style="list-style-type: none"> • Technologies • e.g. Engineering • Purposive; • pragmatic, (know-how via hard knowledge); • concerned with mastery of physical environment; • Outcomes: products/techniques.
Soft	<ul style="list-style-type: none"> • Humanities and pure social sciences • e.g. anthropology, history • Reiterative; • holistic (organic/river like); • concerned with particulars, qualities, complication; • Outcomes: understanding/interpretation. 	<ul style="list-style-type: none"> • Applied social sciences • e.g. education; • Functional; • utilitarian (know-how via soft knowledge); • concerned with enhancement of [semi] professional practice; • Outcomes: protocols/procedures.

Adapted from Jones, Zenios and Griffiths (2004)

These three conceptual models provide three different ways of looking at research. There are many types of research. If nothing else, I hope that this gives you an opportunity to reflect on the way you view research in your academic life.

Activity

Try to apply these lenses to the types of research you have done. It would be useful to get the responses of those who have worked in other disciplines. However, I would also like you to consider your educational technology work. Which types of research are appropriate to the aspects of educational technology you work with? Please try to keep your responses to ~1 page. Once again, there is a 24 hour deadline.

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