

Co-construction of question-led inquiries

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Abstract: The global scenario for education and human discourse is changing rapidly. Recognising these dynamics of change, particularly the ‘wicked’ problems confronting humanity, this paper represents work-in-progress associated with articulating a question-led process for inquiry that has wide application across the gamut of human experience. The elements within it are explored and contextualized into a coherent process. At the same time, important caveats are raised to avoid misrepresenting or overclaiming the value of question-led processes for inquiry. The implications for co-construction and dialogical interaction are considerable.

Keywords: Questions, inquiry, co-construction, imagination, creativity, structure, process

1. Introduction

Covid-19 and the ubiquitous use of online smart technologies has transformed the global landscape for the foreseeable future (Dhawan, 2020; Khan, 2021). Their impact has become pervasive across all levels of education, business and commercial enterprises as well as the conduct of social and international relations (Habibi, 2018; Gomez, 2020; Traxler, 2020). During the pandemic, education systems have found refuge in and been sustained by digital environments. This has consolidated the position of digital technology as a pivotal communications platform in the ongoing transformation of education. A critical issue is whether the scope and depth of conversations during this period of heightened digital engagement, can be maintained or even enhanced.

This paper considers the questions: *in what ways might question-led inquiries contribute to these dialogues? Could intentionality become more purposeful and action more thoughtful?* More broadly, it also explores the potential of questions within the context of inquiry-based learning. In so doing, it identifies areas for research that may inform the development of technology enhanced learning.

2. Questions and Questioning

While asking questions and questioning may seem similar and share semantic roots, they are different (Koshik, 2015). Questions are strategic means of directing and shaping inquiries whereas questioning focuses on process and action: one is directional and the other an issue of tactics (Table 1).

Strategic questions and tactical questioning are typically in a synergistic state of harmony and dynamic contention. ‘Argument’ between them engages established and alternative perceptions of experience, as well as different conceptualizations, mental images, and imaginative possibilities (Donaldson, 2010; Brogaard & Gatzia, 2017; Gideonse, 2019).

Questions provoke dialogue. In digital environments, they tend to direct searches for evidence and perspective, cause and effect relations, explanations and justifications, assumptions and uncertainties. They guide generation of transformative ideas, hypothetical possibilities, and evaluative procedures (Corley & Rauscher, 2013). The reflective thinking evoked goes beyond entanglement with experience or inquiry to solve pragmatic problems of the moment (Turnbull, 2004; Klein & Moon, 2006; Chater & Loewenstein, 2016). In contrast, questioning employs focused processes like – querying, clarifying, predicting, speculating, synthesizing, view-pointing, contradicting, and challenging - to explore questions posed (Lewis & Smith, 1993; Palinscar, 2011; Peterson & Taylor, 2012).

Table 1. *Questions and questioning*

| Feature | Questions | Questioning |
|--------------------|---|--|
| Intention | Determining directions for personal and collective inquiries in real-life contexts | Engaging in processes and actions to explore different aspects of challenges |
| Concept | Shaping inquiries to focus on particular issues, ideas, problems, and alternatives | Executing inquiries guided by strategic directions and possibilities for exploration |
| Emphasis | Focusing on design, purpose, scope, and forward-thinking possibilities for inquiry | Concentrating on performing investigations, tasks, actions; and their practicability |
| Orientation | Exploring challenges, understandings, contradictions, feasibilities, problems, possibilities, and novelties | Tackling investigations in the context of particular needs, demands, situations, circumstances, and conditions |
| Essence | Strategic intention | Tactical action |

To gain optimal benefit question-led inquiries need to stand on two interdependent principles.

- A predisposition to search for alternatives which may be new applications of extant ideas and practices or lateral alternatives ‘outside the box’ of previous experience; and
- A recognition that sensemaking is at the heart of human discourse across the gamut of cognitive, emotional, aesthetic and ethical lifeworld experience.

A central intent in an inquiry is to perceive and construct connections that have value (Odden & Russ, 2018). It is a complex process of – exploring cultures, investigating in depth, focusing on real life, highlighting creativity, and envisioning future possibilities (Madsbjerg, 2017). The diversity of sensemaking engendered reflects personal perceptions intertwined with the ecology of connections formulated from them (Vygotsky, 1992; Goldstone, 2011; Hardman & Hardman, 2017). Practical problem solving may be part of the process but the whole widens outlooks into the unknown. With potential to know going beyond logic to create intuitive and imaginative thoughts, and actions (Dalsgaard, 2014).

3. Different Questions

While questions have been categorized in various ways (Graesser & Person, 1994; Graesser et al., 2008), key issues are how they contribute to developing deep understanding and their pivotal role in inquiry processes. This implies differentiating between different kinds of question (Freestone, 2018, Freestone and Mason, 2019). They include:

- Generic generative questions (GGQs) which have the potential to be applied across all areas of human knowledge, experience, and endeavour. These questions direct inquiries.
- Consequent questions (CQs) which emerge when GGQs are translated into the content of specific subject matters. These questions shape agendas capable of investigation.
- Pointed questions (PQs) which are designed to elicit defined responses. These questions address specific contextual issues within inquiries.

Inquiries led by questions like these may need to address – simple, interwoven, complex or chaotic aspects – embedded within a challenge. All four aspects are often involved to some degree, although one usually predominates (Snowden and Booth, 2007). Each of them dictates a different approach to sensemaking.

- Simple aspects often begin with sensing the issues involved and categorizing different aspects within them to formulate responses.
- Interwoven aspects often entail identifying different aspects from which intricacies can be analysed to sense suitable responses.
- Complex aspects often require scrutiny to discern realistic possibilities from which responses can be fashioned.

The illustration in Figure 1 highlights the importance of confining initial situational analyses to ‘key features’, as distinct from detailed elaborations. Perhaps the four aspects of inquiries that have been outlined provide an agenda through which this might happen? Otherwise, never-ending details can complicate or obfuscate the identification and selection questions to direct and shape inquiries.

4. Strategic Process

Figure 2 represents a strategic design and integrated process for the evolution of question-led inquiries. The process is iterative, not lock step; but follows the overall direction from left to right across the figure.

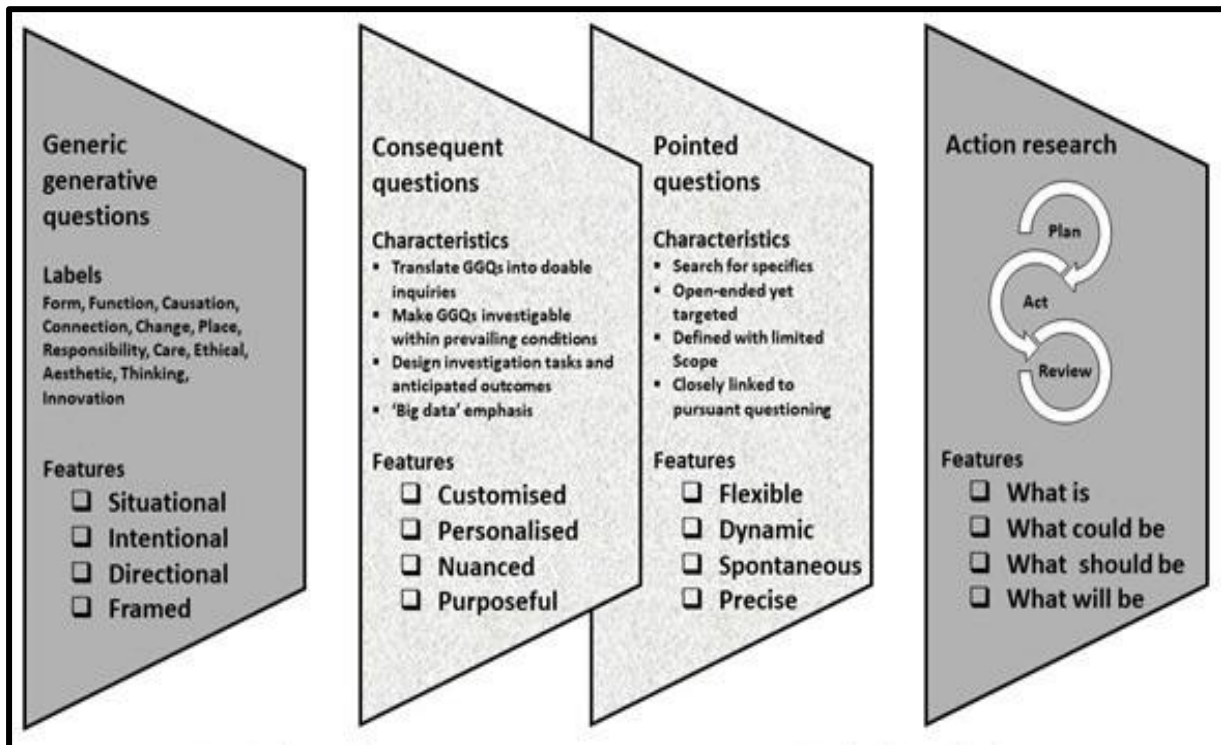


Figure 2. Strategic process for question-led inquiries

Once a concise picture of the ‘key features’ of a challenge is to hand a judicious selection can be made from a set of GGQs like those listed in Table 2. In so doing, a critical issue is to determine the intention behind an inquiry and with that in mind choose two or three GGQs to direct ensuing investigations. Experience has shown that if too many GGQs are chosen intentions become fragmented as well as unmanageable.

While the selected GGQs have the capacity to direct subsequent investigations they only acquire meaning when translated into the content of specific inquiries. This means identifying consequent questions (CQs) that can be investigated. These questions are broad and lead down avenues that provoke multiple possibilities. On occasion they may need to be drilled down further to accommodate the specific issues embedded in the context of a challenge. These pointed questions (PQs) may be needed to address technical details, specific needs, and troubleshoot problems, or whatever. In some circumstances CQs may suffice rendering the identification of PQs unnecessary.

Consider the current Covid-19 pandemic. If the GGQ of **Function** was selected to direct an inquiry into the pandemic, a CQ might be, *in what ways could a vaccine be developed?* and a PQ could be, *what enables the virus to enter the body?* If the GGQ was **Place**, *in what ways could people prevent infections?* could be a CQ and *how well are things going here?* could be a PQ. If the GGQ was **Ethical**, a CQ might be, *could enforcing a lockdown be a denial of human rights?* and a PQ might be, *are proposed actions culturally appropriate?* Each of these GGQs direct inquiries to different avenues for innovative and creative action.

The mind-map in Figure 3 contains a blend of CQs and PQs. The central challenge of - *making local community radio reflect community* - led to an array of related questions which can be explored. A plethora of 'dialogical tools' are available to aid in co-constructing questions like these. They include strategies for discovering and prioritizing 'right questions', examining multiple perspectives from rational reasoning to intuitive thoughts, exploring personal and community values, researching explanations and hypothesizes, and reflecting on the intricacies of grounded experience.

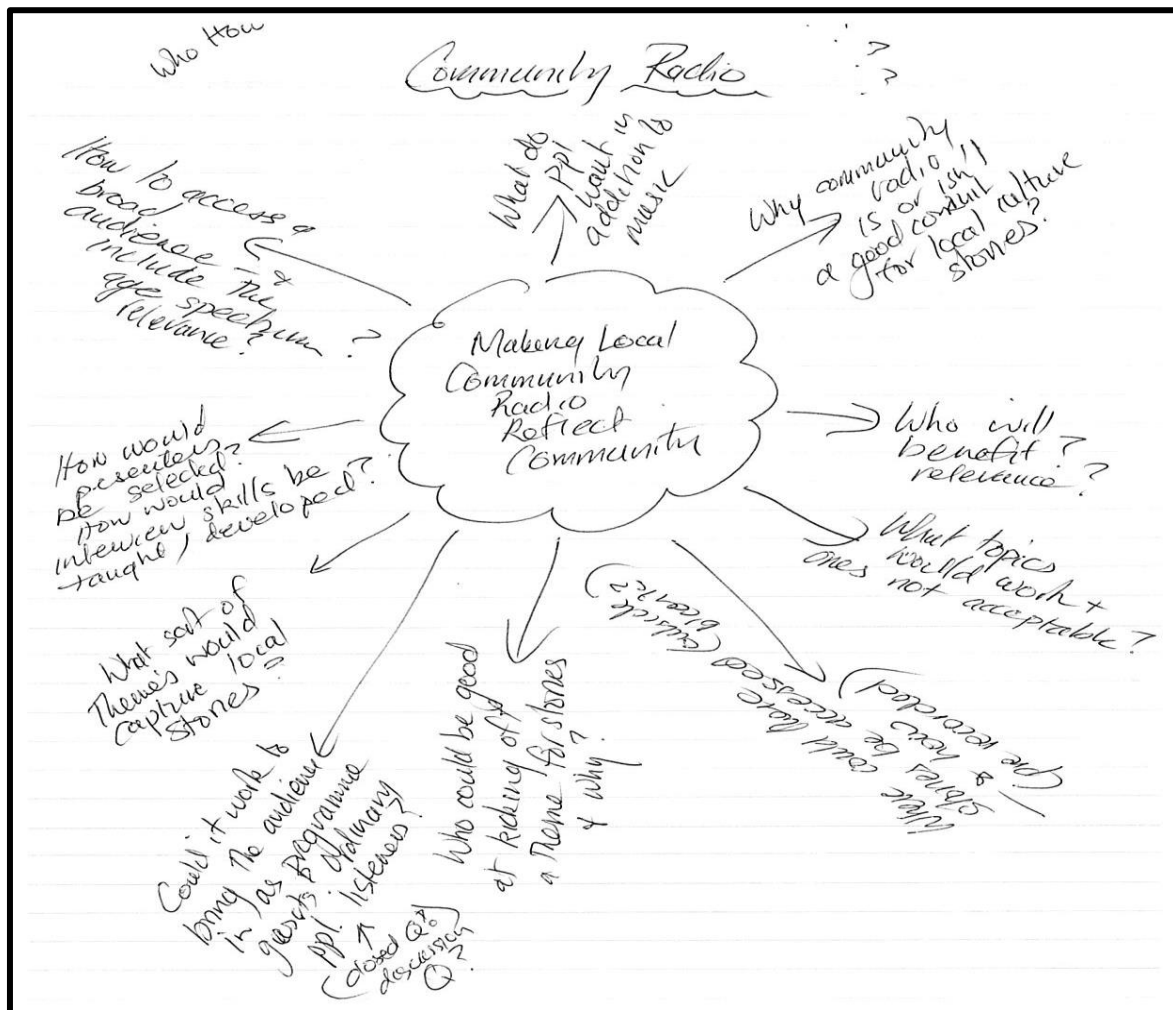


Figure 3. Blended consequent and pointed questions

The three types of questions – GGQs, CQs and PQs – open and expand critical and creative thinking. They represent a platform for inventiveness through which imaginative ideas can be generated and translated into lifeworld practice. Their enactment often benefits from structured processes such as 'action research' (Kemmis & McTaggart, 1998), especially if they are appreciative of current conditions yet mindful of future possibilities (Shuayb et al., 2009; Cooperrider, 2016). The collaborative ethos fuels co-construction and ongoing dialogue through which diverse contributions are afforded their rightful value (Latzko-Toth, 2014; Amiddlet50, 2019).

Once the best of what is, what could be, and what should be, have been discovered and explored, the outcomes can be 'closed down' to decide on what will be based on the resources available and the predilections at the time. The action may encompass putting designs, solutions, and alternatives as well as original or novel ideas and practices in place.

Co-construction processes generate dialogues which precipitate collective ownership (Zamenopoulos & Alexiou, 2018). A key element in these processes is co-design which embodies a series of ideation loops that bring together different ideas and diverse expertise to create conceptual possibilities or potential practical applications, or both (Guha et al., 2014; Boudhraa, 2021). Indeed, Figure 2 provides a flexible structure for co-construction with an inbuilt co-design strategy which is constructively critical and creative in character.

5. Diverse Application

The question-led process outlined in this paper is straightforward as well as practicable across the gamut of human endeavour. Avenues for action include.

- Developing designs and practices for teaching and learning across the spectrum of education.
- Evolving efficient and effective practices and imaginative possibilities to meet specific demands.
- Determining how best to deal with crises like the pandemic and climate change in sustainable ways.
- Encouraging thought and action outside the boundaries of extant ideas and practices.
- Devising technological systems/resources that have transformative impacts and aesthetic value.
- Designing online programs that provoke question-led inquiries with innovative emphases.

If Massive Open Online Courses (MOOCs) and other computer assisted learning (Vardi, 2012; Kilgore, 2015; Ronkowitz et al., 2015; O'Donovan, 2019) were built around a question-led process, such as the one that has been outlined, discourse required for co-construction and co-design could be enhanced. The move would be away from a delivery mindset to one of building learning communities where understanding, imagination and creativity are the currency.

The contention here is that designs based on 'one size fits all' are inadequate. Instead, question-led processes create an embryo for future development of digital resources.

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