Conceptual Catch-22 in RSD for Novice Learners

Karey Harrison[1]

[1]School of Arts & Communication, University of Southern Queensland

Corresponding author email address: Karey.harrison@usq.edu.au

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Abstract

This paper is based on a case study analysing students' capacity – in terms of Research Skill Development (RSD) facets related to 'conceptualising' and 'finding' relevant information – in their first assignment for an introductory (first year) social science course. The analysis of their performance exposes a Catch-22 in the Australia & New Zealand Information Literacy (ANZIL) standards, such that 'conceptualising' and 'finding' require an understanding of concepts in the context of the discipline, an understanding that is not available to novice researchers. An analysis of what is required to effectively conceptualise and find relevant information shows that locating information is a complex task that requires research skills, not just technical search skills. Each assignment submitted for an initial first year social science assessment task was analysed for textual indicators of the approach used by the student to conceptualise key concepts, and the results were tabulated and quantified. This paper will argue that insufficient attention has been given, within RSD and sister frameworks, to the conceptual difficulties associated both with determining what information is required and in finding that information.

Introduction

This case study analyses student assignments in an initial assessment task in an introductory social science course. This paper evaluates the appropriateness and success of the assessment tasks and scaffolding provided for students. The assignments were analysed in relation to the first two RSD Facets: a. Embark & Clarify; and b. Find & Generate. These two facets correspond with the parts of the ANZIL Framework that state, 'Information literate people (1) recognise a need for information, determine the extent of information needed; and (2) access information efficiently' (Bundy 2004, p.3). Torres and Jansen (2016, p.26) warn against 'traditional perceptions of information literacy as "locating information […]" [… in] a narrow interpretation of information literacy as search skills rather than skills for research.' My analysis will show that the identification of key concepts, and the use of these key concepts to find information, should not be neglected because although they are commonly seen as technical search skills, they actually require

very challenging higher order conceptual and strategic research skills. The Catch-22 faced by novice researchers is that in order to conceptualise (identify key concepts) and find relevant information, it is first necessary to understand the concepts and context; in order to understand the concepts and context, researchers need to be able to identify key concepts and find relevant information.

This Catch-22 is embodied in Bundy's (2004, pp.13, 15) examples for Standards One (S1) and Two (S2). For example, in order to explore 'general information sources to increase familiarity with the topic' (S1.1), novice researchers either need to know what that general information is, how to work out what it is, or where to find it. In order to understand 'the context of the topic in the discipline' (S1.2), novice researchers must be sufficiently familiar with the discipline to identify the relevant contextual constraints. In order to identify 'keywords […] and related terms' (S2.2), novice researchers need to either find out about or know enough about the relevant context in which the concepts are used to work out which individual words need to be conjoined and treated as a keyword phrase, rather than a series of separate keywords. The analysis of a first assignment in a first-year social science course demonstrates the challenge this poses for students.

The Gap Between 'Known' and 'Unknown'

This paper follows Willison and O'Regan (2007) in conceptualising 'student research as a continuum […] from knowledge new to the learner to knowledge new to humankind'. While RSD aims to 'make the process of developing research skills explicit [… by having them] modelled by lecturers, and scaffolded structures […] provided' (Willison 2010, p.12.4), I focus attention on a gap in this continuum – 'unknown knowns'. This gap obscures the difficulty faced by students from both library and academic experts. 'Unknown knowns' are the tacit conceptual, procedural and pattern knowledge that disciplinary and research literacy experts rely on to make the conceptual leaps that make identifying key concepts obvious and straightforward. This sort of tacit knowledge is not *propositional*. Tacit knowledge is informed by gestalt kinaesthetic (sensorimotor) image schemas rather than by reductivist collections of propositions (Lakoff 1987, pp.443–46).

Propositional knowledge is the sort of knowledge characterised by the terms 'information' and 'data' that appear throughout the RSD matrix (Willison & O'Regan 2008) to characterize the constituents of knowledge. This language reflects the predominantly positivistic approach (Fahy & Harrison 2005) of the disciplines utilizing RSD. Initially, the disciplines trialling RSD were primarily the professionally oriented areas of engineering; health; business; and education/humanities (Willison 2016a). While the RSD now also includes mathematics and sciences (Willison 2009, 2016b), the fact the social sciences are largely absent may help explain why tacit knowledge has not received much attention in the application of RSD. The uncovering of non-propositional tacit cultural knowledge is at the heart of social science research, and while this focus was previously used to distinguish interpretive social sciences from 'empiricist' physical and

biological sciences (Winch 1958; Giddens 1976, pp.159–62), more recent social studies of technology and society suggest the distinction between science and non-science is not so clear cut (Harrison 1985). Rooth and Silbey (2008, p.10) review the ethnographical research that provides evidence that *'production* of a particular scientific *fact* [as fact] or practice' is the cumulative outcome of numerous 'micro-transactions, *discursive strategies*, and forms of representation' between practitioners within the laboratory (emphasis added).

Approach

The case study for this paper is an assignment in a course that satisfies key features of an Open Learning Environment (OLE) approach, in that the course promotes 'the discovery and manipulation of underlying beliefs and structures rather than impos[ing] particular beliefs'. The loose nature of scaffolding in an OLE makes it difficult to straightforwardly map the requirements of the assignment along the linear autonomy axis of the RSD Framework.

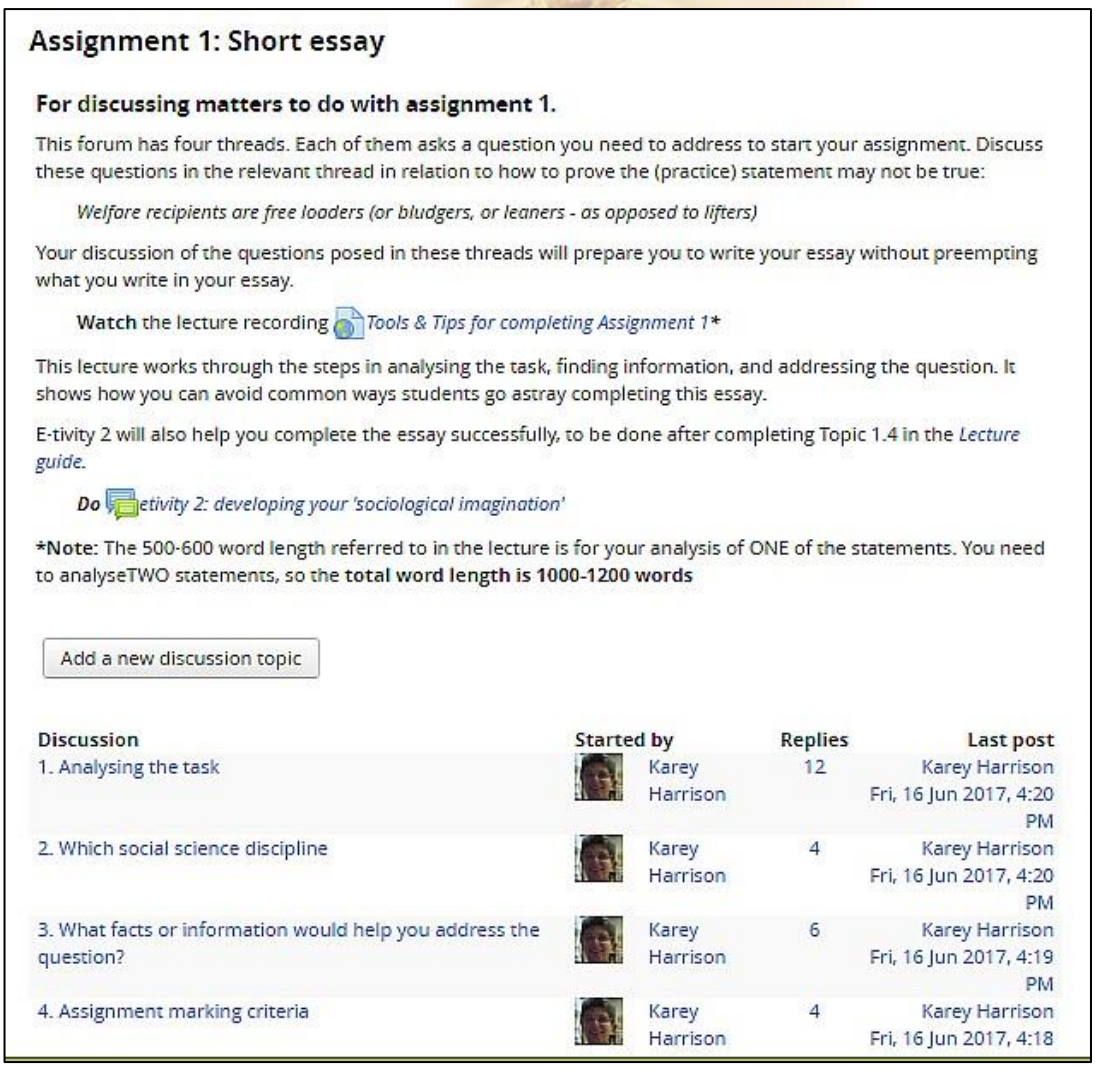
As is typical of an OLE, the course provided various sorts and degrees of scaffolding, particularly metacognitive strategies (Pintrich 2002), rather than prescribing the content to be used or the interpretation to be adopted (Hannafin, Land & Oliver 1999, pp.119–120). My opportunities for providing additional scaffolding besides those discussed below was limited by the fact that I was not the examiner for this course, and was restricted to providing a few guest lectures and creating and facilitating online forums for student support. The assignment instructions for the assessment item that was analysed ask students to apply their 'sociological imagination' to show why two of the following five 'common sense' statements may not necessarily be true.

1. Australia is a democracy.
2. Political correctness is stupid.
3. Today's society is more enlightened than societies of the past.
4. Indigenous people are closer to nature.
5. We should pay more attention to scientists.

The assignment instructions provided *conceptual* scaffolding such as a *direction* to read an extract from Mills (1959, pp.9–17) that explains what the 'sociological imagination' is. The instructions also *highlight in bold* the key distinction Mills makes that they need to attend to, between *private troubles* and *public issues*. Following Mills' account of the distinction, students are asked to show what the assumptions are behind the common sense statement, and to suggest connections between private troubles and public issues. They are instructed to connect this analysis to reasons for which the statements may be false. Because this assignment is submitted early in the semester, it is not a test of their knowledge of the social scientific literature, so they are neither required to find relevant social science research, nor to summarise it. The

students' task can better be understood as Guerilla research (Farrow 2016, p.99), using online media as a source of (textual) 'data' for interpretation, comparable to focus groups or interviews.

Students were provided with a mock statement – *Welfare recipients are free loaders* – to practice and receive feedback on their metacognitive, procedural, and strategic thinking both in class, and in an online forum. In a small group activity that was conducted during the face-to-face class, students' understanding and capacity to identify key concepts was tested by asking them to identify the key concepts in the mock question. About 1/3 of the class mistakenly thought the whole statement was a single key concept. The rest of the class wrongly thought each individual word in the statement could be treated as a separate key concept. The former fail to understand that key concepts are meaningful segments of a statement, while the latter fail to understand that key concepts include phrases whose meaning is not simply the sum of the meaning of component words. The difficulties students had in identifying key concepts in the assignment instructions in this case study are typical of those I have found in research literacy assignments set in a number of my courses every year over the last 14 years



Assignment 1: Short essay

For discussing matters to do with assignment 1.

This forum has four threads. Each of them asks a question you need to address to start your assignment. Discuss these questions in the relevant thread in relation to how to prove the (practice) statement may not be true:

Welfare recipients are free loaders (or bludgers, or leaners - as opposed to lifters)

Your discussion of the questions posed in these threads will prepare you to write your essay without preempting what you write in your essay.

Watch the lecture recording *Tools & Tips for completing Assignment 1**

This lecture works through the steps in analysing the task, finding information, and addressing the question. It shows how you can avoid common ways students go astray completing this essay.

E-tivity 2 will also help you complete the essay successfully, to be done after completing Topic 1.4 in the *Lecture guide.*

***Do** etivity 2: developing your 'sociological imagination'*

Note:** The 500-600 word length referred to in the lecture is for your analysis of ONE of the statements. You need to analyseTWO statements, so the **total word length is 1000-1200 words

Add a new discussion topic

Discussion	Started by	Replies	Last post
1. Analysing the task	Karey Harrison	12	Karey Harrison Fri, 16 Jun 2017, 4:20 PM
2. Which social science discipline	Karey Harrison	4	Karey Harrison Fri, 16 Jun 2017, 4:20 PM
3. What facts or information would help you address the question?	Karey Harrison	6	Karey Harrison Fri, 16 Jun 2017, 4:19 PM
4. Assignment marking criteria	Karey Harrison	4	Karey Harrison Fri, 16 Jun 2017, 4:18

Figure 1: Screen shot of Assignment forum

Having analysed students' efforts to identify key concepts in class, the lecture then introduced students to Lakoff's (1987, p.300) critique of objectivist 'folk theories' about language that assume meaning is reductive, inhering in individual words. Examples were provided to demonstrate that meaning is holistic, with pairs of words having different meanings to the aggregation of the meaning of component words, as well as meaning being dependent on contextual use of the word rather than 'objective' and independent of context. It is because of the gestalt and experiential nature of meaning that researchers need contextual knowledge in order to effectively conceptualise the concepts they are interested in on the one hand, and to find information related to those concepts on the other. It is because meaning is not objective and independent of context that novice researchers experience the Catch-22 that knowledge of the context is required to effectively analyse, conceptualise and find information.

The screen shot of the forum in Figure 1 shows the link to the supporting lecture, which was recorded for online students (Harrison 2017). Students were also given an opportunity to practice and receive feedback

on their 'sociological imagination' in an online e-tivity (as per Salmon 2013). The 'sociological imagination', as Mills (1959, p.5 ff.) describes it, explicitly requires examination of personal troubles and public issues in current society *in the context of the history* of these issues and troubles.

As part of the discussion of the nature of meaning, students were shown how dictionary definitions can tend to be based on 'common sense' understanding, whereas the assignment required them to critique common sense. They were advised that relying on dictionaries for definition of concepts would be incorporating into the foundation of their argument the assumptions they were required to question. Feedback was provided to posts on the online forum to reinforce this point, and to show how contextual and historical data made a difference to the interpretation of the issues and troubles they provided as examples.

Outcomes

This paper is based on an analysis of 102 short essays submitted by 54 students for the first assignment in a first year Australian university Social Sciences course (some students only submitted one of the required two essays). Unless indicated otherwise, percentages are of the 102 statements analysed, not the total of enrolments nor of the total students who submitted assignments. It is based on an analysis of non-identifiable archival data, in the form of aggregated data from thematic analysis of these student assignments. The aggregated data removes all identification, so ethics approval is not required.

All assignments were submitted online, and key features had been highlighted using track changes during marking. The marked up text from each assignment was then individually analysed and categorised on the basis of textual indicators to the student's approach to conceptualising key concepts. Five key indicators for sensitivity to context and concept history, as shown in Table 1, had been identified during marking. Data was initially recorded against these categories for each student on a separate row of a table with these headings. The figures shown in Table 1 aggregate this data. Categories (i) – (v) shown in Table 1 are not exclusive. For example, a student who gave a definition, but did not cite any sources for it, was counted in both column (i) and column (ii). Some students who provided a definition cited either a dictionary or an academic authority on the concept, so were counted in column (ii) and either column (iii) or (iv).

Table 1: Approaches categorised (non-exclusive) for each question.

question	total	i. opinion	ii. definition	iii. dictionary	iv. authority	v. context history
1	23	2	7	5	6	1
2	24	4	6	3	4	1
3	21	3	5	2	4	0
4	19	6	0	0	0	4
5	15	2	0	0	1	2

Because the columns were not mutually exclusive, it is not the simple aggregation of each category that proved most interesting. Instead, it was the conditional relationships between multiple categories that were most informative. There were 33% of statements analysed which provided definitions of concepts as compared with only 12% which tried to explore the historical context of the emergence and use of the statement. Having identified assignments that relied on definitions, I categorised definitions in terms of whether the definition was based on prior knowledge (no source), a dictionary, or an authority. Not all students who relied on their prior knowledge or who cited an authority used these to provide a definition, so the sum of these three categories exceeds the number of students who provided definitions. This analysis showed that 47% of the 34 students who relied on definitions for their analysis used dictionaries, 41% cited authorities, and only 12% relied on their prior understanding. Of the 16 students who cited authorities, 69% used them to justify definitions, whereas only 10% of the 59 students who relied on their prior understanding for their discussion of the topic gave definitions.

Discussion

Besides the reliance on definitions, clues that students treated meaning as the objective property of individual words also included their discussion of the meaning of individual words, rather than of meaningful phrases. When students who did their essay on statement 3 relied on definitions, they defined 'enlightenment' rather than 'enlightened society'. They then relied on definitions of 'individual enlightenment', and discussed statement 3 as if an 'enlightened society' was an aggregation of 'enlightened individuals', whereas both the extract from Mills they were instructed to read and the course lectures warned against treating society as an aggregation of individuals.

Similarly, it is likely that 58% of students who relied on their prior understanding for their discussion or characterisation of key concepts were led astray by the reference to 'sociological imagination', failing to understand that what Mills means by 'sociological imagination' has little in common with what is usually meant by the term 'imagination' on its own. In other words, despite significant scaffolding warning

students against confusing the meaning of phrases with either an aggregation of individual word meanings, or treating the meaning of key concepts as independent of context, students relied on their prior 'folk theories' of meaning (Lakoff 1987, p.118) to do exactly that. While 51% of the 39 students who relied on opinion did so for both statements analysed, of the 26 students who provided definitions, only 20% of them derived their definition from the same source for both statements, whether they relied on a dictionary, an authority, or their prior knowledge was influenced more on their analysis of statement than what they did for the other statement.

While the majority of students who analysed statement 4 treated 'closer to nature' as a meaningful phrase, most relied on a prior understanding that relies on a view of 'nature' as outside 'society', and hence failed to critique the common sense view of 'closer to nature' that was used to justify *terra nullius*. On the other hand, half of those who did take account of the historical context discussed statement 4. The other half of analyses that took account of context, bar one, discussed statement 5. However, as with statement 4, these were a minority of the analyses of this statement.

Conclusion

In order to find relevant information, students need to understand the contextual meaning of concepts. However, novice researchers have neither the disciplinary knowledge nor contextual understanding to go beyond their folk theoretic objectivist understanding of meaning. Despite efforts to provide scaffolding that would encourage students to take context into account, it is clear that to date these efforts have not been sufficient. The Catch-22 identified here is a major obstacle to development of effective research skills and more practical and theoretical attention is required to address it.

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