Author's response to reviews


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Author’s response to reviews: see over
Responses to the referees’ comments


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Reviewer 1.

1. This is a most interesting paper by a very experienced team who are competent in qualitative research. It is methodologically sound and I’m sure should be published but I’d like them to work a bit more on the theoretical aspects as I think they could get far more out of the data than they currently have.

Thank you. We have attempted to address these comments without losing the heart of the paper which applied a particular new middle range theory to this novel area of ICT use (by non-clinicians to do clinical type work)

MAJOR POINT

2. I know about normalisation process theory and I know it’s a popular and empirically grounded way of looking at the adoption and implementation of technologies. But I do worry that the proponents of NPT are producing a growing stack of empirical papers where ‘theorising’ has become synonymous with ‘showing how the data fit NPT’. I think this paper, as it currently stands, is theoretically very inward-looking in that there are too many phrases like “framing this using the domains of NPT”. That would be fine if it was an MSc dissertation but with three professors of sociology on the author list, they can and should go beyond that aim! Indeed, I suggest that the paper as it stands is a good example of why NPT needs to enter into dialogue with other theoretical approaches rather than trying to stand alone. To borrow some terminology from EBM I’d say the theorisation currently has ‘internal validity’ but it lacks a measure of ‘external validity’ within social theory more generally.

We have added three paragraphs on p5-6 to elaborate our rationale for choosing NPT and to explain why we used it as a framework for the analysis. We clearly situate NPT in relation to other potential theoretical approaches - STIN, STS, TPB, TRA, TAM and hope that this clearly locates our approach and the possible dialogues between NPT and these other approaches. We have acknowledged our disciplinary backgrounds to situate our choices.

We have added material on p6 to emphasise that NPT is a new middle range theory. We agree with the ‘internal validity’ criticism but suggest that this is a stage that all new theories go through in order to establish themselves (we believe the same is true of other theoretical approaches so this criticism could be levelled at ANT) but we hope that it is now clear that one aim of our paper is to add to the emerging body of demonstrations of how NPT might be fruitfully employed to study technologies in use.

3. I’ll give one example of what I mean from the findings section, and I will leave the authors to consider how the many other findings might be similarly theorised in a richer and more useful way. On page 8, they mention that the call handlers had initially been concerned about ‘de-skilling’ from the CDSS, but as it turned out, using the new system required them to develop a new set of skills, which included developing sophisticated tacit knowledge about the technology-in-use. Whilst the authors’ interpretation based on NPT – that the CDSS offered “the opportunity to perform clinical identity” etc etc – is plausible, it reads as just one of many possible interpretations and – for me – begs the so-what question.

We realise that we had not been clear enough here. So we have clarified the point about clinical identity on p9 to address this. We refer back to the literature on call centres and work about experiential expertise but making the point, which we hope is now clearer is that this clinical identity is claimed by non-clinical workers. This finding is unique to our study – as this is a new type of healthcare work, having previously been performed by nurses or clinicians. (we think this addresses the so what – this is an important change in service provision but also challenges the model that technologies will deliver services alone)

4. The issue of de-skilling of workers (or not) by ICTs has of course been widely covered in the organisational sociology literature. The early writing in that school drew on Marxist notions of automation of the means of production, and later work applied Foucauldian notions of power as played out in the workplace. But the key text here is I think Shoshana Zuboff’s ‘In the Age of the Smart Machine: The future of work and power’, now almost 25 years old (New York: Basic Books; 1988). Zuboff was one of the first researchers to demonstrate empirically that the computerisation of work requires the abstraction of work from its context, thereby changing the nature of that work. In her study of sawmills moving to computerised work processes, she found that the new technology could not capture the rich tacit knowledge that had developed within (and as part of) practice. These skills were practical, action-centred and tightly bound up with the context in which action took place – hence were difficult
if not impossible to express in words or algorithms. Sawmill knowledge was embodied by the craftsman (it involved a level of physical knowing such as using feel and taste to decide whether a vat of pulp was ‘ready’), and acquired by years of experience (rather like clinical knowledge, in fact). Such knowledge was produced and reproduced in action (again, like clinical knowledge).

But as well as replacing this hard-won, embodied knowledge about the physical process of paper production with computerised gauges and formal monitoring protocols, automation also introduced a new requirement for a different sort of tacit knowledge. In the sawmills example, Zubhoff showed that there was as much tacit knowledge needed to fiddle with the new gauges as there was to test a vat of paper pulp with one’s finger and taste buds. Thus, she demonstrated why the ‘deskilling’ argument was misplaced.

A comparable argument could be drawn about de-skilling by CDSS. And of course, much has been published on this topic since Zubhoff. What I think is needed in this paper is to take the main findings in the data (of which the issue of ‘de-skilling’ is just one), and draw links with relevant sociological (and other) literature beyond NPT.

We have added, on p4, several references to the wider sociological literature on call handling, deskilling etc to situate our work. We agree with this reviewer about the limitations of these arguments about deskilling. We have not cited Zubhoff as we sense this classic may be harder to access but take the point that this aspect needed to be acknowledged so have tried to include references which readers of the journal can access easily. We have also moved the reference to Suchman earlier and repeated the link to her work to reinforce this. The review of other theories in the new paragraphs on p5-6 helps to make the links beyond NPT.

6. In the discussion, I would like the authors to be substantially more critical and reflexive about what NPT has failed to explain in their data instead of simply saying that they’ve successfully made much of the data fit this framework. NPT was useful for XYZ but it didn’t tell us PQR, type thing. And engage with the criticism that they may have been squeezing their data into a pre-existing set of categories – let’s see the defence of that.

In response to this reviewer and the same observation by referee 3 we have added a section on limitations p16-17 tried to be clearer about the strengths and limits of using NPT. We also added material to the analysis section to explain how we agreed codes and used the theory.

MINOR POINTS

7. For a BMC audience I think you should justify the use of ethnography. My own paper on this is here http://www.ncbi.nlm.nih.gov/pubmed/21521535 but I would not be offended if a different methodological reference is used instead!

We have added a justification for using ethnography and are pleased to cite Greenhalgh as a good exposition of this on p6.

8. Again, since a BMC audience may be more familiar with more ‘objectivist’ explanatory models, is it worth citing something like Davis’ Technology Adoption Model (if only to say, in the next sentence, why sociological explanations are needed as well as these rather flat cognitive ones)? Not compulsory.

We took this on board and the editor’s note about Kling so use the paragraphs on p5-6 to situate NPT in the context of STS, STI, TPB, TRA, and TAM.

9. Page 9 “a broad range of potential dispositions”. I only know what this means because I’ve done ethnography in call centres myself. It’s part of the extraordinary internal jargon these places have developed to talk about a pragmatic combo of processing and auditing the calls. Needs explaining (but better, use a different word and don’t expect the reader to learn the jargon).

We have removed the jargon about dispositions (now on p11) and explained what a disposition is in the paragraph on what the CDSS is. We hope this is now clearer.

Reviewer 2

The study is well presented and logically structured. This helps the reader to understand the flow and conclusions of the paper. I have identified a few areas where I think the authors need to provide some more detail and substance to the paper.

Thank you we have attempted to address these below.

Major compulsory revisions:
10. The paper draws attention to the gap between the “enthusiasm” for technological innovation, and the “actual practice of implementation.” I would like the authors to provide a more updated description of this “gap”. Some of the evidence provided for this “gap” is now over ten years old. Are the authors able to succinctly draw attention to any important developments, discussions, strategies about this issue from the last five years or so? I believe the paper would be better positioned if it was able to link into some important recent developments and thinking.

We have added/substituted several more recent references in the background section as requested and added material to explain the implementation gap here. We have also tried to position the theoretical approaches surrounding this in the research approach section. We hope this is now more explicit.

11. The “Research approach” section needs more detail. Can the authors describe how NPT is positioned in regards to other approaches or theoretical lenses? Is there a strong reason for using it? What do the authors think it will add to our understanding? This is important, because, I would also like the paper to provide an assessment of the value of NPT in the Discussion, in the light of the study’s findings.

We have added a paragraph on p5-6 to explain the choice of NPT, justify this and explore the relationship between this and other theories (we specifically mention Kling and STIN here as requested by editors). We have also addressed the value issue by adding the paragraph on limitations to reinforce what we have and have no accomplished.

12. The paper is currently light on the context of how (where and when) the technologies are used. There are some (very interesting) snippets here and there, but the paper is generally thin on the technological and contextual description of the system. Sometimes, a screen shot or a simple process map can help immensely.

We have a problem with elaborating the context of the particular CDSS due to constraints of research ethics permissions. We have attempted to anonymise the exact CDSS used and not named the sites in part because of sensitivities about contracting process and roll out of the service nationally. For this same reason we are not able to add a screen shots – although we agree that this would be helpful. We have added material about the broader context of call handling on p4 and attempted to elaborate that this is a largely non-clinical telephone based service. This has included moving some material that was previously later in the paper – so that the reader can understand the nature of the work early on.

13. The “Analysis” section conveys a strong sense of the rigour of the data analysis. Can the authors also explain what approach/es they undertook to build confidence in the validity of the data and their findings?

We have added material in the analysis section p7 to explain how we ensured this.

Minor essential revisions:

14. The meaning of the last sentence in the paragraph under “Research approach” on page 4, is not clear.

Changed in the revisions asked for by the reviewers in adding to this section.

15. The point (page 8, paragraph 1) from Science and Technology Studies about how technologies are never fixed or finished, is an important one. It should be referenced.

We repeat the references added in the earlier section (37,38) here.

Reviewer 3

16. However, the authors do not in demonstrating ‘coherence’ as part of the NPT process in all 3 cases, with it becoming invisible/ implicit only in the Out of Hours case (pp10-12) (This would be a Discretionary Revision - as are my other points)

We have added to the sentence on p8 to signpost coherence in 999 more clearly, but feel it is also signalled in relation to SPA. We have added a further data excerpt on p13 to emphasise the coherence ‘work’ in OOH. We did consider italicising coherence (and the other concepts) throughout but felt this might reduce readability – we are happy to be advised by the editors if they feel this will address this particular concern more adequately.

17. Is the question posed by the authors well defined? - YES

No change

18. Are the methods appropriate and well described? - YES very clearly too.

Thank you. No change
19. Are the data sound? - YES

No change

20. Does the manuscript adhere to the relevant standards for reporting and data deposition? - YES for rigorously executed qualitative research.

No change

21. Are the discussion and conclusions well balanced and adequately supported by the data? - YES

No change

22. Are limitations of the work clearly stated? - NO and the paper would benefit from the inclusion of a short paragraph towards the end.

We have added a paragraph on the limitations of our work p16-17.

23. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? - YES this is a well and appropriately referenced paper.

No change

24. Do the title and abstract accurately convey what has been found? - YES although I would suggest the word 'perhaps' in the final sentence is redundant.

We felt we wanted to nod towards contingency here so kept this in

25. Is the writing acceptable? - YES it is very lucid.

No change

26. In addition to the above we have added the sections requested by the editors and removed vertical lines from the tables.