Internet Appendix A231: Research Education
Illustrative Reverse Engineered Pitch Template Example

Pitcher's Name	Bao Hoang Nguyen	FoR category	**Research Education**	**Date Completed**	24/01/2017
(A) Working Title	Kiley, M., & Wisker, G. (2009). Threshold concepts in research education and evidence of threshold crossing. *Higher Education Research & Development*, *28*(4), 431-441.				
(B) Basic Research Question	What are the generic research threshold concepts? How to identify the crossing of these concepts in research learning?				
(C) Key paper(s)	Meyer, J., & Land, R. (2006). *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge*. Routledge. Meyer, J. H., Shanahan, M. P., & Laugksch, R. C. (2005). Students' Conceptions of Research (I): A qualitative and quantitative analysis. *Scandinavian journal of educational research*, *49*(3), 225-244. Kiley, M., & Mullins, G. (2005). Supervisors' conceptions of research: What are they?. *Scandinavian Journal of Educational Research*, *49*(3), 245-262.				
(D) Motivation/Puzzle	Recently, threshold concepts have been increasingly adopted in tertiary educational institutions as a useful tool to design curriculums. However, the research on threshold concepts has, to date, been at the undergraduate level and focused on discipline-specific concepts in spite of the fact that generic doctoral-level thresholds appear to provide a strong and useful framework to support research learning and teaching at graduate level. Therefore, the motivation of this study is to discover whether there are particular concepts that meet the threshold concept characteristics of transformative, irreversible, bounded, integrative and potentially troublesome in research education.				
THREE	**Three** core aspects of any empirical research project i.e. the "**ID**io**T**s" guide				
(E) Idea?	This paper applies literature on threshold concepts, and on research education, to develop a small-scale study to derive the identification of generic research threshold concepts and research students' crossing of these concepts from research supervisor perceptions. This study conducts in two stages. The first stage is to invite experienced doctoral supervisors to complete a short survey about the main challenges that research students face and the strategies to assist research students to overcome these challenges. The second stage is to engage experienced supervisors in in-depth interviews asking for the similar issues mentioned in the survey as well as the signals of crossing conceptual research thresholds.				
(F) Data?	- Data are collected through short surveys and in-depth interviews. - Sample involves 65 experienced research supervisors across six countries (Australia, England, Jamaica, Malaysia, New Zealand and Trinidad) and across Humanities, Social Sciences, Engineering and IT and the Sciences. In which: + Survey (Stage 1): 26 experienced supervisors + In-depth interviews (Stage 2): 39 experienced supervisors				
(G) Tools?	- Using an analytic form that allows seeking out comments, themes and ideas that appear regularly in the responses.				
TWO	**Two** key questions				
(H) What's New?	To the best of my knowledge, it is the first time the threshold concept literature is applied to research education level.				
(I) So What?	Understanding threshold concepts in research education will help to enhance the learning experiences for students and supervisors. Moreover, it may assist research students to overcome the liminal state in their research journey and contribute to a lowering of attrition rates of doctoral programs.				
ONE	**One** bottom line				
(J) Contribution?	This study contributes to previous researches into the conduct of doctorate, and learning at the HDR level by focusing on research threshold concepts. Furthermore, it suggests a fruitful area of further study in which threshold concepts will be further explored as a framework for learning and teaching at HDR level.				

(K) Three Key Findings	1. This study identifies six possible generic research threshold concepts: argument; theorising; framework; knowledge creation; analysis and interpretation; and paradigm. 2. This study indicates a number of indicators that signal when learners have crossed conceptual research thresholds as follows: - Questioning and problematising of accepted concepts; - Being able to mount a defensible argument; - Conceptual and theoretical framework development; and - Developing questions, design, data analysis, conclusions – so that conceptual and theoretical conclusions will be produced.

Mickey Mouse Diagram: