**How preferable and possible is management research-related teaching impact?**

# Abstract

With increasing pressure for management researchers to create impact, we explore the use of research-related teaching in which students act as research translators to create impact. Using the UK’s research excellence framework as an example, we define what research-related teaching might work both for tacit and explicit knowledge and apply Boyer’s scholarship of application and discovery as our pedagogical base to argue for using students as research translators. The paper provokes new thinking on research-related teaching and suggests that ignoring this impact pathway has negative consequences and is a missed opportunity as well as underrepresenting the existing impact of management research.

**Keywords**

Social impact, research-related teaching, knowledge, measurement, research outcomes, processes, research evaluation.

# Introduction

Despite criticism of the notion of economic and societal impact (Watermeyer, 2016), recent discussions in *Management Learning* acknowledge its renewed urgency and importance in many countries (Scaratti et al., 2017). Within the wider problem around ‘what kind of business school contexts are most conducive to generating research impact’ (Kellard and Śliwa 2016, p694), we explore the case for seeing teaching as a legitimate vehicle for management research impact. Using the UK’s research excellence framework 2014 (REF2014) as an illustration, we found no impact case studies in management which used teaching as the primary impact mechanism, something which has been confirmed in other analyses relating to the impact of higher education (Ross and Morrow, 2016). This may be because originally, REF2014 excluded ‘the development of teaching materials that do not embody original research and … Impacts on students, teaching or other activities within the submitting HEI” (REF 2012, p. 428) and defined impact as ‘an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, *beyond academia*’ (HEFCE, 2015; emphasis added). However, recent recommendations suggest ‘research leading to major impacts on curricula and/or pedagogy within or across disciplines should be included’ (Stern 2016, p23). This is important progress because today’s students are tomorrow’s practitioners and part-time students are also today’s practitioners (e.g. there are 63,455 part-time students in the UK in 2015-16, according to HESA [2017]), and thus they could legitimately be classified by HEFCE as ‘beyond academia’. Indeed, impact significance in REF means ‘a sustained or ongoing engagement with a group, a significant increase in participation in events or programmes or use of resources’ (REF, 2014: 71) which could easily apply to part-time students who are often employed. Thus, we argue that impact could be created not only ‘on’ curricula, but also ‘through’ curricula via teaching interventions (Anderson et al. 2017) such as Change Laboratories (Sannino, & Engeström, 2017). This proposition begs several questions. First, what type of research-related teaching might be suitable for impact? Second, which teaching processes might be used to facilitate and assess impact? Third, what problems arise from continuing to ignore this impact mechanism? In answering these questions, this paper identifies the types of teaching most suitable, furthers the notion of students as change agents (Fielding 2001), proposes teaching processes which might be used to facilitate impact and identifies how our current view of impact mechanisms needs to change.

1. **What type of research-related teaching might be suitable for impact?**

For impact (e.g. the UK’s REF), we are primarily concerned with teaching which can satisfy four conditions. First, it is clearly based on specific research outputs of an individual which pass a given quality threshold. Second, it has specific teaching formats and assignments to engage students with those research outputs and applies the knowledge to organisations or entities beyond academia. Third, it creates impact outcomes on organisations beyond academia which can be attributed to the original research. Fourth, these impact outcomes are measurable. These conditions imply that not all research-related teaching would be suitable as vehicles for impact cases.

For the first condition, we build on Stern who ‘emphasised the importance of integration of *teaching and research*’ (Stern, 2016 p34), and warned, ‘that TEF [teaching excellence framework] and REF [research excellence framework] do not incentivise universities to separate inappropriately or dichotomise their research and teaching missions’ (Stern, 2016 p17). We propose that when research-related teaching largely helps to achieve better educational outcomes, for example knowledge of how to use research methods, then it is evidently relevant to teaching excellence (e.g. TEF in the UK) and some work has investigated the use of various forms of research-related learning into mainstream curriculum (Levy 2011; Levy and Petrulis 2012). However for impact, research-related courses should largely achieve outcomes for and entity beyond academia and be ‘based on research of demonstrable quality… linked to a research activity and a body of work as well as to a broad range of research outputs’ (Stern 2016, p23). This requires the base knowledge on which the course is based to be much narrower and come from a single or group of academics.

1. **Which teaching processes might be used to facilitate and assess impact?**

The second condition involves the nature of the teaching process and the role of the student. Research-related learning can be divided into teaching that is: *research-led* which involves learning about current research in the discipline including research conducted by staff teaching them, *research-oriented* which develops students’ research method skills and knowledge to carry out research, *research-based* which requires students to undertake empirical research and inquiry and become producers of knowledge and not just consumers, and *research-tutored* which engages students in critical discussions of research to develop analytical thinking skills (Healey, Jenkins and Lea 2014 p18). Here we focus on research-led and research-tutored teaching as exemplars of ways to create impact, but acknowledge that research-related courses may involve all four types of research-related teaching.

*2.1 Research-led teaching*

We posit that research-led courses largely convey explicit knowledge or ‘Know what’ (Polanyi, 1966) and is the mainstay of academic teaching which uses books and articles. Classic examples might include the concept of core competence (Prahalad and Hamel 1990) or results from Cooper’s occupational stress measure (Williams and Cooper 1998). Using Boyer’s (1990) scholarship of discovery and application, research-led teaching can also become research-based courses and create impact by encouraging new ways to apply the existing research knowledge to students’ specific contexts which invariably will lead to ‘discovery’ of new information. However largely because of time, cost and judgements of value, not everything that is known about a topic is codified by being written down in words or numbers, or put in a picture or video within a given research output(s). Furthermore, some research knowledge is not about results and findings, but about how we think and is thus primarily tacit knowledge. For this tacit-knowledge teaching processes need be to be used.

2.2 *Research-tutored teaching*

Research-tutored teaching largely focuses on cognitive tacit knowledge which is often “imperfectly accessible to conscious thought” (Nelson and Winter, 1982: 79) and “is mostly uncodifiable (inherently tacit)” (Balconi, Pozzali, Viale 2007: 845). Such tacit research thinking involves the intellectual skills to judge, interpret, frame and solve problems and create novel solutions. Classic examples of this approach might be a course which involves asking students to think about organisations using Functionalist, Interpretive, Radical Humanist and Radical Structuralist approaches (Burrell and Morgan 2017) or Habermas’s Theory of Knowledge (Willmott, 1997).

In trying to understand research-related teaching impact processes better, we modify the significance and reach elements of the REF to propose two dimensions of *quality*, which is a measure of how well they convey tacit and explicit knowledge, and *reach*, which is a measure of the number people the teaching process affects. The quality of teaching processes can be divided into: *duration* (i.e. how long did the teaching interaction last, for instance, one hour or one year) as well as the *depth* of these interactions (i.e. the extent that the student is substantively required to engage with the research and produce meaningful organisational impact outcomes). *Reach*, can be broken down into *scope* (i.e. how many organisations or people were involved in the teaching process), for example compare one dissertation project versus delivering executive education for 100 different executives. The second component of reach is *cascadability* which measures the ability of students to create within their communities or organisations, for example educating a set of HR directors versus one individual part-time student working as a bartender.

Figure 1 shows examples of teaching processes classified according to their degree of quality and reach for both research-led (explicit knowledge) and research-tutored (tacit knowledge) teaching. For explicit knowledge, good examples might include: traditional lectures, MOOCs or using group projects to apply an existing measurement tool to a context to generate new findings. However, tacit knowledge requires demonstration, emulation, individualised and real-time feedback processes which utilises the tacit knowledge of the academic. Such approaches encourage dialogue, praxis and reflexivity *(*MacIntoshet al., 2017: 6) and provide an alternative way of creating research impact through teaching which does not rely on explicit knowledge, but creates impact through passing on tacit knowledge about how academics think about and analyse management problems. Paton, Chia and Burt (2014) call this ‘relevating’ when research is used as a device to enable practitioners to think anew about their own situations which allows them to learn from each other and where participants are ‘challenged to think about their own thinking’ (Paton et al., 2014: 272). Good teaching processes for this might include: Change Laboratories which encourage organisations to develop and learn through qualitative cycles of transformation (Sannino, & Engeström 2017), supervision of Doctors of Business Administration (DBA), or role plays.

## Figure 1 about here

Our third condition is to ensure the underlying research creates impact outcomes on organisations beyond academia which can be attributed to the original research and requires us to revisit the role of the student. Previous work has focused on students as change agents of their educational experience (Dunne and Zandstra 2011; Fielding, 2001) and change makers who engage with research thinking on external real-world problems to discover solutions (e.g. creating sustainability within the hospitality industry [Wade, 1999], or helping with health in developing countries [Onyango-Ouma, Aagaard-Hansen and Jensen, 2005]). Here, we extend this conceptualisation in several specific ways to see students as research translators (see Table 1 which highlights the similarities and differences of the three conceptualisations of student change agents, student change makers and student research translators). The change initiator is the academic, the change deliverer could be alumni, and the change timescale is anytime as determined by the impact assessment exercise. The type of student assignments might include writing work books for students to explore and apply the explicit or tacit research knowledge within an organisation or entity beyond the academic institution. This helps to ensure that the impact outcomes achieved is attributable only to underpinning knowledge being used from the work of specific academics within an institution and discourages students from applying other frameworks to create impact.

## Table 1 Similarities and differences between student change agents, student change makers and student research translators.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Student change agents** | **Student change makers**  | **Student research translators** |
| **Source of the knowledge** | Any source material but mainly that which is related to teaching and learning or experiences gathered by a research process | Any research output or teaching resource which involve research experiences and student data collection | A specific academic’s research output of a given quality  |
| **Problem nature** | The student education experience | Any problem or issue outside of the HEI sector | Any problem or issue outside of the HEI sector |
| **Change initiator** | Often full-time students | Typically full-time or part-time students | Mainly the academic |
| **Agent delivering change** | Coordinating academic or institution | Mainly students and sometimes with the collaborating or affected organisation | Part-time students, executives, or alumni |
| **Change subject** | Self and other students. HEIs, educational processes, curricula, pedagogical approach, student support and facilities | Self and good causes, communities or organisations beyond HEIs | Improvements to processes, attitudes, behaviour, policies and ways of thinking, in people or organisations beyond HEIs |
| **Timescales**  | Typically, during studies of between 3-5 years  | Typically, during studies of between 3-5 years | During the research assessment period |
| **Outcomes** | More fulfilling educational experience and greater learning | Improvement in the target external issue | More jobs, improved well-being, greater revenue  |
| **Example**  | University of Exeter run student-led research projects when students take responsibility for bringing about pedagogic change (Dunne and Zandstra 2011) | Grand Challenges at the University of Exeter. Students produce solutions and ideas to tackle some of the key dilemmas of the 21st century, like climate change, ageing, ethical banking: <http://www.exeter.ac.uk/grandchallenges/>‘Pop up science’ at the University of Leeds, which is a student-led voluntary initiative to help public understanding of science (Lewis 2015) Connected curriculum initiative at University College London (Fung, 2016)  | Prahalad or Hamel (1990) teaching a course on the core competence of the corporationBurrell or Morgan (2017) teaching a course on organisational analysis and corporate life |
| **Assessment framework** | TEF | TEF | REF |

Our fourth condition is that research-related teaching impact outcomes are measurable. These ‘need not solely focus on socio-economic impacts, but should also include impact on government policy, on public engagement and understanding, on cultural life, on academic impacts outside the field, and impacts on teaching’ (Stern, 2016 p23). While it is beyond the scope of this provocation to cover the literature on how impact outcomes are measured as often they are “not easily evidenced or tangible” (Kellard and Śliwa, 2016, p706), and this topic is dealt with substantively elsewhere (see journals such as *Research Evaluation*), a first step might be to use Figure 1 to assess the value of the type of teaching process used in research-related teaching. As part of this, consideration could be given to how student assignments could begin capturing the effects of research either by asking the student to reflect on what change or effects have or could occur in their context, or in the case of a more in-depth pieces of work, to ask them to forecast or estimate beneficial effects and report on them.

Whilst such approaches address ways of measuring impact within the timeframe of the unit of study, they are insufficient to capture the totality of impact from research-related teaching. One drawback is that many students may not have the authority within the early stages of their careers to implement knowledge of research findings gained during their courses. Thus, additional post-graduation measures which could be instigated to collect data from students graduating from such research-related courses 3, 5, and 10 years after graduation. This could be conducted initially by using a simple survey asking them how useful the research had been in their jobs and organisations so far. Based on who reported it to be most useful in the survey, a follow-up and more in-depth analysis of their organisation may be instigated to measure more precisely how and with what effect the research was used. These alumni surveys are important because impact ‘varies over time and can change, positively or negatively, at the one-point snapshot whenever it is measured’ ([Brewer, 2011](http://rev.oxfordjournals.org/content/24/3/229.full#ref-9): 256). For example, what is useful in one point in time (i.e. a management fad) may diminish over time and even damage organisations (Starkey and Madan, 2001), and ‘useless’ research may over time prove to have uses (Learmonth et al., 2012). Thus, single point in time measures may underestimate long-term impact ([Buxton, 2011](http://rev.oxfordjournals.org/content/24/3/229.full#ref-11)) and an advantage of engaging with alumni for impact purposes is that their connection with the university can often be for life which allows impact tracking over a much greater timespan.

A second drawback of both these approaches is that they do not account for ‘secondary’ impact of the research outputs which may also be used as part of other similar courses outside of the ‘owning’ HEI. While logically and ideally this should also be assessed, it may be extremely difficult to account for a number of uncontrollable factors. A third drawback is that currently individual researchers are responsible for collecting impact data which may take many “scientists beyond the bounds of their disciplinary expertise” (Holbrook and Frodeman, 2011: 244). Without training, guidance, additional time, money and opportunity costs of researching alumni and processing the resultant data, the continued reliance on individuals may fail to deliver adequate measurement of outcomes and thus such impact activity will require some investment (Watermeyer, 2016).

1. **What problems arise from ignoring impact via teaching?**

Continuing to exclude research-related teaching as an impact mechanism creates several problems for students, faculty, HEIs and the even potentially nation states. For students, having less research-related teaching decreases the chances of them learning from and being inspired by academics who created the knowledge. Such teaching lends itself to a more sophisticated and complicated view of the world that can produce a more intellectually-challenging experience (Bartunek, Gordon and Weathersby, 1983; Anderson et al., 2017). Indeed, undergraduate research programmes have been shown to have strong impact on retention and student grades (Locks and Gregerman 2008) and without them students will have a reduced opportunity to make their studies more meaningful and engaging for themselves as well as potentially beneficial for society. As a result, teaching quality assessors should be interested in research-related teaching for enhancing learning outcomes.

For faculty, ignoring research-related teaching as an impact mechanism reifies the issue of placing lesser value on teaching versus research-related activities, which in turn potentially increases the tension between them and lessens the importance with which teaching is perceived within HEIs (Boyer, 1990). Reducing the motivation for academics to integrate their research into their teaching removes intellectual, time, cost and energy synergies created by being able to teach what they research. This can result in faculty feeling less ownership of courses and may benefit less from the promotion prospects of being able to demonstrate their research has impact. In addition, developing tacit-knowledge research skills to critique systems, values and practices serve not only to understand the assumptions under which some management operates (e.g. Paton et al., 2014; Anderson et al. 2017), but also to potentially improve it via a ‘critical and engaged approach’ for business school education (Bridgman 2007). However, without evidence of the value of such courses, it is often difficult to get both student and institutional recognition. Having fewer research-related courses also reduces the bargaining power of academics in general with their employers as they increasingly teach more generic, substitutable courses, and for individual academics specifically since such courses are unique and can only be taught by the person whose research it is based upon. That said, more focus on research-related courses may encourage undue competition between faculty around who should be allowed to teach their own work which may mean that academics place content of lesser quality into these courses as they become vanity projects, while other more important material is sidelined. As specialist-research electives become more sought after, it could reduce the number of external lecturers and professionals who are employed to teach, thus reducing the overall vibrancy and variety of courses students are exposed to and the amount of external engagement with other lecturers. Finally, some claim that ‘research-intensive universities have a research-based teaching culture which ignores what students need and what employers expect’ (Schäfer, 2016 p23), and more research-related courses may exacerbate this issue. Thus, we should be careful about increasing the total number of courses, but be more sophisticated in how existing courses are organised and managed.

For institutions, under-valuing such teaching as an impact mechanism reduces their ability for differentiation and competitive advantage when attracting domestic and international students. In addition, it undermines the ability of HEIs to convince students and employers that research is worthwhile to invest in and relevant to society. This is likely to be particularly salient for those degrees which are considered more discretionary like Management MScs, MBAs and EMBAs. It may also negatively impact on the recruitment of new faculty because there is less reward in teaching what they are passionate and knowledgeable about. Crucially, having a fewer number of impact cases to submit to national research assessments might affect HEIs negatively in terms of reputation and money from both public and private sources and may also be more problematic when attempting to gain and renew accreditation from organisations such as AACSB (2012) who are increasingly interested in the impact business schools create. Organisations with significant numbers of part-time students or with large executive education outfits might be at a strategic advantage and this might exacerbate existing disciplinary-based external contact variations in management schools which can be greater in accountancy and actuarial science, or centres of entrepreneurship and business incubation units. All of this is an important reminder to be aware of trying to ensure that institutions and individual researchers are not unfairly disadvantaged in how they are evaluated (Willmott, 2012).

At a national level, there is potentially a misrepresentation and under-estimation of the degree of impact management research creates by ignoring the potential of research-related teaching to create impact. This decreases the credibility of business schools among practitioner communities as well as within universities, research councils, assessment bodies and governments, which reduces the sector’s ability to secure contract research, executive education and consultancy income from the private sector and undermines its ability to demonstrate the entirety of its impact and justify public funding. More broadly, it diminishes research-related teaching’s ability to sensitise practitioner audiences of the value of research which can make them more receptive to other research findings (Burke and Rau 2010). It is also contrary to the founding *raison d’etre* of business schools which was to formalise and improve business practice, and discounts the possibility of increasing management research’s effect on society via the estimated 3 million registered business students worldwide (AACSB, 2017). Although here we are focused on management research, the issues raised apply across the HEI sector and has implications for competition between nations by diminishing their ability to leverage existing research strengths. For example, despite having only 3.2% of R&D expenditure and 4.1% of researchers, the UK accounts for 9.5% of downloads, 11.6% of citations and 15.9% of the world's most highly-cited articles (BIS, 2013). Thus, hindering the recognition of research-related teaching impact closes off a pathway to showcase its wider contribution to knowledge generation and application.

1. **Conclusion**

This article provokes a debate about how the current model of research impact, which requires academics to take an article and spend time and money translating their research, finding external audiences, persuading them of its value and then measuring if and how they used it, could be changed to explore and exploit research-related teaching. While definitions of impact do not need to change, acceptance of mechanisms does, including impact being created by a body of work which is more suited to courses as well as the role of students to become research translators. We challenge the justification for HEFCE and other international research assessment bodies continuing to ignore this important impact mechanism. In particular, our assertion for a role for tacit-knowledge thinking approaches is provocative. Although we suggest four conditions to better capture the existing impact academics are making through teaching their research, these may change depending on specific guidelines of each country’s national impact assessment framework. However, we hope that our arguments and unanswered questions will ignite a lively discussion on research-related teaching impact.

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# References

AACSB (The Association to Advance Collegiate Schools of Business) (2012) Impact of Research. A Guide for Business Schools. Insights from the AACSB International Impact of Research Exploratory Study. Available at: <http://www.aacsb.edu/~/media/AACSB/Publications/research-reports/impact-of-research-exploratory-study.ashx> (accessed 9 October 2015).

AACSB (The Association to Advance Collegiate Schools of Business) (2017) About Us. Available at: <http://www.aacsb.edu/about> (accessed 06.06.17).

Anderson L, Ellwood P and Coleman C (2017) The Impactful Academic: Relational Management Education as an Intervention for Impact. *British Journal of* *Management* 28(1), 14-28.

Antonacopoulou EP (2009) Impact and scholarship: unlearning and practising to co-create actionable knowledge. *Management Learning* 40(4), 421-430.

Balconi, M., Pozzali, A., & Viale, R. (2007). The “codification debate” revisited: a conceptual framework to analyze the role of tacit knowledge in economics. *Industrial and Corporate Change*, 16(5), 823-849.

Bartunek, J. M., Gordon, J. R. and Weathersby, R. P. (1983). Developing “complicated” understanding in administrators. *Academy of Management Review*, 8(2), 273-284.

BIS (2013) International comparative Performance of the UK Research Base – 2013 Report by Elsevier for the Department of Business Innovation and Skills. October. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263729/bis-13-1297-international-comparative-performance-of-the-UK-research-base-2013.pdf> (accessed 06.06.17).

Boyer EL (1990) *Scholarship Reconsidered: Priorities of the Professoriate.* New York: Carnegie Foundation for the Advancement of Teaching.

Brewer JD (2011) The impact of impact. *Research Evaluation* 20(3), 255-256.

Bridgman T (2007) Reconstituting relevance: Exploring possibilities for management educators’ critical engagement with the public. *Management Learning* 38(4), 425-439.

Burke, L. A. and Rau, B. (2010). The research–teaching gap in management. *Academy of Management Learning & Education*, 9(1), 132-143.

Burrell G and Morgan G (2017) *Sociological paradigms and organisational analysis: Elements of the sociology of corporate life*. Routledge.

Buxton M (2011) The payback of ‘Payback’: challenges in assessing research impact. *Research Evaluation* 20(3), 259-260.

Cooper, C. L., & Cartwright, S. (1994). Healthy mind; healthy organization—A proactive approach to occupational stress. *Human Relations*, *47*(4), 455-471.

Dunne E and Zandstra R (2011) Students as change agents – new ways of engaging with learning and teaching in higher education. Bristol: A joint University of Exeter/ESCalate/Higher Education Academy Publication. Available at: [www.escalate.ac.uk/8064](http://www.escalate.ac.uk/8064) (accessed 16 June 2017).

Ernø-Kjølhede E and Hansson F (2011) Measuring research performance during a changing relationship between science and society. *Research Evaluation* 20(2), 131-143.

Fielding, M. (2001). Students as radical agents of change*. Journal of educational change*, 2(2), 123-141.

Fung, D. (2016). Strength-based scholarship and ‘good’ education: The Scholarship Circle. *Innovations on Education and Teaching International journal*, 54, 101-110

Healey M, Jenkins A and Lea J (2014) Developing research-based curricula in college-based higher education. York: HEA. Available at: <https://www.heacademy.ac.uk/system/files/resources/developing_research-based_curricula_in_cbhe_14.pdf> (accessed 6 June 2017).

HEFCE (2017). Initial decisions on the Research Excellence Framework 2021. REF2017/01. Available at: [http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/Independentresearch/2017/REF,201701/REF2017\_01.pdf](http://www.hefce.ac.uk/media/HEFCE%2C2014/Content/Pubs/Independentresearch/2017/REF%2C201701/REF2017_01.pdf) (acessed 2 October 2017).

HESA (2017) Student Data UK. <https://www.hesa.ac.uk/data-and-analysis/publications/students-2012-13/introduction> (accessed 06.06.17).

Holbrook, J. B., & Frodeman, R. (2011). Peer review and the ex ante assessment of societal impacts. *Research Evaluation*, 20(3), 239-246.

Kellard, N. M., & Śliwa, M. (2016). Business and Management Impact Assessment in Research Excellence Framework 2014: Analysis and Reflection. *British Journal of Management*, 27(4), 693-711.

Learmonth M, Lockett A and Dowd K (2012) Promoting Scholarship that Matters: The Uselessness of Useful Research and the Usefulness of Useless Research. *British Journal of Management* 23(1): 35-44.

Levy P (2011) Embedding inquiry and research into mainstream higher education: A UK perspective. *Council on Undergraduate Research Quarterly* 32(1): 36-42.

Levy P and Petrulis R (2012) How do first-year university students experience inquiry and research, and what are the implications for the practice of inquiry-based learning? *Studies in Higher Education* 37(1): 85-101.

Lewis (2015) Students as partners: Extracurricular opportunities to enhance student learning in the Biosciences.Available at: <http://fdslive.oup.com/www.oup.com/pdf/he/2015-DaveLewis.pdf> (accessed 6 June 2017).

Locks AM and Gregerman SR (2008) Undergraduate research as an institutional retention strategy. In: Taraban R and Blanton RL (eds) *Creating effective undergraduate research programs: The transformation from student to scientist*. New York: Teachers College Press, pp. 11-32.

MacIntosh R, Beech N, Bartunek J, Mason K, Cooke B and Denyer D (2017) Impact and Management Research: Exploring Relationships between Temporality, Dialogue, Reflexivity and Praxis. *British Journal of Management* 28(1): 3-13.

Mesny A and Mailhot C (2012) Control and traceability of research impact on practice: reframing the ‘relevance gap' debate in management. *M@n@gement* 15(2): 181-207.

Nelson RR and Winter SG (1982) The Schumpeterian tradeoff revisited. *The American Economic Review* 72(1): 114-132.

Onyango-Ouma, W., Aagaard-Hansen, J., & Jensen, B. B. (2005). The potential of schoolchildren as health change agents in rural western Kenya. Social science & medicine, 61(8), 1711-1722.

Paton S, Chia R and Burt G (2014) Relevance or “relevate”? How university business schools can add value through reflexively learning from strategic partnerships with business. *Management Learning* 45(3): 267-288.

Polanyi M (1966) The logic of tacit inference. *Philosophy* 41(155): 1-18.

Prahalad CK and Hamel G (1990) The core competence of the corporation. *Harvard Business Review* 68(3): 79-91.

Research Excellence Framework (2012) REF 2014: Assessment framework and guidance on submissions. REF 02.2011. Bristol: REF. Available at: [www.ref.ac.uk/pubs/2011-02/](http://www.ref.ac.uk/pubs/2011-02/) (accessed 3 June 2017).

REF2014 (2011) Part 2C. Main Panel C criteria. Available at: <http://www.ref.ac.uk/media/ref/content/pub/panelcriteriaandworkingmethods/01_12_2C.pdf> (accessed 9 October 2015).

Ross, F., & Morrow, E. (2016). Mining the REF impact case studies for lessons on leadership, governance and management in higher education. Impact of Social Sciences Blog. <http://eprints.lse.ac.uk/67282/> (accessed 06.06.17).

Sannino A and Engeström Y (2017) Co-generation of societally impactful knowledge in Change Laboratories. *Management Learning* 48(1): 80-96.

Scaratti G, Galuppo L, Gorli M, Gozzoli C and Ripamonti S (2017) The social relevance and social impact of knowledge and knowing. *Management Learning* 48(1): 57-64.

Schäfer, L. O. (2016). Performance assessment in science and academia: effects of the RAE/REF on academic life. CGHE working papers. UCL Institute of Education: London.

Starkey KA and Madan P (2001) Bridging the Relevance Gap: Aligning Stakeholders in the Future of Management Research. *British Journal of Management* 12(s1): S3-S26.

Stern N (2016) Building on Success and Learning from Experience: An Independent Review of the Research Excellence Framework. Department for Business, Energy & Industrial Strategy. Available at: <https://www.bisa.ac.uk/files/Consultations/ind-16-9-ref-stern-review.pdf> accessed 29 June 2017).

Wade, J. A. (1999). Students as environmental change agents. International journal of contemporary hospitality management, 11(5), 251-255.

Watermeyer R (2016). Impact in the REF: issues and obstacles. *Studies in* *Higher Education* 41(2): 199-214.

Willmott, H. (1997). Management and organization studies as science? *Organization*, *4*(3), 309-344.

Willmott, H. (2012). Reframing relevance as “social usefulness”: a comment on Hodgkinson and Starkey’s “Not simply returning to the same answer over and over again”, *British Journal of Management*, 23(4), 598–604.

Williams, S., & Cooper, C. L. (1998). Measuring occupational stress: Development of the pressure management indicator. *Journal of occupational health psychology*, *3*, 306-321.