Public engagement in higher education: the state of the art

Richard Watermeyer and Jamie Lewis

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Introduction

Public engagement – in the context of this chapter – is the act of building relationships and of breaking down barriers that separate experts from their public communities. In a higher education (HE) milieu, it is a term and practice associated with countering criticisms of academics as habitués of 'ivory towers' through purposeful reconnection or even reconciliation of scholarly interests with ordinary lives and concerns. It is also a concept with many influences and iterations, such as third sector work, outreach, public education, science communication and participatory research. Rowe and Frewer (2005) further distinguish three levels of engagement – *communication*, in which (scientific) information is conveyed from the sponsors to a public audience; *consultation*, in which representatives of the public convey information to the sponsor following a phenomenon initiated by the sponsor; and *participation*, where information is mutually exchanged between the sponsors and members of the public.

In this chapter we situate public engagement within the context of higher education (PE–HE) in the United Kingdom (UK), focusing on its historical origins and development; its current status and configuration; its personalities, advocates and organisers; and the manner and extent of its accommodation within UK HE institutions (HEIs). We also situate it within a shift of practice and politics from a deficit of public understanding in which *communication* is sovereign to engagement with various public groups based on ideas of *consultation* and *participation* (cf. Stilgoe *et al.* 2014; Lewis and Bartlett 2015).

Ivory towers on shifting sands

The concept of the *ivory tower* has its genesis in biblical times, originating in the Song of Solomon and used as a symbol for noble purity – 'your neck is like an ivory tower' (Song of Songs, 7:4). As a modern term it has been adopted to describe the confines of epistemological pursuits that are disconnected from the practical concerns of everyday life. In particular, it is used to describe the material and conceptual architecture of academic labour, and a sense of universities being, whilst 'in', not necessarily 'of' their locales. Although common parlance to describe universities in the United States in the early twentieth century, it was, surprisingly, not until after World War II that the term was in wide circulation in the United Kingdom (Shapin 2012).

The ivory tower in the contemporary milieu is a metaphor for universities being divorced from and disinterested in the ordinary lives of people, being excessively esoteric, elitist and self-aggrandising and undertaking work that is seen to be of little value and practical worth (Cote and Allahar 2007). That academics engage in intellectual pursuits away from public

scrutiny, however, has both functional and symbolic reasons. Science, for example – owing to the professionalisation of its disciplines and as a consequence of the need to protect publics from the risk of contamination and materials from the risk of contamination by publics – is performed in restricted and closed spaces bound by walls and strict security. It is conducted in laboratories, clinics and gated compounds where 'experts' observe, discuss and tinker. Over and above the practical benefits of these distal spaces is their signification of universities as pioneers of experimental research, chaperons of societal values, arbiters of ethics and uncertainties and guardians of culture and knowledge. However, in performing such functions from their cloistered lookouts, 'scientists'[1] are criticised for observing, judging and pontificating about society, yet not participating. Such disconnect also foments a sense of irrelevance, where a correlation between scientific endeavour and societal concerns and needs fails to be easily discerned, not least by the public citizen.

More recently these criticisms have gained greater traction and translation into HE policy documents which encourage academics to surmount the university's 'walls', expunge an 'ivoryist' predilection and forge new reciprocally meaningful relationships with industries, stakeholders, communities and wider publics (cf. Lambert 2003). As Etzkowitz *et al*. (2000: 315) state: 'normative change has taken place not only as a result of the emergence of an entrepreneurial dynamic within academia but from the external influences on the university'. However, the opening-up of the university 'blackbox' to satisfy the needs and expectations of its non-academic stakeholders, benefactors and, of course, financiers, has perhaps, unsurprisingly, courted criticism from academics who perceive with it a process of corporate appropriation and instrumentalisation. Some have compared the ascent of a market logic and fiscal rationalisation of higher education as a 'managerial assault' on academic endeavour and personhood – and a shift in academic governance away from cherished concepts of freedom and criticality to performance benchmarking, performance-setting and metrification (cf. Barry *et al.* 2001). Prominent critics such as Stefan Collini (2013), for instance, note how academics now spend a considerable, and increasing, part of their working day accounting for their activities in ways that reduce their efforts to a common managerial metric.

Accounting for their activities is, of course, not a new phenomenon for academics. Classically, universities have been subjected to various forms of accountability designed to improve the quality of their teaching and research (Dill 1999). Today, this happens at both an individual and an institutional level. Individual funding applications are reviewed for quality control. Researchers are line-managed and habitually required to align themselves to key performance indicators and work flow charts. Concurrently, departments, schools and universities are assessed and ranked by governments, newspapers and students demanding more for their fees in a globalised market (Huisman and Currie 2004; Trow 1996; Romzek 2000; Alexander 2000). Since 1986, universities in the UK have also been assessed at approximately five-year intervals through the formalised Research Excellence Framework (REF) – successor to the Research Assessment Exercise (RAE) and means by which the UK government distributes approximately £1.6 billion of Quality Research (QR) monies across the UK's universities. The REF has been deemed more demanding than its predecessor, and is attributed to increased bureaucratisation in HEIs (Smart *et al.* 2014). Indeed, one of the significant differences of the 2014 REF compared with the RAE is the explicit message that academics breach the gulf between the perceived ivory tower researcher and society through an insistence that outcomes have an *impact* on non-academic lives. This cultural and organisational shift has also influenced the emergence of the term *public engagement*, denoting a pathway to or type of impact (Ponting 2011; Watermeyer 2012b).

It is sometimes easier to recognise a phenomenon than it is to define it. On the surface, public engagement is a term that covers a smorgasbord of activities. From science cafés to school partnership programmes, from public lectures to public deliberations, from arts exhibitions to community performances, public engagement is used to describe a variety of events aimed at bringing those outside of or unconnected to the university closer. To this end, public engagement is a promiscuous strategy, penetrating many specialisms and agendas. It has influences from, at least, the following fields: marketing, student recruitment, media studies, public relations, public understanding of science research, science communication programmes, lifelong learning programmes, community art, community engagement projects and the turn to the co-construction and co-production of knowledge. Consequently, for some, public engagement in HEIs is still attempting to secure coherence as to what it is, who does it and what it attempts to achieve. Is it a deliberative method enabling laypeople and policy makers to have a say in social and scientific policy? Is it a phenomenon encouraging the co-construction of knowledge between researcher and the researched? Is it a form of education, inspiring others at some remove from academic life? Is it a platform to disseminate research? Is it all of the above? Or is it something else?

According to the Higher Education Funding Council for England (HEFCE 2006: 3), public engagement is a concept that in the UK is used to describe 'the *involvement* of specialists listening to, developing their understanding of, and *interacting* with, non-specialists'. The UK Research Councils also interlace PE with impact, stating that they fund research with impact and that this includes the contribution that public engagement makes to quality research and the passage it provides to social and economic benefits. But to what extent is PE interlaced with research, and is this a good thing? Here we outline a short history of public engagement, positioning it within the context of the public understanding of science.

From public understanding of science (PUS) to public engagement in science and technology (PEST)

The provenance of the term public understanding of science (PUS) is difficult to date. Miller (2001), however, locates its origins in the UK with the internationally influential Bodmer Report (1985), which argued that an ameliorated public understanding of science would lever increased public support and therefore allay concerns of the public being unsupportive and wary of scientific pursuits (Burchell *et al.* 2009; Weldon 2004; Bauer *et al.* 2007).

Much of the early impetus for the PUS movement was based around raising scientific literacy to levels which, it was said, would empower publics, providing them with the scientific knowledge to better articulate and represent their interests in society (Thomas and Durant 1987; Gregory and Miller 1998). Science was imagined as speaking truth – translating facts - to a *deficit* public requiring educating (Irwin and Wynne 1996; Stilgoe 2007; Wynne 1992; 1993). During the next decade, Bodmer's PUS agenda was institutionalised through the establishment of the Committee of the Public Understanding of Science (CoPUS) and the provision of significant national grants being made available for science communication (Burchell *et al.* 2009). From 1988 the UK Economic and Social Research Council (ESRC) also began funding social science projects linked to PUS (cf. Haran 2011; Wynne 2014) and in 1992 the journal *Public Understanding of Science* was established (cf. Stilgoe *et al.* 2014). Science communication, the public understanding of science and science's relation to the public were not only under scrutiny; they became people's jobs, livelihoods and research agendas. The focus on the relationship between science and the public and the public and science was rejuvenated and further operationalised with the House of Lords Science and

Technology Committee's *Science and Society* report (House of Lords 2000: 48), which recommended 'that direct *dialogue* with the public should move from being an optional add-on to science-based policy-making and to the activities of research organisations and learned institutions, and should become a normal and integral part of the process' (cf. Burchell *et al.* 2009).

However, during the period between the two reports there was said to be little change in 'scientific literacy' (Miller 2001). Moreover, the claim that increased public understanding of science would lead to increased public acceptance of science was not reflected in the evidence collected from repeated surveys of public opinion and public attitudes (Weldon 2004).

A deficit model of a predominantly scientifically illiterate public and a type of one-way, top-down communication process between scientists and 'the public' (cf. Gregory and Miller 1998) was critiqued by those who claimed evidence showed that publics were not passive and did not interact with science in a vacuum but within a social context (cf. Irwin and Wynne 1996).[2] The deficit model of science or popular science model follows the premise that the more the public know about science, the more they will love and agree with its terms (Nisbet 2009). However, this model separates science from its social, political and cultural contexts. The second approach saw much more reciprocal dialogue or, as Stilgoe *et al.* (2014) eloquently state, a switch from expert monologues to expert/public conversations. It is this approach which was, to a large extent, incorporated in the House of Lords report *Science and Society* – 'peppered with calls for dialogue, discussion and debate' (Miller 2001: 117). Here deficit was reconsidered – there may be public deficit in trust and knowledge, but there may also be deficit in the way scientific institutions engage and communicate issues (cf. Bauer *et al.* 2007). This latter approach presents dialogue as both give and take as groups influence each other (Lewenstein 1995).

Today there has been a shift in the language of science's relationship with publics from *understanding* and c*ommunication*, or PUS, to *engagement*, or PEST (cf. Kerr *et al.* 2007; Irwin *et al.* 2013; Lewis and Bartlett 2015) – a shift that reinforces a change in focus from the 'deficits' in scientific literacy and attitudes of the public to a more dialogical approach (Schafer 2009). Most recently, large monies have been made available for engagement events under schemes such as the Sciencewise-Expert Resource Centre (S-ERC), self-defined as the UK's national centre for public dialogue in policy making involving science and technology issues, and a National Co-ordinating Centre for Public Engagement for UK universities. Many of the UK research councils also have monies for public engagement. Perhaps, more significantly, UK research councils have introduced changes to their grant assessment and application processes to include sections on engagement and impact.

In the contemporary context, HEIs are expected to communicate with the public and to engage with public groups and non-expert communities. Public engagement is now institutionalised as a part of their mission and is an expected deliverable. But this has raised new questions regarding the impact and legitimacy of public engagement on scientific life. Some, for example, have criticised the scale of public engagement events (Lövbrand *et al.* 2011), whilst others question why engagement appears to have a narrow focus, often limited to issues pertaining to biomedical and climate science (Stilgoe *et al.* 2014).

From PEST to public engagement in higher education (PE–HE)

The kinds of policy change we have reported in the context of a shift from scientific *understandin*g to *engagement* or *deficit* to *dialogue* (cf. Stilgoe and Wilson 2009) have, in the space of the last decade especially, found extended domicile in the discourse of higher education management. Herein, unlike its policy cousin, a focus on public engagement has been rather more patchy, fragmented and inconsistent, certainly in terms of its translation into a corresponding research literature. Where the Bodmer report galvanised a critical focus on the public understanding of science and situated a specific branch of science and technology studies (STS), the advent of public engagement as an agenda for UK higher education affected far less in the sense of a co-ordinated or cohesive critical response. There have, perhaps unsurprisingly, been many among the academic populace who have bemoaned a PE–HE agenda for being faddish, disingenuous and a further unnecessary encumbrance to academic practice (cf. Watermeyer 2011. However, the mainstay of academic dissatisfaction with PE–HE has been untreated in critical or empirical terms and is instead, for the most part, represented in the kinds of lamentations populating the columns of the UK's academic trade press. Research into PE–HE has fallen short arguably because, unlike its actual practice and PUS research, it is without an obvious funder. It has also suffered from a lack of clarity in terms of its definition as an activity, much less a *topic* for investigation, and in being habitually conflated with widening participation; recruitment and alumni networking; and marketing and public relations activities – *administrativ*e rather than *academic* pursuits. Obfuscation of this kind appears the consequence of PE–HE being interpreted as a policy construct at least once removed from the mind-set and critical conscientiousness of the academic community.

The major initial push to embed public engagement in UK universities came in 2009, with the creation of six Beacons for Public Engagement. These Beacons, essentially, licensed trials in academics' public engagement, providing support networks, fora and symposia focused on public engagement practice and access for academics to engagement specialists – predominantly those working outside of HE and often in cultural and creative industries. The Beacons were configured as inter-linking institutional nodes located across six regions and encompassed a range of institutional types, both research-intensive and teaching-focused. They were, however, limited by the extent to which they were able to mobilise an academic discourse of PE–HE. This was in part an issue of communication and a sense of estrangement and resistance from the academic community to the vision of public engagement being promulgated and sold by HE regulators. For many academics, the vision of public engagement being touted by the likes of the UK's research councils was disparate or antagonistic to their own conceptualisations, or, for some, their practice of public engagement. For one of us, the experience of evaluating an RCUK Beacon revealed epistemic, methodological and organisational divisions between policies for PE–HE pursued by funder and regulatory groups, institutional advocates and organisers of PE–HE.

Conversations with academics undertaken as a part of the 'Beacon' evaluation revealed disgruntlement and a feeling that the academic community had been inadequately consulted and sometimes disregarded in the formulation and implementation of strategy guiding the inculcation of PE–HE (Watermeyer 2011). Indeed, many complained that PE–HE proponents had systematically failed to pro-actively engage with the kinds of established and emerging knowledge around public involvement/engagement emanating from the STS community. Engagement between the HE policy and STS community was felt to have been at best cursory and ceremonial (Watermeyer 2011). There was a gap between theory and practice (cf. Delgado *et al.* 2011). Furthermore, some argued that the new version of public engagement disregarded a significant history of academics and universities reaching out to

their local communities, such as through the Oxford settlements (cf. Ashworth 1984; Bender 1988) and the UK's Open University.

As the Beacon initiative progressed and was then succeeded by a second phase of cultural change, largely indistinguishable from the first (cf. RCUK Catalyst Programme), what we had argued as the necessity of an academic discourse for public engagement and what Ernest Boyer (1997) termed a *scholarship of engagement* remained elusive. So too was a connection with studies and theories of other kinds of university engagement, such as 'community' (Percy *et al.* 2006) or 'civic' engagement (cf. McIlrath and Mac Lahhrainn 2007). Research (and much practice) into public engagement, despite the best efforts of the Beacons to demonstrate its universalism and pan-disciplinary nature, remained siloed in and predominantly exclusive to STS. Other forms of academic criticism have been far less prevalent.

To whom does engagement belong?

To restate, there was and continues to be a conspicuous issue in terms of ideological ownership and investment – to whom does PE–HE belong? Many of those we have interviewed in the course of our studies of public engagement refer to the fact that the kind of public engagement promoted by the funding councils uses a lexicon and terms of reference that are frequently unlike those used by academics to articulate non-academic relationships and forms of external activity. Many, for instance, invoke a long personal history of involvement in public engagement, but one that does not chime with the vision of PE–HE put forward by research councils, which they find alienating and unhelpful (Watermeyer 2011). Consequently, PE–HE has, for the majority of academics, remained something at the edge of their academic subjectivity.

Of course, many academics elicit, albeit casually, PE–HE as an iteration of good academic citizenship, as a part of what constitutes the ideological mission and vision of the university as a public institution and what secures accountability and transparency of academic labour and justification of the university's continued patronage (Watermeyer 2012b). However, the ideological motivation and mobilisation of PE–HE appears subjugated by a more substantive HE policy concern – 'impact' – that appears to provide weight and form to what some have otherwise deemed frivolous and profligate abstractions of academics' being publicly responsible and invested. In some sense it appears a case of 'for PE–HE see impact' (Watermeyer 2012b).

An impact agenda for UK higher education or, more specifically, academics demonstrating the societal and economic impact of their research has been, at times, the most significant or visible motivating factor for academics' engagement with a PE–HE discourse, and arguably is where the greatest concentration of academic thought and/or criticism pertaining to PE–HE is found. We ourselves have considered a transition from engagement to impact accompanying the vacillations of the HE policy landscape. Yet we perceive not the collapse of PE–HE as a part of the higher education landscape but its further mystification, 'ambiguation' and/or repurposing. These outcomes are the consequence of PE–HE being subsumed by 'impact' as an HE issue. They have also provided increased currency and momentum to PE–HE where it is deemed integral to the progress of the 'impact bandwagon' (Watermeyer 2012a; forthcoming a; forthcoming b).

The ambivalence that has accompanied PE–HE in its recent configuration has ultimately been further exacerbated where it has been appropriated by the academic community for

instrumental and self-aggrandising purposes. For example, some express concerns that public engagement being rewarded through impact and REF 'might prompt a more cynical instrumentalism, manifested as an attempt to be seen to be engaged rather than to be engaged for its own sake' (Burchell *et al.* 2009: 8). The instrumentalisation of PE–HE and its distillation into a process for performance evaluation adds yet another unresolved layer of confusion, where what the academic community understands of PE–HE is further muddied.

Locating the state-of-the-art of PE–HE

Interrogating the state-of-the-art of PE–HE is, as should now be clear, complicated by the multifariousness of the meaning ascribed to public engagement across disciplinary and organisational contexts. We believe that understanding the processes that make science (and academic research) accessible, meaningful and relevant inform what we know and don't know about PE–HE. Where PE–HE is without a substantive or dedicated research literature, we come to know it through research into science education; science communication; sociological studies[3] and evaluations of science policy; and, fundamentally, science engagement.

To locate the state-of-the-art of PE–HE is also to engage with the back catalogue of project reports and evaluations that consider the efficacy of public dialogue for policy purposes involving controversial and emergent science and technology. We may turn, consequently, to a significant catalogue of published reports that consider the process and impact of the public in dialogue with scientists and policy makers on such broad themes as bioscience; climate change; food; healthcare; nanotechnology; and waste. Some of these reports are our own and the culmination of commissions by UK and European government agencies seeking independent evaluation of public dialogues concerning, for example: new legislation for mitochondrial replacement (Watermeyer and Rowe 2013b; 2014); patient and public views on patient involvement in research (Watermeyer and Bartlett 2013); public views on urban waste management (Rowe and Watermeyer 2013); public views on science policy horizon-scanning (Watermeyer and Rowe 2013a); and public views on public engagement itself and issues of trust in science governance (Watermeyer *et al*. 2011).

Another associated literature comprises what we might best think of as 'thought-pieces', which consider the challenges of public engagement with science and technology: specifically, how deliberation processes impacts citizens (Hughes and Pollard 2014); how to convince the public of the merit of science dialogue (Watermeyer and Rowe 2014); social-media-based public dialogue (Jensen 2014); open-policy making (Burrall *et al.* 2013); the sustainability of participation (Chilvers 2010); and enabling and sustaining citizen involvement (Beddoes 2009).

Another literature focuses on best practice for public engagement and draws from the pen of those with interests in public engagement for policy purposes: research funders and higher education support organisations such as the UK's National Co-ordinating Centre for Public Engagement (NCCPE). A variety of such reports focus on evaluation (RCUK 2011); the benefits of public engagement to researchers (RCUK 2010); and how those working in research councils can support public engagement activity (Prikken and Burrall 2012). The NCCPE itself provides a significant repository for reports into best practice and rationalisations for PE–HE. It also is the author of a manifesto for public engagement, which, since its launch in 2010, has garnered over sixty institutional signatories. Further, related to best practice, the individual final/evaluation reports of each RCUK Beacon for Public

Engagement (cf. Hussain and Moore 2012) and an overall evaluation of the Beacon network (Webster 2010) provide accounts of what works.

Learning related to what works and what doesn't in public engagement also stems from funded public engagement projects. In the UK one of the largest providers of funding for public engagement is the Wellcome Trust, which offers a variety of different awards and fellowships supporting, for instance, the creation of artistic work that provides a critical engagement between artists and the public on the theme of biomedical science. These awards, however, tend not, for obvious reasons, to be dominated by academics, yet bring academics into collaborations with science communication practitioners; science centre and science museum staff; artists; film-makers; theatre producers; and health professionals, to name just a few. The evaluations of many of these projects provide a rich source of learning as to how academics might and can engage the public and how they combine with other individuals arguably more proficient as public engagers.

The field of science communication is often aligned with and in some cases features within the educational provision of universities – most obviously via science communication taught and research-based programmes – which can also unite academics and those working in science museum and centre contexts. It is also, therefore, perhaps one of the most prominent and established modes of public engagement, recognisable as a discrete disciplinary field with an established literature and an eclectic community of practitioners and researchers (cf. Bauer and Bucchi 2010; Bennett and Jennings 2011; Gregory and Miller 1998; Holliman *et al.* 2009). The science communication community also benefits from dedicated peer-reviewed and well-respected international journals such as *Science Communication* and, as we have already mentioned, *Public Understanding of Science*, online and open-access journals such as the *Journal of Science Communication*, and a variety of national and international conferences such as the Public Communication of Science and Technology Conference (PCST), which recently enjoyed its thirteenth edition, and the British Science Association's annual Science Communication Conference.

In the UK, the science communication industry is buoyant, with manifold specialist organisations and professionals. These comprise international science venues such as the London Science Museum;[4] science centres such as Techniquest;[5] and science communication companies such as Science Made Simple.[6] Each share a distinctly educational focus on increasing literacy in, enthusiasm for and enjoyment of science for 'learners' of every kind and at every life-stage.

Science communication is not just about communicating or explaining science in a didactic or transmissional way but is premised on mobilising informal spaces of science discovery for the benefit of formal science education and therefore the greater scientific literacy and competitiveness of national economies (cf. Watermeyer 2013; forthcoming c). Strategy aimed at the proliferation of future generation scientists has been a cornerstone of the UK government's policy – and that of many other national governments – for economic development, particularly during the recent global economic downturn (POST 2010; Royal Society 2010). Producing the best scientists requires significant investment in science education and, moreover, to bolster the kinds of science education provision found in schools. A process of scaffolding science learners and those that teach science has occurred, with significant government investment in teaching resources, infrastructure and training, such as the establishment of the UK's National Science Centre and nine regional science learning centres (cf. Watermeyer 2013). Universities, too, have a significant role to play in supporting the development and ambitions of the next generation of scientists, and various forms of

educational outreach and schools partnership provide an important means by which academics engage with the nascent scientific community.

Finally, returning to a critical sociological analysis of higher education, we locate a critique of PE–HE that exists more implicitly than explicitly in considerations of the current and future status and role of the university as a public institution. The majority of these accounts focus on the changing nature of the university in the face of contemporary forces of globalisation (Ennew and Greenaway 2012), marketisation (Brown and Carasso 2013) and neoliberalisation (Peck and Tickell 2002), and the effect of new public management on the organisational framework for higher education (Deem *et al.* 2008). Critiques of the neoliberalisation of higher education (cf. Burawoy 2011; Couldry 2011; Docherty 2011; Holmwood 2011; Miller and Sabapathy 2011; Moriarty 2011) throw up essential questions related to the role and mission of the university and its academic coteries in response to the public (Collini 2012; Nixon 2011). Questions are raised, for instance, in relation to the deprioritisation of the university's public role and the elevation of its engagement with industry, business and government as a core function (cf. Bok 2003; Olssen and Peters 2005; Slaughter and Rhoades 2010). Indeed, a triple-helix configuration (Leydesdorff and Etzkowitz 1996) of knowledge co-production (cf. Gibbons *et al.* 1994 Nowotny *et al.* 2001) seems to downplay the general public as a valued partner, leaving us to ponder the significance, or not, of a 'quadruple-helix' arrangement that incorporates the public.

The increasing domination of higher education in the UK by new managerialism, a culture of accountability and a seeming obsession with performance evaluation and the pursuit of 'excellence' appears to be redrawing the way in which the university responds to the society it inhabits (cf. Enders *et al.* 2009; Kogan and Hanney 2000) and concurrently problematises the identity and practice of its academic inhabitants (Henkel 2000; Macfarlane 2011; Deem 2004). For some, an emphasis on innovation (cf. Christensen and Eyring 2011), entrepreneurialism (cf. Shattock 2009) and academic capitalism (cf. Slaughter and Rhoades 2010), mobilised through what now appear ubiquitous knowledge transfer schemes (OECD 2007); a focus on evidence-based policy (cf. Kitson *et al.* 2009); and an accent on universities' knowledge exploitation and commercialisation are responsible for the 'unbundling' (Kinser 2002), 'deprofessionalization' (Whitchurch 2012) and fragmentation (Middlehurst 2010) of the academic role. For many critics, the neoliberal malaise reflects not only a state of 'crisis' in the university (Burawoy 2011) and an idea of the university 'in chains' (Giroux 2007) but the enervation of the idea of the public intellectual and the urgent need to recover the idea of the university and its social role (Graham 2002).

Following on, and hopefully complementing many of these conceptual and empirical studies, our own work is now more explicitly located in considering how a public engagement and impact agenda is influencing and impacting further the kinds of changes we have witnessed and continue to witness affecting our higher education systems (Watermeyer 2011; 2012a,b; forthcoming a; forthcoming b). Locating the state-of-the-art of PE–HE then requires flexibility and a willingness to see PE–HE through the lens of multiple epistemic traditions. PE–HE is by its very nature characterised by the diversity and plurality of its actors, both within and outside the university. To understand PE–HE we must begin to understand the myriad perspectives that both constitute and contest public engagement.

Conclusion

Assessing the state of the art of PE–HE is no easy task. What constitutes academic involvement with the public is multifarious and difficult to define, capture and/or measure.

Indeed, we do not profess to be able to capture it all here. Existing definitions are complicated and compromised by variance and disharmony in interpretation and application by a diverse assortment of stakeholders. In the HE context the polysemic nature of public engagement is further exacerbated by an academic resistance to being pigeon-holed and/or essentialised by a code (and lexicon) perceived as incongruous and, for some, antagonistic. One of the major issues for PE–HE is the lack of a recognised academic discourse, literature and/or space(s) for critical discussion, save for PUS and STS research. Despite a variety of schemes and culture-change initiatives, manifestos, concordats and high-profile academic champions focused on embedding a culture of public engagement in universities, multiple unanswered, and perhaps unanswerable, questions persist, such as what constitutes the 'public' and/or what constitutes 'engagement'? Other fundamental questions related to the value, impact and cost of PE–HE also remain disputed and unresolved.

Surveying the majority of UK university campuses, we find that PE–HE is increasingly a non-academic activity or is something pursued and organised by administrative staff, 'third space' practitioners (Whitchurch 2008) or what Macfarlane (2011) calls 'para-academics' as a series of managed events. This is arguably the consequence of senior institutional managers paying lip-service to PE–HE (Watermeyer forthcoming a; forthcoming b) and perceiving it as extraneous to academic priorities. A failure to institutionalise PE–HE may also be attributed to the vagueness of its academic or institutional value and contribution to performance audit, especially in terms of whether PE–HE constitutes 'soft' or 'hard' impact, which in the context of an increasingly rampant audit-based culture for UK HE – epitomised in the REF – raises significant questions as to who among academics will do PE–HE and why. These questions may become ever more acute where PE–HE is considered disadvantageous to academics' career progression (Watermeyer forthcoming a). There is, however, evidence which shows that academics are invoking PE–HE in, albeit, speculative, imaginary and promissory ways when constructing 'pathways to impact' statements[7], which populate research funding proposals[8]. The exact value of these statements in the context of peer-review and the significance attributed to them by peer-reviewers is, however, unknown, yet anecdotally at least is reckoned to be low rather than high.

Ultimately PE–HE cannot be thought of in isolation, nor should it be considered fully formed or whole. Instead it is arguably more a rather loose and chaotic convocation of related or relatable parts. Accordingly, we must go beyond the Academy, as we have attempted herein, to consider and contextualise PE–HE as an iteration or extraction of social participation, synergy and, potentially, cohesion and empowerment. It might also help to think of PE–HE as both the (contextually specific) ambition and the outcome of 'dialogue'. We might also view public engagement through the practice and theory of dialogue (cf. Bohm 1996), as it is indigenous to and evolving from these various communities and their ecosystems: formal and informal spaces of learning such as the school or museum, or the policy community. We might then consider dialogue through the systems that create and sustain it and the communities it conjoins through the media. What this all points to, as we have argued elsewhere (cf. Watermeyer 2012a), is that PE–HE is more about an academic 'process' than an academic 'product' and is a potential means for the transportation and translation of knowledge and ideas. Regrettably, however, where PE–HE is conceptualised and organised as a *process*, it is in conflict with the demands and prioritisations of a UK HE sector, ostensibly almost exclusively focused on the production and evaluation of *outputs*. Processes of 'input' and 'throughput' appear, ironically, frivolous concerns. What would appear to matter is not how we get there as academics, just that we get there.

We have tried to locate the current status of PE–HE in the UK by considering its historical emergence in the context of challenges and changes to science policy and discourses of risk and responsibility. We have also viewed it as a part of an ideological investment in the democratisation of knowledge and the propagation and preservation of scientific literacy and citizenry. We are hopeful that the ideological investment made in and subsequent influence of public engagement undertaken in non-academic contexts gains greater traction in the mind-set of academics, if only in rationalising their sense of self and purpose in the challenging context of being in some way both 'in' and 'of' their communities (Bond and Patterson 2005).

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[1] Which, we use catholically and as representative of all the university's disciplines.

[2] See Horlick Jones *et al.*, 2006 for how the deficit model was further critiqued in the context of scientists' public interactions concerning genetically modified GM crops.

[3] Paul Benneworth's (2013) 'University Engagement with Socially Excluded Communities' is the key text in this regard.

[4] www.sciencemuseum.org.uk

[5] www.techniquest.org

[6] www.sciencemadesimple.co.uk

[7] All RCUK funding proposals include a mandatory section which sets out what academic teams will do in order to realize the societal-economic impact of their research.

[8] See EPSRC website on innovative examples of pathways to impacts: www.epsrc.ac.uk/innovation/publicengagement/innovativeexamplesofpathwaystoimpact