

Charting the elements of pedagogic frailty

¹Kinchin, I.M., ²Alpay, E., ³Curtis, K., ⁴Franklin, J., ⁵Rivers, C. and ⁶Winstone, N.

¹Department of Higher Education, University of Surrey, UK.

²Department of Chemical and Process Engineering, University of Surrey, UK.

³School of Health Sciences, University of Surrey, UK.

⁴Guildford School of Acting, University of Surrey, UK.

⁵Surrey Business School, University of Surrey, UK.

⁶Department of Psychology, University of Surrey, UK.

Abstract

The concept of pedagogic frailty has been proposed as a unifying concept that may help to integrate institutional efforts to enhance teaching improvement within universities by helping to maintain a simultaneous focus on four key areas that are thought to impede development. The structure of these four dimensions and the links that have been proposed to connect them are explored here through the analysis of interviews with academics working in a variety of disciplinary areas. The application of concept mapping in this process allows us to view the variable connections within and between these dimensions and the personal ways they are conceptualised by academics working across the heterogeneous university context.

Key words: concept mapping, faculty development, pedagogy, resilience, values.

Introduction

Universities expend considerable time and energy to enhance the quality of teaching received by their students in order to gain recognition in league tables and to perform well in student satisfaction ratings. However, there appears to be no unifying concept that might help to integrate these efforts and increase their effectiveness in enhancing the quality of student learning. Indeed, within this environment, some commentators consider the learning gains achieved by undergraduates to be so poor that they describe large numbers of students as being 'academically adrift' (Arum and Roksa, 2011). The piecemeal consideration of teaching elements such as classroom practice, assessment techniques, technology-enhanced learning and feedback (for example) fails to bring these components into simultaneous focus with the result that teaching development becomes a juggling act with little chance of keeping all the balls in the air. In an attempt to address this problem, this paper interrogates the emerging concept of, *pedagogic frailty* (Kinchin, 2016) as an integrative term to articulate a complex situation. Factors that contribute to pedagogic frailty are considered as well as possible outcomes of the condition. The aetiology of frailty is traced here through map-mediated interviews with academics. This recognition will eventually enable a consideration of potential strategies to avoid frailty and so create the possibility to enhance the university teaching environment in a more integrated and coordinated manner.

There are concepts from other disciplines that can sometimes be helpful in making useful analogies in educational research. This often draws on established ideas from the sciences which provide anchoring concepts against which comparison can be made. Indeed, Glynn (1991) proposed a 'teaching with analogies model' to exploit this idea and to support the acquisition of difficult concepts. In higher education such analogies have included the consideration of DNA as providing a stable base from which change may (or may not) arise (Christensen, 2011), whilst the adoption of ecological analogies has been widely used to express the complexity of the environment in which educational processes must continue (e.g. Toulmin, 1972; Strike and Posner, 1992; Doyle, 2006; Stelma, 2011).

Within the clinical literature, "frailty" is considered to develop as a consequence of a decline in a range of factors which collectively results in an increased vulnerability to sudden adverse actions triggered by relatively minor events (Clegg and Young, 2011). Various indicators of frailty have been identified and include the inability to integrate responses to change in the face of stress (Rockwood, *et al.*, 1994); the loss of adaptive capacity due to a loss of complexity (Lipsitz, 2002); the wear and tear that results over time by repeated efforts to adapt to change (Seeman, *et al.*, 2002); the sense of fatigue when change is implemented without consultation (MacIntosh *et al.*, 2010). These issues would appear to offer considerable resonance with the pressures felt by academics teaching at university. In the context of higher education teaching, one might observe *pedagogic frailty* (Kinchin, 2016) when colleagues find the cumulative pressures of academia eventually inhibiting their capacity to change practice in response to an evolving teaching environment, leading them to adopt what they might consider a 'safe' and sustainable pedagogic approach (Canning, 2007). Pedagogic frailty may

contribute to recently observed occurrences of the arrested professional development of university teachers, in which they have been described as *experienced non-experts* (Brody and Hadar, 2015; Van Waes *et al.*, 2015). Moreover, such an outcome may in fact be against the typical aspirations of the *teaching researcher*, whereby motives for professional and personal development are in dissonance with the cultural normalisation towards safe teaching.

Conservatism in teaching approaches can lead to a convergence on traditional views of teaching in which the transmission of content is seen to dominate and teaching is structured as a procedural chain of practice (Kinchin, 2009). This does not leave room for innovation and as stated by Douglas (2014: 81), “*staying in the safe harbour of monolithic lecturing will most likely result in many missed learning opportunities.*” Such a situation may be most pronounced in institutions of long and revered reputation, whereby much value is given to established practice and tradition to the extent that ‘*universities hang on to past practices to the point of imperilling their futures*’ (Christensen, 2011: xxii), with the cultural inclination towards change being stronger in relatively young (rather than established) institutions. In their report on the stratification of pedagogy across UK universities, Stevenson, Burke and Whelan (2014: 39) conclude that the overall picture is a complex one, “*with institutions striving to distinguish themselves as distinct while at times, homogenising their approaches to teaching excellence, pedagogic practices and the overall student experience.*”

Teaching conceptualised as a linear chain of activity is indicative of strategic success (i.e. “it works for me”) in which the academic selects what is considered the essential information to convey his/her view of teaching and selectively ignores the rest (Kinchin, 2009). The competence that is indicated by such chains has been described as a ‘monolayer of understanding’ by Talbot (2004), in which dialogue plays no part in subsequent development; i.e. it portrays an authoritarian certainty that has only a single possible route from beginning to end. This makes the evolution of teaching practice more problematic (Kinchin, 2011), and hence increasingly frail. In addition, the adoption of innovative technologies (such as virtual learning environments) into such a restrictive model means that any transformative potential is corrupted to perform utilitarian tasks, maintaining the *status quo* of non-learning (Kinchin, 2012). Within such an environment, it is not difficult to see why colleagues may find the idea of the ‘scholarship of teaching’ to feel like an unhelpful distraction from their daily tasks (e.g. Boshier, 2009).

One of the underlying causes of pedagogic frailty may be the way in which discourses surrounding the instructional mechanisms of teaching seem to take precedence over the discourse of the underpinning values. Bernstein (2000) refers to curriculum in terms of its Regulative Discourse (RD), and Instructional Discourse (ID). The RD refers to the values that underpin the curriculum. ID refers to content selection, sequencing, pacing and assessment. Bernstein argues that the ID is always embedded in the RD, whether the RD is explicit or implicit. Observations of programmes and their

supporting literature often suggest that departments typically focus on the ID without paying much attention to the RD (Kinchin *et al.*, 2015). Meetings are set up to discuss content to be taught and assessments to be created, but little time seems to be spent on discussing the underlying philosophy, values or pedagogy that support the programme. These less tangible factors seem to be assumed to be a “given”. Even if they have been acknowledged within the original validation documentation of the programme when it was established, how the RD is evaluated as it evolves or takes into account induction of new members of teaching staff or insertion of new technology into the teaching mix is rarely noted.

New academics who may have their horizons broadened through introduction to a variety of research into teaching and learning through HEA-accredited programmes of faculty development (e.g. Kandlbinder and Peseta, 2009) may succumb to the conventional wisdom of the dominant group (often referred to as COWDUNG) so that their emerging dynamic and progressive teaching frameworks are eroded by the stresses of the job and the indifference (or active negativity) of jaded senior colleagues towards the discourse of teaching and learning. This allows academics to settle into a comfortable cycle of non-learning (Kinchin, Lygo-Baker and Hay, 2008), with the aim of releasing more time to focus on research activities that are perceived to be of higher status (Young 2006; Cretchley *et al.*, 2014). Indeed, relatively little value may be gained from the usual academic performance indicators of funding, publication or international accolade when associated with an educational (teaching and learning) endeavour (Alpay and Verschoor, 2014). This leaves the institution in a state of pedagogic frailty. This frailty results in institutions having a limited repertoire of responses to demands of the teaching and learning environment. This is illustrated by the apparent impotence of universities to address students’ on-going dissatisfaction with assessment feedback practices (e.g. Evans, 2013), exacerbated by a lack of agentic engagement on the part of the students (e.g. Reeve, 2013), to which institutional responses are typically ‘just do more and do it faster’, as if increasing the dosage of an inappropriate medicine will eventually become a cure. This is an example of the loss of adaptive capacity due to a loss of complexity described by Lipsitz (2002).

Based on informal discussions with large numbers of academics, and on dialogues within academic development programmes, a tentative model of the relationships between the dimensions of pedagogic frailty has been proposed by Kinchin (2016) (Figure 1). Segments of this model represent factors that are continually under scrutiny within the dialogues between participants on academic development programmes, and were recently amplified during the development of an MA programme in higher education (Kinchin, *et al.*, 2015).

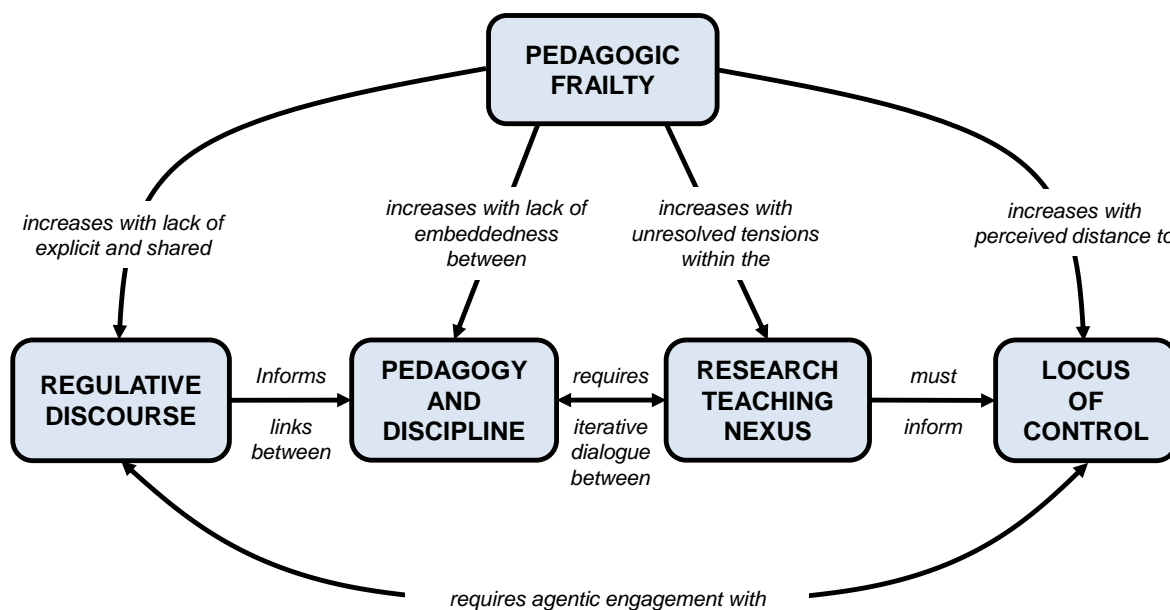


Figure 1:

A tentative model of pedagogic frailty, indicating relationships between the four major dimensions (from Kinchin 2016)

Methods

In order to interrogate the model and determine the range of possible internal structures of each of these dimensions, data presented here are drawn from map-mediated interviews with academics to explore indicators of stressors that may accumulate in such a way that relatively small events (changes in the academic environment) may become impossible to accommodate within the perceived strait jacket of traditional teaching models. These dimensions in which the indicators are grouped include the tension between teaching and research that exists within an asymmetrical context in which rewards are not perceived as equal in status; the perceived separation of pedagogy and discipline; the centralization of administration that removes control of processes from the end-users; and the lack of a shared and explicit regulative discourse within teaching and learning strategies. The first step in combating pedagogic frailty is to identify relationships between the factors that are thought to contribute to the condition.

Concept map-mediated interviews.

The method we have adopted in this research project is the concept map-mediated interview (as detailed by Kandiko-Howson and Kinchin, 2014). The standard interview set-up requires the interviewer to present questions to the interviewee in order to gain access to the interviewee's individual insights and personal perspective. This is achieved by engaging in dialogue (verbal or

textual) that is by its very nature linear in structure. Within that linear narrative, it is then up to the researcher-interviewer to determine the underlying conceptual structure within that dialogue to construct an interpretation of the interviewee's understanding. In essence, the interviewer has to interrogate the interviewee's invisible knowledge structure (Hay, Kinchin and Lygo-Baker, 2008).

Compared with the standard interview, the dynamics within the concept map-mediated interview are changed in a subtle, but important way. Here the interviewee exposes his/her knowledge structure during the interview through the concept map that emerges within the dialogue between the interviewer and interviewee. Concept mapping (Novak, 2010) has been shown in previous studies to be the ideal tool to make learning visible and externalise the relationship between public and personal learning in higher education (Hay *et al*, 2008; Kandiko *et al*, 2013). The interviewer's job is then to prompt the interviewee with questions that will encourage him/her to interrogate his/her own knowledge structure as it develops on the page. This means that the interviewer no longer has to impose a structure on the linear narrative, but rather interpret the structure that has emerged from the dialogue (Kinchin, Streatfield and Hay, 2010). Whilst this process makes it less likely that the interviewer will impose an inappropriate knowledge structure based on his/her prior conceptions, the dialogue between the interviewer and interviewee does help to ensure that the structural grammar of the resulting maps is similar and negates the need for any topographical normalisation (*sensu* Buhman and Kingsbury, 2015) that is often required to facilitate comparison of maps when novice mappers interpret the concept mapping method in idiosyncratic ways.

The resulting concept map is the main artefact for analysis that is created during the interview dialogue. Whilst no restrictions were verbalised to the mapper in terms of the number of concepts to be included, the process used 38 x 50mm self-stick notelets to act as the nodes on which the concept labels were written, and these were affixed to a sheet of A3 paper, so that once the sheet was becoming full, the interviewees tended to stop adding new ideas. This provided a helpful mechanism to regulate the size of the resulting maps, which in turn helps the interviewee to concentrate on the key ideas they want to present in the available space. The ability to be concise within a concept map is regarded as one of the criteria for excellence (Cañas, Novak and Reiska, 2015). The interviewer is also able to prompt the interviewee and ensure that linking arrows are labelled to provide meaning and maximise the explanatory power of the map. This is an aspect of mapping that novice mappers usually find the most challenging. Once the interviewee was happy that the resulting map gave a fair representation of their perspective, it was digitised by the interviewer and returned to the interviewee who was invited to make any amendments they wanted to and to offer any reflective comments on the structure or content of their map. Archer (2008: 400) has commented on how "*writing about academia is inherently challenging, particularly for those 'on the inside'*", and for some of the interviewees, the construction of certain parts of their concept maps proved to be an emotional experience. Such personal reflections, whether looking across an individual's entire career (Douglas, 2014), or focussing on a single day (Winkler, 2013) can reveal important insights to academics' perceptions of the development of their academic identities within a changing higher education landscape (Hernandez *et al.*, 2010).

The five interviewees here are all academic staff who have major teaching roles within their faculties. Whilst they are each able to offer their personal perspectives from within their disciplinary areas, they are not 'representing' their disciplines in the sense of providing generalizability across domains. However, they do provide insight to the variety of interpretations that may be encountered across a university campus through experiences that are '*more richly complex at the level of the individual*' that allows us to '*theorise some of the possible ways in which the life-world of academics is being experienced*' (Clegg, 2008: 332). Or as Haggis has stated:

"it might be fruitful to try to understand something about the ways in which the specifics of context and history translate, in dynamic and unstable ways, into multiplicity and difference in the lives of situated individuals." (Haggis, 2004: 337).

In order to initiate the interview dialogue, a number of prompting concepts were offered as words on post-it notes for each of the five dimensions (Table 1). These were presented in no particular order and the interviewee was told that s/he could use as many or as few of these as they wished, and could add any concepts they wanted to.

Pedagogic Frailty	Regulative & Instructional Discourse	Pedagogy & Discipline	Research-Teaching Nexus	Locus of Control
Ability/Inability	Assessment	Activities	Motivation	Autonomy
Adapt	Assumptions	Authentic	Recognition	Best practice
Change	Course content	Disciplinary	Research	Decisions
Complexity	Sequencing	Practice	Rewards	Guidance
Environment	Theories	Professional	Status	Quality Assurance
Integrate	Values	Strategies	Teaching	Regulation
Stress				
Sustainable				

Table 1: Prompting concept labels for interviews.

Analysis of the maps: Intra-dimensional analysis

Interviewees were asked to map the elements making up each of the dimensions of the model. The internal structure and content of each of these indicated the components that the interviewee considered to be most significant, along with the links that joined them together. Examples from each dimension are offered below for discussion.

Regulative vs. Instructional Discourse

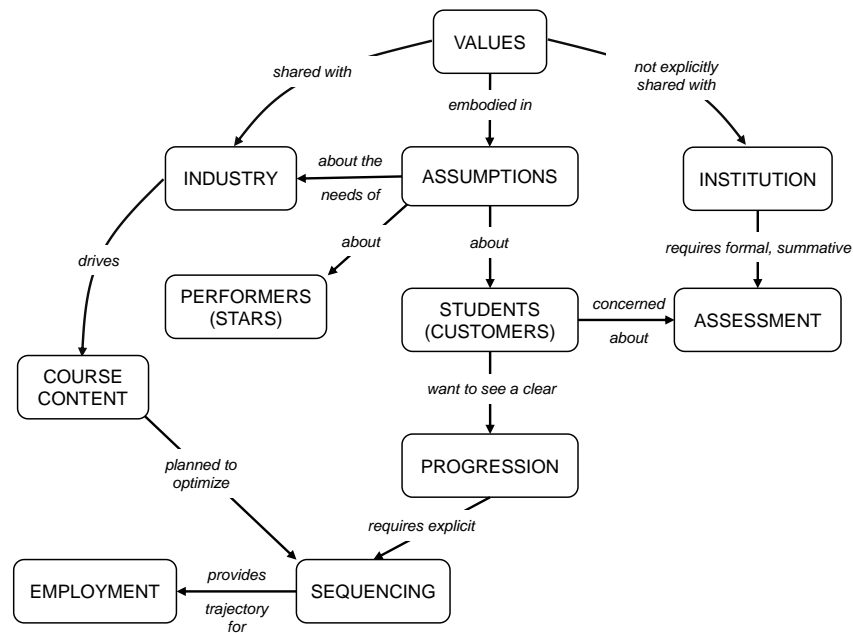


Figure 2: Regulative vs. Instructional Discourse in Performing Arts

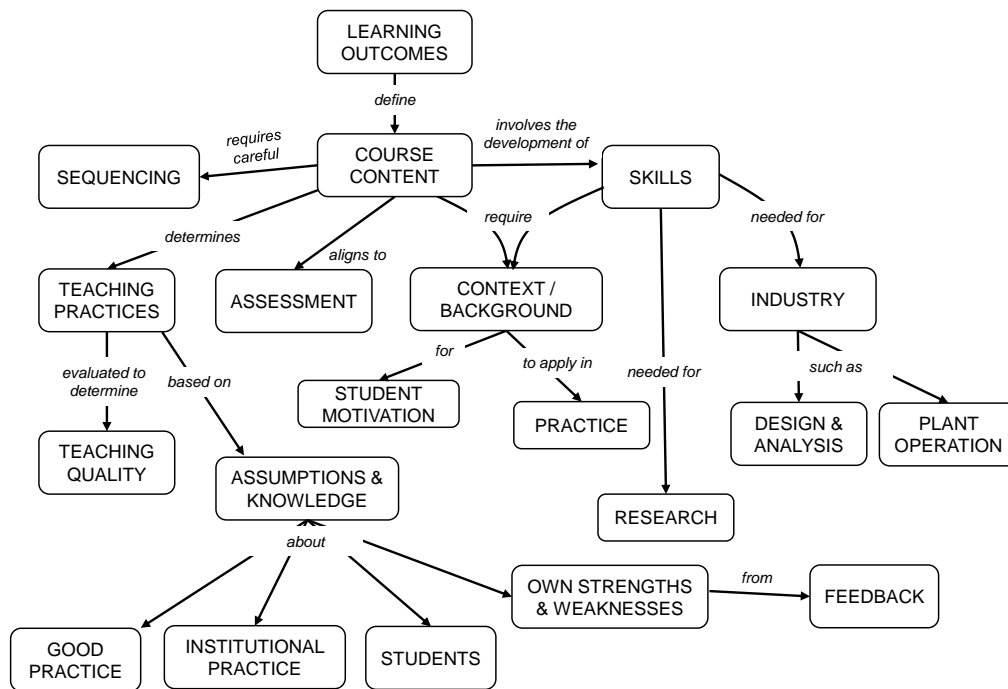


Figure 3: Regulative vs. Instructional Discourse in Engineering

Where regulative discourse (Bernstein, 2000) is seen to dominate disciplinary discussion, one would expect to see concepts such as ‘values’ appearing towards the top of the concept map (Figure 2).

Where the instructional discourse is more evident, through discussions of course content, assessment and so on, one would expect these concepts to appear towards the top of the concept map (Figure 3). In practice, these two discourses are intertwined and so elements of each will be found to interact.

The key position of values in figure 2 signifies the evolution of performing arts education within universities. What we now call conservatoires were originally the drama schools founded in the late 19th century, independent private colleges set up to provide actor training. These institutions, outside the traditional university system, established their own practices and traditions based on the practices and values of the theatre. This became an implicit Regulative Discourse, rooted in the values of the theatrical world – respect, collaboration, hard work and never missing a deadline (Cohen, 2011). In the theatre, everyone is essentially working towards the same simple goal – to get the show produced on time. Hence great emphasis is placed in the drama school curriculum on punctuality, effective teamwork, etiquette and professional behaviour as these are essential in achieving that goal.

Another key aspect of the implicit Regulative Discourse is the idea that the drama school is an integrated part of the theatre business. In practice this means that desirable teachers are those who are actively engaged in professional practice as actors, designers, directors and technicians, in order to remain connected and current. It also means that hierarchies within the drama school, both among staff and students, mimic those of the professional world – effectively a feudal system where the director is ‘God’, other members of the creative team are his inner circle of disciples, the actors must be managed and the stage management and technicians make the whole thing work. Again this is implicit rather than explicit.

The overall Regulative Discourse within drama education prioritises the passing on of values by ‘joining the world of the theatre’. Within that, content is planned and sequenced to meet the needs of 3 stakeholders – the student, who has bought a specific ‘package’, the industry, which expects graduates with specific skills and abilities, and the institution, which sets the rules, parameters and institutional aims. Although the student should be a priority when designing learning and teaching, in practice the institutional structures come first (timetabling, assessment deadlines, budgets) , followed by the needs of the industry (performers with ‘triple-threat’ skills, imaginative and resourceful technicians), and finally the needs of the students (a positive learning experience in a supportive environment).

Interestingly, ‘educational theory’ was actively discounted as a concept to include in their maps by all the interviewees. This was not because they thought it lacked importance, but because they did not consider it to be a significant part of their disciplinary discourse on teaching and learning. This disjuncture between educational research and theory production on one hand, and educational practice on the other hand has been noted in the literature and reviewed by Kezar (2000). In addition, Tight (2004) has commented that ‘*higher education researchers, for the most part, do not appear to feel the need to make their theoretical perspectives explicit*’. In which case, it seems likely that their implicit perspectives will not be evident to those looking in from other communities of practice within

the university. This suggests that when universities describe their teaching as 'research-led' or 'research-informed' this does not, in practice, refer to pedagogic research informing teaching practice as part of the regulative discourse, but rather it refers to disciplinary research informing content selection as part of the instructional discourse. However, it is difficult to verify which of these interpretations is intended within university documentation that typically lacks explicit definitions of the terms used. This has been summarised by Cleary (2013: 19) who states that universities tend to be "*self-proclaimed research-led teaching centres, with no real way of evaluating the veracity of the claim, or even what the claim means.*"

Whilst there have been significant efforts in Engineering Education to raise the prominence of professional ethics, 'aspirational approaches to engineering' (Bowen, 2009) and authentic and values-driven leadership, concepts of ethics and values largely remain a tangential and, at best, an implicit aspect of discourse that is embedded within the curriculum. Indeed, often so embedded that it is not even recognised as a learning outcome or effectively verbalised by the students and many academic staff, (see also the discussions of Alpay, 2013). It is therefore not surprising that regulative discourse relating to values may be an uncomfortable, perhaps trivialised, but certainly relatively weakly considered aspect of curriculum design and development.

In the perspective offered from healthcare education, the RD and the ID components appear more integrated (Figure 4). Here 'values' for education practice as well as for clinical practice are seen as part of 'course content' and so the separation of the regulative and instructional discourses is not evident. This is possibly due to the development and 'delivery' of health professional curricula being 'shared' between HEI and clinical practice (the UK National Health Service). In nursing for example, the Nursing and Midwifery Council (NMC) require that half of student learning is theory-based and half takes place within clinical placements (NMC, 2011). Values for education and for professional practice are explicit; such as the importance of organisations valuing learners and their educators. The NMC (2008) also state values to promote equal opportunity in learning and assessment; explicitly requiring individual students are treated with fairness, respect and understanding, irrespective of race, gender, and disability. There are also value expectations on educators in terms of creating environments that support effective learning and encourage assessment accountability (NMC, 2008). Because values are promoted prominently within these explicit standards for education, there is overt integration of the regulative and instructional discourse within this context.

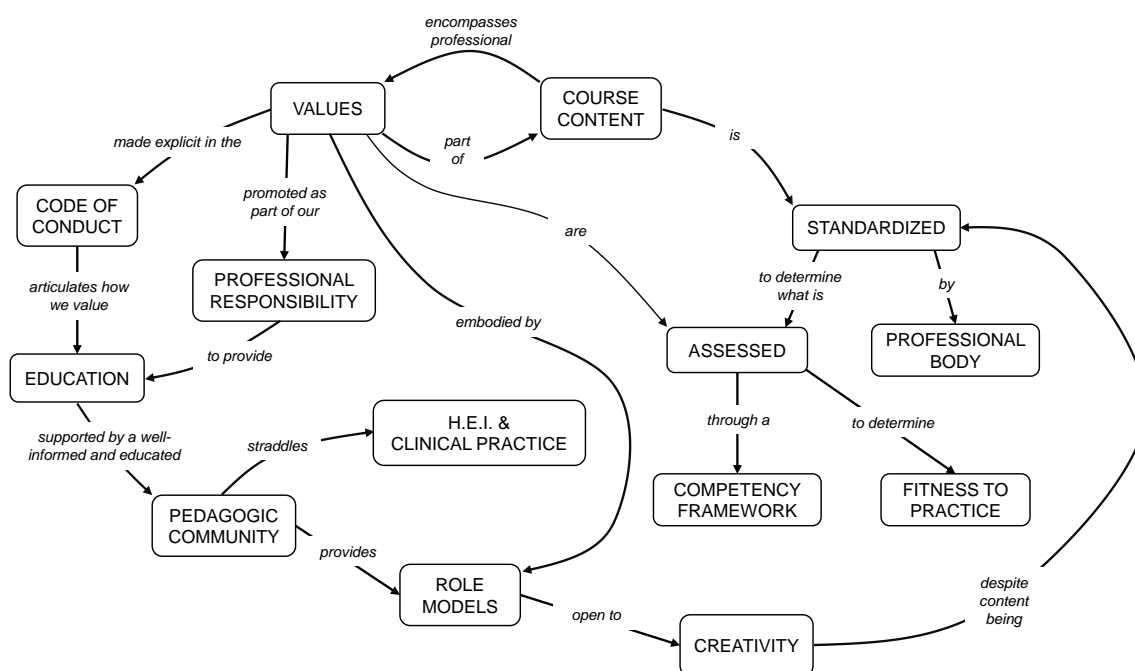


Figure 4: Regulative vs. Instructional Discourse in Healthcare

Pedagogy/Discipline

The diversity of perceptions within this dimension is illustrated by the maps offered in figures 5 and 6. Within figure 5, the map author is able to provide an integrating concept, 'psychological literacy', which has enabled the two aspects (discipline and pedagogy) to be considered together. Whilst the term 'psychological literacy' (PL) is not itself new, having been first utilised in an educational context in the 1990s (Boneau, 1990), in recent years, psychological literacy has been framed as the underlying and organising framework for psychology education (Mair, Taylor & Hulme, 2013). To a certain extent, this focus recognises the responsibility of psychology educators to ensure that we do not merely fill students with psychological knowledge, but also equip them with the sensitivity to apply this knowledge in ways that are appropriate and fit for purpose, within the boundaries of professional responsibility. Thus, common definitions of PL focus on the application of psychological knowledge, rather than the knowledge itself, focusing on the application of "psychological principles to personal, social and organizational issues in work, relationships and the broader community" (McGovern *et al.*, 2010, p. 10). As a result, pedagogy is linked to discipline in that all aspects of pedagogy are focused on what graduates will *do* with what they learn at University. This feeds into all aspects of professional training in psychology education, and underpins the focus on treating students as 'apprentice psychologists' from day one of the degree, such that they are concurrently developing knowledge, skills, values and attributes that will underpin their application of psychology upon graduation. Students also see the importance of psychological literacy and the associated graduate attributes (Morris, Cranney, Jeong and Mellish, 2013).

It is important to note that such application of psychological knowledge is not restricted to work as a professional psychologist. Psychology students undertake a wide variety of graduate work and the whole concept of psychological literacy trades on the belief that the skills and attributes of psychology graduates are so wide-ranging that “just about every job suitable for a general graduate will be done better by a psychology graduate” (Florance, Miell and Van Laar, 2011, p. 699). Psychological literacy is not, therefore, driven by the desire to produce a ‘psychologist’ in a professional sense, but an individual functioning as a psychologist in the ways in which they carry out their work: “Because Psychology is concerned with understanding human cognition, emotions and behaviour, Psychology graduates are equipped with a deep understanding of themselves and others and, given an appropriately focused curriculum, they can acquire a broad range of attributes and competences to apply this knowledge in any endeavour in which humans are involved” (Mair *et al.*, 2013, p. 13).

If we are to develop not only skills but also the ability to apply those skills alongside disciplinary knowledge, students need opportunities to practice linking theory to practice (Mair *et al.*, 2013). This entails activities that enable students to ‘test drive’ professional roles but also through assessment itself. This underlies many endeavours to provide ‘authentic’ assessments that do not merely serve to measure students’ understanding and ability, but to bring about some new development in their psychological literacy as a result of undertaking the assessment. (e.g. case study; case formulation). Fits with approach in literature “As an integral component of the education process, assessment supports learning by providing learners with the opportunity to demonstrate acquired skills and knowledge, while determining their professional, vocational and academic achievement” (Ashford-Rowe, Herrington & Brown, 2014). Authentic assessment should support transfer of knowledge learnt in one area to a different area, should be challenging, and should promote metacognition (Ashford-Rowe *et al.*, 2014). Whilst the benefits of this approach are clear, this endeavour requires a significant degree of effort, risk, and creativity. Many institutions do celebrate and reward innovations in teaching and assessment, but academics must first feel that the likelihood and value of such positive outcomes outweigh risks and potential negative outcomes. According to the Expected Utility Theory of human decision making, a lecturer deciding whether to innovate would base their decision on the expected outcome, and the likelihood of getting this outcome. Thus, if the chances of getting the desired outcome are too low, the risk of taking the decision is too great and alternative options (in this case, ‘playing it safe’) will be taken. A reluctance to take risks and experiment in teaching is a serious issue because it is only through the willingness to experiment with creative techniques that many common problems with learning environments can be overcome (e.g. Winstone & Millward, 2012), and the scholarship of learning and teaching advanced. If such experimentation is perceived to bear too much risk then it must be the case that lecturers who innovate do so as a result of some personal motivation or incentive rather than the hope of institutional approval or reward.

In contrast to map 5, the author of the map in figure 6 has taken a very different perspective on the tensions between discipline and pedagogy, where integration is not recognised at all. Indeed, the map recognises that many teachers may be lacking in the necessary skills or confidence to be trying

strategies that link theory and practice within their teaching: with teachers occupying one or other side of this divide. We can see, therefore, that individual perceptions can reflect very different environments for individual teachers that will have knock-on effects for other dimensions within the pedagogic frailty framework.

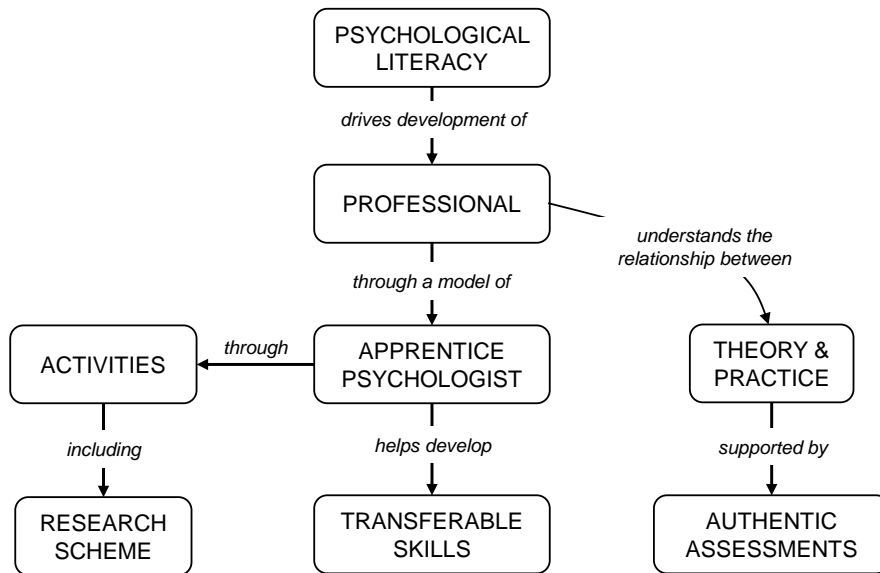


Figure 5: Links between pedagogy and discipline in Psychology

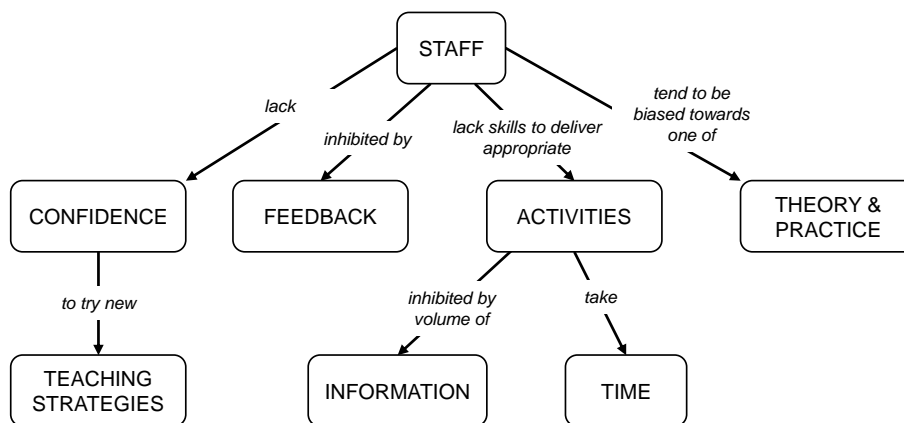


Figure 6: Links between pedagogy and discipline in Business

Research-Teaching Nexus

With reference to Figures 7 and 8, a clear contrast exists between the authors' views on the research-teaching nexus within their respective disciplines. For Engineering, the tensions are clear, with a suggested need for concerted consolidation of personal and institutional drivers, as well as a genuine appreciation of diversity in the work place. Engineering Education is implicitly linked to the support of industrial development and enterprise, and ultimately to economic output. It is therefore not surprising that the educational institution mirrors the competitive and output (product) driven culture of industry, and more directly succumbs to the pressures to satisfy the funding opportunities offered by industry. To some extent, this is similar to the situation that has emerged in Medical Education, whereby funding from the pharmaceutical industry has also inadvertently led to tensions in the status of the 'pedagogic' community (see Figure 9), and on occasion to conflicts of interest (Spithoff, 2014). Both these contexts reflect the dominant discourse of the sector in which research is given prominence over teaching (Cretchley *et al.*, 2014).

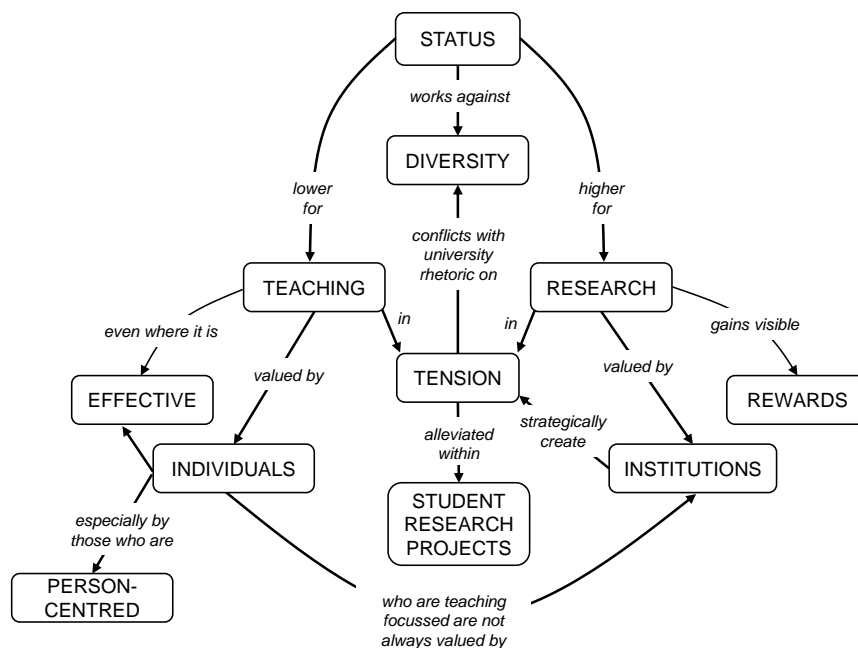


Figure 7: Research-Teaching nexus in Engineering

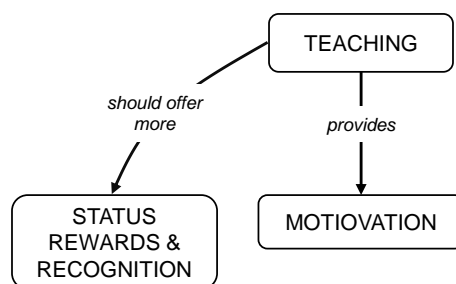


Figure 8: Research-Teaching nexus in Performing Arts

In contrast to the map in figure 7, the brevity of the map in figure 8 makes a strong statement about what is and is not important to the map's author. Whilst discussing the elements of this map the author spontaneously quoted playwright David Hare:

'In society today to one side lies academia with all its potential for aridity and pretentiousness, and to the other side what's called the media with all its potential for stupidity. Down the middle of the road drives the British theatre, where people, through a mixture of high-mindedness and auto-didacticism, present something which is both sensible and idealistic.'

(Hare cited in Eyre, 2009: 191)

The succinct perspective summarised in figure 8 can be elaborated by tracing the changes in performing arts education in recent years. The key change in the sector has been the move in the late 20th century away from an independent status for colleges to becoming either accredited by, or part of larger HEIs, so that HEFCE funding became available (Farthing, 2012). A new tension arose – the conservatoire typically has a teaching-led agenda, whilst the university to which it is linked, has a primarily research-led agenda, although teaching remains a core part of the business. Research is an unfamiliar concept to many conservatoire teachers, employed for their professional practice and experience rather than their academic profile. On entering the academy they encounter a raft of new concepts and terminologies – for example, performativity, phenomenology, practice as research – which are not part of everyday discourse in the theatre business. It appears that teaching someone how to tap dance or build scenery, whilst essential in the professional world students aspire to enter, is not valued as an activity in academia. This may feel like an alien environment, full of the 'aridity and pretentiousness' described by Hare, and can encourage excellent teachers to go *'back to the theatre where I belong'* (colleague). This conflict links back to the implicit Regulative Discourse of the porous boundary between the conservatoire and the 'business': when institutions foreground unfamiliar concepts and practices in their literature and dialogue, practitioners feel that their skills and experience are not valued.

The author of the map in figure 9 offers a subtly different perspective in which the tensions between teaching and research are seen to be related to the separation of communities within the discipline, with factors such as funding and gender seen as key elements within this separation.

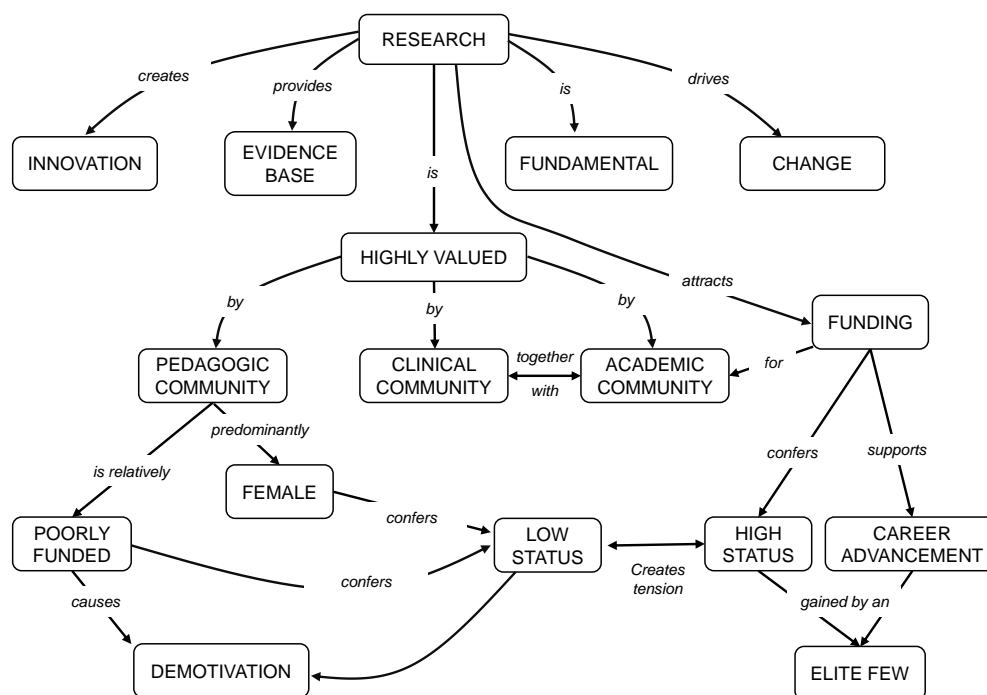


Figure 9: Research-Teaching nexus in Healthcare

In essence, the research-teaching nexus is concerned with the exchange of knowledge between contexts for their mutual enhancement and to support student learning. Knowledge within each of these contexts have “*features and inherent ‘logics’ that are privileged and play out in different ways according to context*”. (Evans *et al.*, 2010: 245). These represent the spectrum of activity within a discipline, often encapsulated in terms such as ‘theory-practice gap’. Where a discipline privileges practitioner knowledge over pure research knowledge (e.g. in art and design, Shreeve, 2009), it would seem sensible to relate this form of knowledge to teaching and pedagogy. Therefore, ‘Research-Teaching- Knowledge Exchange Nexus’ (RTKE_n) is a more inclusive term than research-teaching nexus that may be of greater utility in supporting pedagogic development across academia. This resonates with findings by Boyd and Smith (2014: 16) who considered how some academics ‘*subvert research, over-turning the principle that researcher is the highest status academic identity*’, and suggest that ‘*a new period of focus should develop on the research-teaching-knowledge exchange nexus in order to acknowledge changes in university engagement and the priorities of individual academics*’.

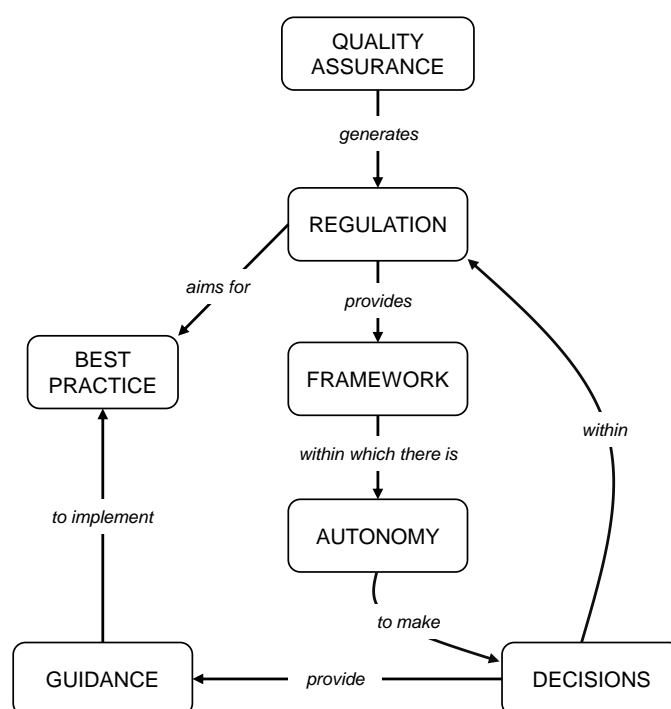
Locus of Control

Figure 10: Locus of control in Business

The locus of control is depicted as integrated and unproblematized in figure 10, in which quality assurance and autonomy are linked in the pursuit of best practice. In comparison, the view expressed in figure 11 reveals many more problems in the process resulting from tensions between the professional body and the HEI. In nurse education, nursing faculty have been shown to experience a dissonance between their understanding of what their role is and what is required for effective education of health professional students, and the reality of educating within an ever changing environment in both HEI and NHS. Through the use of embodied interpretation, educators have shown that balancing constraints placed upon them from the HEI and the pressures of maintaining the clinical learning environment, leaves them concerned about the quality of education and meeting the NMC standards expected of them (Curtis, 2013).

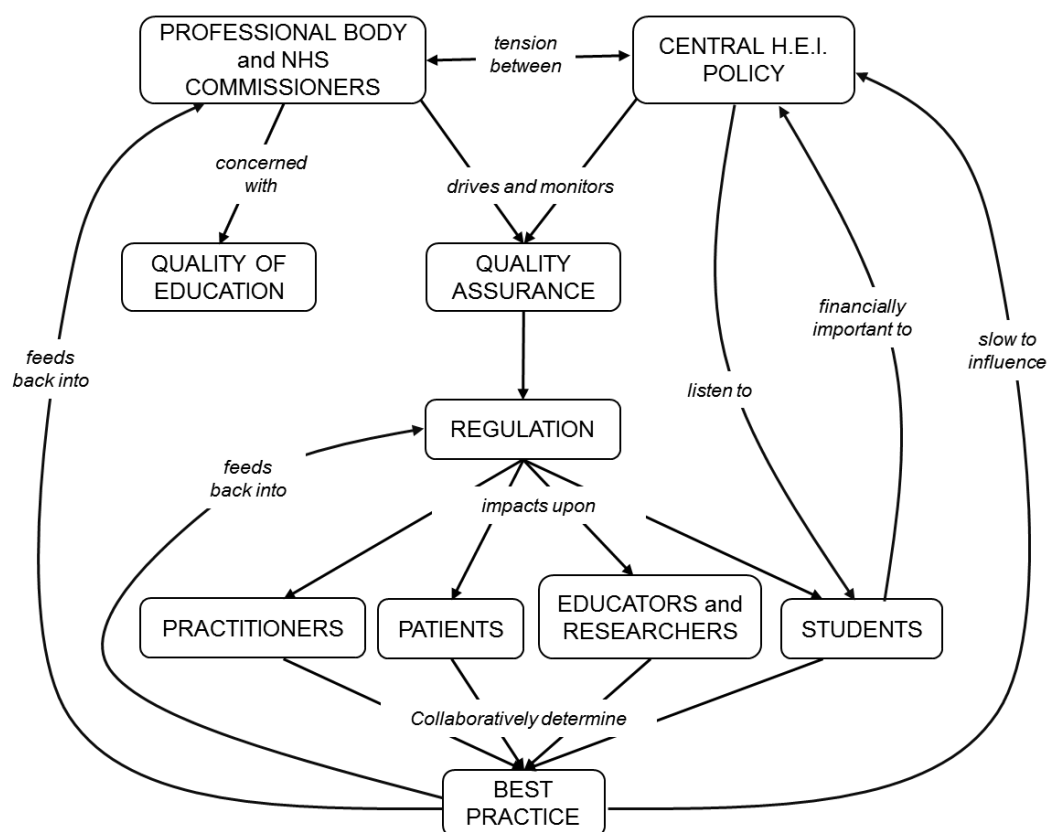


Figure 11: Locus of control in Healthcare

The shared ‘ownership’ of nursing education between HEI and NHS (commissioners and practitioners) creates a complexity to the locus of control. HEI teachers have many masters attempting to assert control, and keeping them all satisfied takes significant effort and negotiation, so increasing potential for pedagogic frailty. This view reflects the comments made by Clegg (2008: 336) about the emergence of the university as an ‘ambiguous space’ where tensions between professional bodies (fig. 11) or industry (fig. 2) mean that colleagues feel they will never be seen as ‘serious academics’ by peers whose role is entirely situated within the university environment. Within the sciences, Aydeniz and Hodge (2011) found that the identities of a professor as a teacher or as a disciplinary expert can be in tension with the structural elements of the workplace that discourage the enactment of teacher identity. Whilst in the arts, tutors report experiences of *‘being in two camps with tension and separation between them’* (Shreeve, 2011: 89). The move of the traditional drama school into the HE sector shifted the locus of control into the wider HEI. How well this works depends of the institutional and management culture of the HEI concerned. Discussions with colleagues across the sector suggest that the personal views of senior management i.e. whether they like going to the theatre or not have an impact on how heavy-handed the control is. For example a colleague in a conservatoire which is effectively a university faculty said of her Dean – *‘Oh she loves our shows! And she said to me: “You’re the expert. You tell me what resources you need”’*. Another colleague in a similar institution said – *‘The new VC is a scientist, doesn’t get the arts at all. Things are really difficult’*.

Pedagogic Frailty

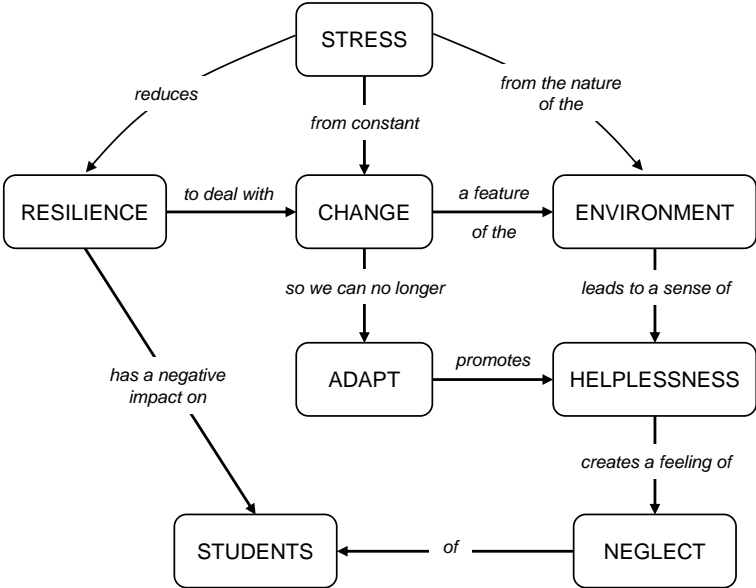


Figure 12: Pedagogic frailty in Psychology

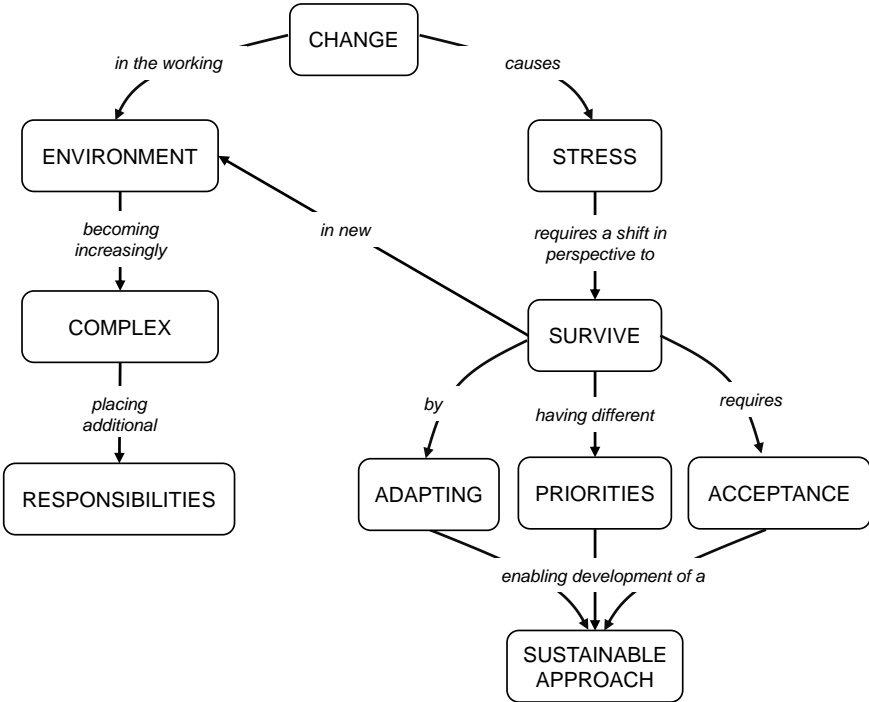


Figure 13: Pedagogic frailty in Performing Arts

Although each of the four dimensions of pedagogic frailty exhibit a considerable degree of variation in form and content (Figures 2 – 11), the way in which this is translated into the overarching concept exhibits a level of uniformity (Figures 12 and 13), with ‘stress’, ‘change’ and ‘environment’ appearing to form the core for most participants here. However, the way in which this triangle of concepts is manifest in participants’ maps seems to be divided into two extremes:

- Those who perceive these factors in a wholly negative manner where change can lead to the academic feeling helpless, which in turn has a negative impact on students (Figure 12).
- Those where the academic is able to reconcile a particular role in the academic environment that enables the development a sustainable approach to the job that allows change to be ‘survived’ (Figure 13).

Neither of these views portray a view in which change is seen as desirable, providing a challenge upon which an academic might thrive – as one might presume if the identity of the academic was dominated by their role as a researcher. We must also presume that this depends to a large degree upon the drivers for change – whether they are initiated by the academics or by other agencies within the academy. If academics continually feel that they have no control over events (such as institutional change), they are likely to experience learned helplessness (Seligman, 1975). A sense of uncontrollability is a key precursor for depressed mood (Schroder & Ollis, 2013). It is resilience that supports individuals in remaining optimistic, rather than helpless, as an outcome of events (Seligman, 2011). Resilience, defined as “*The capacity of individuals to cope successfully with significant change, adversity or risk*” (Lee & Cranford, 2008, p. 213), matters because the same event can be reacted to very differently amongst individuals. Small issues can be catastrophic for some, whereas others thrive on an intensely challenging environment (Fletcher & Sarkar, 2013). Resilience is important beyond our own wellbeing. It also becomes an important aspect of the learning environment, that we model (or fail to model) to students. Not just that if we are less resilient, students suffer, but that if we are less resilient, we are not supporting them in positively developing resilience for their future careers.

Inter-dimensional analysis

Whilst the maps given in figures 2 – 13 exhibit considerable variation in both content and form, it is evident that colleagues from across the disciplines are able to articulate connections between elements *within* dimensions. However, depicting the range and nature of the connections *between* the dimensions presents a greater challenge. The richness of the intra-dimensional data gathered and presented here makes it difficult for interviewees to then isolate and articulate links between the dimensions. The five interviewees offered a total of 33 links between the dimensions (figure 14). From this small number it is not possible to draw many generalisations, though there is a suggestion that the most difficult links to articulate are those that connect the left and right sides of the model – only a single link is offered between ‘pedagogy & discipline’ and ‘research-teaching nexus’, and only a single link between ‘regulative discourse’ and ‘locus of control’. It is tempting to speculate that the left hand side of the model features dimensions that are largely controlled by individuals and departments

(individual control), whilst the dimensions on the right hand side are largely controlled by the wider institution or indeed the sector as a whole (institutional control). However, this requires further investigation to offer clarity about the possible distribution and its significance.

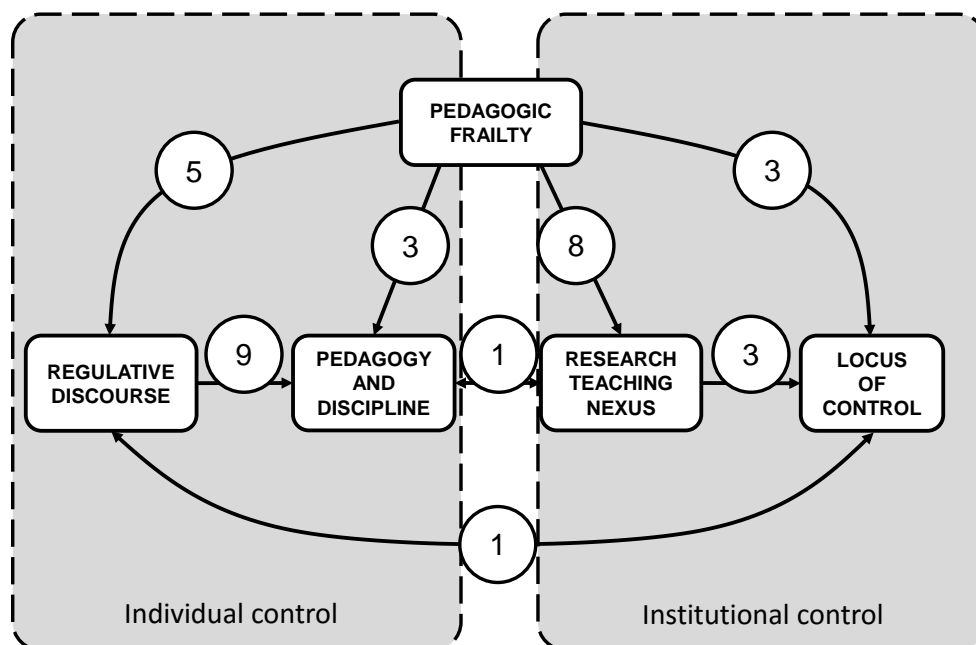


Figure 14: The number of links offered by interviewees between the dimensions of pedagogic frailty suggesting a weak connection between those under individual control (left) and those under institutional control (right)

Conclusions

This in-depth analysis of academic perceptions aims to interrogate assumptions in relation to aims and values. This is necessary so they can be exploited within the processes of expanding teaching practices. For them to remain hidden would allow them to fuel the *defensive cynicism* that contributes to resistance to change (Haggis, 2006: 523).

The observations from these interviews resonate strongly with some of the findings gained by Stevenson, Burke and Whelan (2014), and show that to investigate the deeper issues of pedagogy, higher education institutions need to undertake genuine engagement and constructive dialogue with teaching staff as a way of developing institutional policy that aligns with their pedagogical values and practices without always assuming the necessity for homogenisation. Institutions need to take seriously the implications of pedagogic frailty in order to better understand and to support the diverse teaching community. The 'broad brush' of staff surveys or QA-inspired codes of practice are unlikely to reflect the complexity of the pedagogic landscape and need to be supplemented with more in-depth

dialogues that include the array of personal and disciplinary perspectives that are interwoven within the teaching community, such as those offered here.

It is not possible to force academics to agree to values that are at odds with their deeply held beliefs, but “*we can learn to deliberately connect our actions to the values we wish to promote and to disconnect them from the values embedded in the policies we feel pressured to adopt*” (Booth, 2014: 60). This suggests that teachers may not always be seen to acting in ways that reflect their values. Samuelowicz and Bain (1992) drew attention to a ‘disjunction’ that existed between university teachers’ conceptions of teaching and the methods they reported using in the classroom, suggesting that conceptions were based on an ‘ideal’ view of teaching, while actions were tempered by everyday experiences. However, if staff development consists of active opportunities to express, develop and share values, it has been suggested that institutions would quickly become more positive places where this disjunction was avoided, and a shared “*values literacy would result in a shared direction for resilient behaviour*” (Barnes, 2014: 179). It is suggested that development of resilience may be a key factor in the avoidance of pedagogic frailty and of teacher ‘burnout’ (Howard and Johnson, 2004), and may be worth additional investigation. Drawing on the original clinical analogy of frailty may also suggest that revisiting the clinical literature on resilience may help to inform such work (e.g. Wald, 2015).

Integrative concepts within disciplines may help to facilitate the coherent description of the pedagogic discourse within the maps that occupy the left-hand side of the model (Figure 14), and so facilitate communication with elements from the right-hand side of the model. For example, ‘psychological literacy’ (Figure 5) may fulfil this function and provide an anchor to help increase inter-dimensional connectivity. Appreciation of concepts with similar functions in other disciplines may offer a good way forward in the consideration of pedagogic frailty. Finally, mechanisms that promote resilience may be seen as positive steps towards development of a workforce that can adapt positively to a changing academic environment and continue to support student learning. The alternative would seem to be an academic workforce that feels helpless and disconnected from their students (figure 12). This may involve support for links between individuals and their institutions in a manner that promotes coherence across the dimensions explored here.

References

- Alpay, E. (2013). Student-inspired activities for the teaching and learning of engineering ethics. *Science and Engineering Ethics*, 19(4), 1455-1468.
- Alpay, E., and Verschoor, R. (2014). The teaching researcher: faculty attitudes towards the teaching and research roles. *European Journal of Engineering Education*, 39(4), 365-376.
- Archer, L. (2008) Younger academics' constructions of 'authenticity', 'success' and professional identity. *Studies in Higher Education*, 33(4): 385 – 403.
- Arum, R. and Roksa, J. (2011) *Academically adrift: Limited learning on college campuses*. Chicago, University of Chicago Press.
- Ashford-Rowe, K., Herrington, J., and Brown, C. (2014). Establishing the critical elements that determine authentic assessment. *Assessment and Evaluation in Higher Education*, 39: 205-222.
- Aydeniz, M. and Hodge, L.L. (2011) Is it dichotomy or tension: I am a scientist. No, wait! I am a teacher! *Cultural Studies of Science Education*, 6(1): 165 – 179.
- Barnes, (2014) Interdisciplinary, praxis-focussed auto-ethnography: Using autobiography and the values discussion to build capacity in teachers. *Advances in Social Sciences Research Journal*, 1(5): 160 – 182.
- Bernstein, B. (2000) *Pedagogy, symbolic control and identity*. Rowman & Littlefield.
- Boneau, C. A. (1990). Psychological literacy: A first approximation. *American Psychologist*, 45: 891-900.
- Booth, T. (2014) *Structuring knowledge for all in the 21st Century*. In: Amrhein, B. and Dziak-Mahler, M. (Eds.) *Fachdidaktik inklusiv: Auf der Suche nach didaktischen Leitlinien für den Umgang mit Vielfalt in der Schule*. (pp. 57 – 70). Muenster, Waxmann.
- Boshier, R. (2009) Why is the Scholarship of Teaching and Learning such a hard sell? *Higher Education Research & Development*, 28(1): 1 - 15.
- Bowen, W.R. (2009). *Engineering ethics: outline of an aspirational approach*. Springer-Verlag London Ltd., London (UK).
- Boyd, P., and Smith, C. (2014). The contemporary academic: orientation towards research work and researcher identity of higher education lecturers in the health professions. *Studies in Higher Education*, (ahead-of-print), 1-18.
- Brody, D.L. and Hadar, L.L. (2015) Personal professional trajectories of novice and experienced teacher educators in a professional development community. *Teacher Development*. DOI: 10.1080/13664530.2015
- Buhmann, S. Y., and Kingsbury, M. (2015). A standardised, holistic framework for concept-map analysis combining topological attributes and global morphologies. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, 7(1), 20–35.
- Cañas, A. J., Novak, J. D., & Reiska, P. (2015). How good is my concept map? Am I a good Cmapper? *Knowledge Management & E-Learning: An International Journal (KM&EL)*, 7(1), 6-19.
- Canning, J. (2007) Pedagogy as a discipline: emergence, sustainability and professionalisation. *Teaching in Higher Education*, 12: 393 - 403.

- Christensen, C.M. (2011) *The innovative university: Changing the DNA of higher education from the inside out*. San Francisco, Jossey-Bass.
- Cleary, S. (2013) Perceptions of collaboration in research and teaching in a School of Biomedical Sciences. *Higher Education Research Network Journal*, 6: 19 – 28. Available online at: https://www.researchgate.net/publication/244483439_student_perspectives_on_research-rich_teaching
- Clegg, A. and Young, J. (2011) The frailty syndrome. *Clinical Medicine*, 11(1): 72 - 75.
- Clegg, S. (2008) Academic identities under threat? *British Educational Research Journal*, 34(3): 329 – 345.
- Cohen, R. (2011) *Working together in theatre: collaboration and leadership*. Basingstoke: Palgrave Macmillan.
- Cretchley, P. C., Edwards, S. L., O'Shea, P., Sheard, J., Hurst, J., & Brookes, W. (2014). Research and/or learning and teaching: a study of Australian professors' priorities, beliefs and behaviours. *Higher Education Research & Development*, 33(4), 649 - 669.
- Curtis, K. (2013) 21st Century challenges faced by nursing faculty in educating for compassionate practice: Embodied interpretation of phenomenological data. *Nurse Education Today*, 33(7): 746 - 750.
- Douglas, M.E. (2014) Revisiting the art of undergraduate teaching in higher education: One person's journey towards enlightenment. *The Journal of Effective Teaching*, 14(2): 69 – 82.
- Doyle, W. (2006). *Ecological approaches to classroom management*. In: Evertson, C.M. and Weinstein, C.S. (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 97-126). NJ: Lawrence Erlbaum Associates.
- Evans, C. (2013) Making sense of assessment feedback in higher education. *Review of Educational Research*, 83(1): 70 – 120.
- Evans, K., Guile, D., Harris, J. and Allan, H. (2010) Putting knowledge to work: A new approach. *Nurse Education Today*, 30: 245 – 251.
- Eyre, R. (2009), *Talking Theatre: Interviews with Theatre People*, London: Nick Hern Books
- Farthing, A. (2012) *Mapping Technical Theatre Arts Training*. Available at: [https://www.heacademy.ac.uk/sites/default/files/HEADDM-Farthing\(2012\)MappingTechTheatreTraining.pdf](https://www.heacademy.ac.uk/sites/default/files/HEADDM-Farthing(2012)MappingTechTheatreTraining.pdf) (Accessed: 19/6/15).
- Fletcher, D., and Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist*, 18: 12-23.
- Florance, I., Miell, D., and Van Laar, D. (2011). Setting out on the journey. *The Psychologist*, 24: 696-699.
- Glynn, S.M. (1991) Explaining science concepts: A teaching-with-analogies model. In: Glynn, S.M., Yeany, R.H. and Britton, B.K. (Eds.) *The psychology of learning science*. (pp. 219 – 240) Lawrence Erlbaum Associates, Hillsdale, NJ.
- Haggis, T. (2004) Meaning, identity and 'motivation': expanding what matters in understanding learning in higher education. *Studies in Higher Education*, 29(3): 335 – 352.

- Haggis, T. (2006) Pedagogies for diversity: retaining critical challenge amidst fears of 'dumbing down'. *Studies in Higher Education*, 31(5): 521 – 535.
- Hay, D.B., I.M. Kinchin, and S. Lygo-Baker. (2008) Making learning visible: the role of concept mapping in higher education. *Studies in Higher Education*, 33(3): 295 – 311.
- Hernández, F., Sancho, J. M., Creus, A., and Montané, A. (2010). Becoming university scholars: Inside professional autoethnographies. *Journal of Research Practice*, 6(1): Article - M7.
- Howard, S. and Johnson, B. (2004) Resilient teachers: resisting stress and burnout. *Social Psychology of Education*, 7: 399 – 420.
- Kandlbinder, P. and T. Peseta. (2009) Key concepts in postgraduate certificates in higher education teaching and learning in Australasia and the United Kingdom. *International Journal for Academic Development*, 14 (1): 19-31.
- Kandiko, C., D. Hay, and S. Weller. (2013) Concept mapping in the humanities to facilitate reflection: Externalizing the relationship between public and personal learning, *Arts and Humanities in Higher Education*, 12(1): 70-87.
- Kandiko Howson, C.B. and I.M. Kinchin. (2014) Mapping the doctorate: A longitudinal study of PhD students and their supervisors. In: Shedletsky, L. and Beaudry, J.S. (Eds.) *Cases on Teaching Critical Thinking through Visual Representation Strategies*. (pp. 445 – 464) IGI Global.
- Kezar, A.J. (2000) Higher education research at the Millennium: Still trees without fruit? *The Review of Higher Education*, 23(4): 443 – 468.
- Kinchin, I.M. (2009) A knowledge structures perspective on the scholarship of teaching & learning. *International Journal for the Scholarship of Teaching and Learning*, 3(2), Article 5.
- Kinchin, I.M. (2011) *Relating knowledge structures to learning styles and university teaching*. In: Rayner, S. and Cools, E. (Eds.) *Style differences in cognition, learning, and management*. (pp. 129 – 142). London, Routledge.
- Kinchin, I.M. (2012) Avoiding technology-enhanced non-learning. *British Journal of Educational Technology*, 43(2): E43 - E48.
- Kinchin, I.M. (2016) *Visualising powerful knowledge to develop the expert student: A knowledge structures perspective on teaching and learning at university*. Rotterdam, Sense Publishers
- Kinchin, I.M. et al. (2015) Mapping the development of a new MA programme in higher education: Comparing private perceptions of a public endeavour. *Journal of Further and Higher Education*, In Press.
- Kinchin, I.M., Lygo-Baker, S. and Hay, D.B. (2008) Universities as centres of non-learning. *Studies in Higher Education*, 33(1): 89 - 103.
- Kinchin, I.M., D. Streatfield, and D.B. Hay. (2010) Using concept mapping to enhance the research interview. *International Journal of Qualitative Methods*, 9(1): 52 – 68.
- Lipsitz, L.A. (2002) Dynamics of stability: the physiologic basis of functional health and frailty. *Journal of Gerontology*, 57A(3): B115 - B125.
- Luthar, S.S., and Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology*, 12: 857-885.
- MacIntosh, R, Beech, N, McQueen, J and Reid, I. (2010) Overcoming change fatigue; lessons from Glasgow's NHS. *Journal of Business Strategy*, 28(6): 18 – 24.

- Mair, C., Taylor, J., & Hulme, J. (2013). An introductory guide to psychological literacy and psychologically literate citizenship. York, UK: Higher Education Academy.
- McGovern, T. V., Corey, L. A., Cranney, J., Dixon, Jr., W. E., Holmes, J. D., Kuebli, J. E., Ritchey, K., Smith, R. A., and Walker, S. (2010). Psychologically literate citizens. In D. Halpern (Ed.), *Undergraduate Education in Psychology: Blueprint for the Discipline's Future* (pp. 9-27). Washington, DC: APA.
- Morris, S., Cranney, J., Jeong, J.M., and Mellish, L. (2013). Developing psychological literacy: Student perceptions of graduate attributes. *Australian Journal of Psychology*, 65: 54-62.
- NMC (2011) Standards for pre-registration nursing education. London: NMC
<http://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/standards-for-pre-registration-nursing-education-16082010.pdf>
- NMC (2008) Standards to support learning and assessment in practice. London: NMC.
<http://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/nmc-standards-to-support-learning-assessment.pdf>
- Novak, J.D. (2010) *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations* (2nd Edn.). London: Routledge.
- Peterson, B. (2004). Cultural intelligence: a guide to working with people from other cultures. Intercultural Press Inc., Yarmouth, Maine (USA).
- Reeve, J. (2013) How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology*, 105(3): 579 – 595.
- Rinkevich, J. L. (2011). Creative teaching: Why it matters and where to begin. *The Clearing House: A Journal of Educational Strategies*, 84(5): 219-223.
- Rockwood, K., Fox, R. A., Stolee, P., Robertson, D., and Beattie, B. L. (1994) Frailty in elderly people: an evolving concept. *Canadian Medical Association Journal*, 150(4): 489 - 495.
- Samuelowicz, K., and Bain, J.D. (1992) Conceptions of teaching held by academic teachers. *Higher Education*, 24: 93 - 111.
- Schacter, J., Thum, Y. M., & Zifkin, D. (2006). How much does creative teaching enhance elementary school students' achievement? *Journal of Creative Behavior*, 40(1): 47-72.
- Schroder, K. E., and Ollis, C. L. (2013). The Coping Competence Questionnaire: A measure of resilience to helplessness and depression. *Motivation and Emotion*, 37(2): 286-302.
- Seeman, T.E. *et al.*, (2002) Social relationships, gender and allostatic load across two age cohorts. *Psychosomatic Medicine*, 64(3): 395 - 406.
- Seligman, M. E. (1975). *Helplessness: On depression, development, and death*. WH Freeman/Times Books/Henry Holt & Co.
- Seligman, M. E. (2011). Building resilience. *Harvard Business Review*, 89(4): 100-6.
- Shreeve, A. (2009). 'I'd rather be seen as a practitioner, come in to teach my subject': Identity Work in Part-Time Art and Design Tutors. *International Journal of Art & Design Education*, 28(2): 151-159.
- Shreeve, A. (2011) Being in two camps: conflicting experiences for practice-based academics. *Studies in Continuing Education*, 33(1): 79 – 91.

- Spithoff, S. (2014). Industry involvement in continuing medical education. *Canadian Family Physician*, 60(8): 694 - 696. See also: www.cfp.ca/content/60/8/694.full (accessed: June 2015).
- Stelma, J. (2011) An ecological model of developing researcher competence: the case of software technology in doctoral research. *Instructional Science* 39(3): 367–85
- Stevenson, J., Burke, P-J. and Whelan, P. (2014) *Pedagogic stratification and the shifting landscape of higher education*. York. The Higher Education Academy.
https://www.heacademy.ac.uk/sites/default/files/resources/PedStrat_Finalreport.pdf
- Strike, K.A. and Posner, G.J. (1992) A revisionist theory of conceptual change. In: Duschl, R.A. and Hamilton, R.J. (Eds.) *Philosophy of science, cognitive psychology and educational theory and practice*. (pp. 147 – 176) NY, SUNY Press.
- Talbot, M. (2004) Monkey see, monkey do: a critique of the competency model in graduate medical education. *Medical Education*, 38: 587 – 592.
- Tight, M. (2004) Research into higher education: an a-theoretical community of practice? *Higher Education Research & Development*, 23(4): 395 – 411.
- Toulmin, S. (1972) *Human understanding: Volume 1, General introduction and part 1*. Oxford, Clarendon Press.
- Van Waes, S., Van den Bossche, P., Moolenaar, N.M., De Maeyer, S., and Van Petegem, P. (2015) Know who? Linking faculty's networks to stages of instructional development. *Higher Education*, DOI: 10.1007/s10734-015-9868-8
- Wald, H.S. (2015) Professional identity (Trans)Formation in Medical Education: reflection, relationship, resilience. *Academic Medicine*, 90(6): 701 – 706.
- Winkler, I. (2013). Moments of identity formation and reformation: a day in the working life of an academic. *Journal of Organizational Ethnography*, 2(2): 191 - 209.
- Winstone, N., and Millward, L. (2012). Reframing perceptions of the lecture from challenges to opportunities: Embedding active learning and formative assessment into the teaching of large classes. *Psychology Teaching Review*, 18(2): 31-41.
- Young, P. (2006). Out of balance: Lecturers' perceptions of differential status and rewards in relation to teaching and research. *Teaching in higher education*, 11(2): 191-202.