



Evaluating teaching development in higher education

Towards impact assessment: Literature review

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1. Introduction

Largely established in the 1990s, academic development for teachers in UK higher education (HE) is still a relatively young field which is under regular review and revision (Turner *et al.* 2013). With recent changes to funding and priorities in the UK HE sector, the impact or effectiveness of continuing professional development (CPD) programmes and activities is increasingly under scrutiny as researchers and stakeholders attempt to understand how such work influences teaching, learning and the broader student experience.

This literature review aims to update the Parsons *et al.* review commissioned in 2012 by the HEA in order to inform the *Evaluating teaching development in HE: Towards impact assessment* project, in particular the development of a framework to evaluate the effectiveness of CPD. The review focuses on research into the impact of CPD in teaching and learning published between 2012 and 2015. We have broadened the scope and orientation of the original review in order to take account of a wider range of activities that feature in CPD and to include literature that critically engages with the impact discourse (e.g., Di Napoli 2014). We also consider prominent themes in the research on impact of CPD in relation to work on excellence in teaching in HE (e.g., Gunn and Fisk 2013).

There are several challenges in assessing the body of research on the impact of CPD. The literature on CPD and impact encompasses a range of activities. For example, De Vries *et al.* (2013) define CPD quite broadly as “updating, reflective and collaborative activities” and point to a growing interest in collaboration as a valuable teacher development activity. This breadth aligns with the trend in the UK towards more flexible accreditation schemes (in the wake of the revised UKPSF) in addition to taught postgraduate programmes; an increased focus on mid-career provision; increased use of activities such as professional conversations; and peer networks, to name but a few. We have tried to stay alert, in this review, to research on activities which are part of this broadening of provision and, to this end, in addition to more conventional CPD work (such as PG Certs, short courses and workshops), we have included work that addresses identity construction, reflection as a form of CPD, narrative study and the impact of peer networks. Bearing in mind Saunders (2014), we have tried to acknowledge the diversity of contexts and the significance of this for teachers' implementation of professional development learning.

‘Impact’ is a complex, often contested, concept, and there is not a consensus about what constitutes impact in relation to CPD. What is measured under the rubric of impact varies considerably with studies focusing randomly on satisfaction, student performance, teacher self-efficacy and reflection, among other things. As with Gunn and Fisk’s (2013) observations about teaching and teacher excellence, impact is contingent on context (institutional and discipline), educational values and how it is defined.

Finally, there is a dissonance in the discourses surrounding CPD and in order to represent the range of attitudes towards assessing impact, we have included publications that challenge a narrow, instrumentalist approach to impact measurement and that call, instead, for a more holistic, creative attempt to discuss and determine the ‘impact’ of academic development. There is a growing body of work on this theme and it is important to acknowledge and respond to it in a project that relies on the participation and support of colleagues in the field.

2. Building on Parsons

The 2012 Parsons report pointed to a number of strengths and weaknesses in evidence for the impact of professional development. The diversity, international base and applied nature of studies were noted as strengths. A preponderance of small-scale studies and ‘snapshots’ was considered a weakness. Recent work includes such studies, but we also found a number of larger-scale evaluation studies and several that addressed factors affecting transfer to practice and the impact of professional development over time.

Reliance on self-report as evidence was, and still is, a concern; it perhaps accounts for the frequent focus on teacher and student perceptions. Lack of comparability between studies is still an issue. This is linked with the diversity of frameworks, methods and measures being used and also with differences in context. Parsons *et al.* (2012) also note the lack of baseline data from which to measure teacher or student gains and point to the need for common tools and frameworks to capture such data and to aid comparability.

We found new work in all of the areas considered by Parsons *et al.* (2012). In defining the scope for the review and grouping the literature reviewed, we used similar categories to theirs (points 1-6 in the list below) with three additions (points 7-9):

The review is organised along the following themes:

1. impact on teachers' attitudes, knowledge and skills;
2. impact on teachers' behaviour and practice;
3. effects of disciplinary or generic programme focus;
4. compulsory vs non-compulsory;
5. impact on student learning;
6. other emergent themes:
 - a. motivation;
 - b. teacher experience;
 - c. online CPD;
 - d. social networks/communities of practice;
 - e. location;
 - f. time;
7. research into frameworks for evaluating CPD;
8. related, relevant research, concerned with issues beyond impact;
9. papers which offer a critique of impact measurement.

Additionally, following comment on the first draft of this review, we have considered potential synergies between the research on CPD impact and recent work on teaching/teacher excellence and career progression.

The main aims for this report are to:

- > update, summarise and analyse literature on the impact of CPD in teaching published since the 2012 Parsons review;
- > identify gaps in this body of work;
- > highlight references to the use of frameworks for evaluating impact;
- > consider how the findings of the review can be used to inform the project's evaluation; framework and other outputs.

In this update we are looking particularly for:

- > different ways in which impact has been described or defined;
- > perspectives from which impact has been assessed (e.g., teacher, student, course);
- > relationships between impact and groups or networks;
- > an awareness of impact and contexts (disciplinary, institutional, national, etc.);
- > frameworks that offer both theoretical conceptualisations and practical approaches to the evaluation of CPD.

3. Method

This review was drafted as a working document, the first purpose of which was to inform the next stage of the project. It has been further developed in the light of discussion with the project team and Higher Education Academy (HEA) steering group.

The methodology for the review arose from the need to synthesise research in diverse educational contexts, with varying aims, approaches, frameworks and definitions of what constituted professional development and impact.

Table 1..1 summarises the stages of the review. Two researchers conducted a search of large education databases, followed by a manual search of selected journals, a further search using *Google Scholar* and a review of more recent work by a small selection of the key writers identified by Parsons *et al.* (2012). This process generated more than 800 potential sources, and, based on initial inclusion criteria (concerned with the impact or effects of teacher professional development), a review of abstracts resulted in the elimination of more than three-quarters of these documents.

The resulting list of 187 texts was examined with reference to their aims, methods and findings, and each was tagged using one or more of the tags listed in Table 1.2. This process led to further elimination. The 87 remaining texts were then coded and assigned to categories corresponding to Parsons' six key areas, along with the three additional themes listed above. A document could be assigned to more than one of these. This process again resulted in a reduction, so that the final group of about 40 sources forms the basis of the findings outlined in the following sections. Additionally, as we encountered papers of relevance to the broad aims of the project, but outside the immediate scope of 'impact', we included these and they are considered in Sections 8 and 9. Finally, following consultation on the draft literature review, we have considered our findings in light of recent work on excellence in teaching and learning and we have included observations on the potential links with this research.

Table 1.1.: Stages of the literature review

Activity	Sources	Details	Notes
Search 1	Major databases	British Education Index, ERIC, Australian Education Index	Search terms based on Stes <i>et al.</i> (2012) and De Rijdt <i>et al.</i> (2013) with addition of terms related to learning technologies.
Search 2	Manual journal search	Educational Research and Evaluation, Educational Research Review, Innovations in Education and Teaching International, International Journal of Academic Development, Higher Education Research and Development, Teaching and Teacher Education, Studies in Higher Education, Teaching in Higher Education	Review of titles, reference to abstracts in all volumes published between 2012 and 2015
Search 3	Personal home pages	Major contributors identified in Parsons	Aim to find any further relevant research or ongoing projects
Search 4	Google Scholar	Further searches	Simplified set of search terms Publications between 2012 and 2015
Inclusion 1	Closer look at the nature of the study and its relevance to evaluating CPD.	Review of titles and abstracts	Aim to exclude documents that are clearly outside the scope of the review
Create single list	Lists of documents generated by Searches 1-4	Researchers' lists combined and duplicates removed	'Long list' of 188 documents entered in Mendeley
Inclusion 2	Documents in 'long list'	Review and tagging of long list texts based on abstract and reference to methods and findings. Additional stage: further papers excluded following reading of full texts	'Short list' of 87 documents
Inclusion 3	'Short list' documents	Allocation of full texts to six categories representing Parsons' areas of interest plus three additions; further papers excluded	38 documents considered in this review

Table 1.2.: Tags used to code the literature

E	Empirical	I	Student impact
C	Conceptual	L	Long-term study
S	Schools	B	Big study
H	Higher education	O	Other
F	Framework	U	Unsure
D	Discipline-based	R	Reject (exclude)

4. Areas of impact

4.1. Impact on teachers' attitudes, knowledge and skills

A core area of investigation in the impact literature is the extent to which CPD influences teachers' awareness and understanding. Evidence of impact in these studies can be found in:

- > attitudes, beliefs and intentions;
- > self-efficacy;
- > teachers' conceptions of learning; and
- > skill development.

The extent to which HE teachers gain technical and conceptual skills that enable them to embed learning technologies into their teaching is measured by Rienties *et al.* (2013) in a Europe-wide study in which the CPD was delivered entirely online. This reflects the focus of a large number of studies exploring attitudes to CPD related to IT. Researchers used pre and post-tests to attempt to measure impact of an online teacher training programme and to study whether teachers altered their beliefs and intentions towards student-centred learning and the use of learning technologies. The framework that underpinned this work (the Technological Pedagogical Content Knowledge or TPACK model) is addressed further in section 4.6 below.

Lau and Yuen (2013) address questions about teachers' perceptions of learning technologies and the factors that influence their perceptions. Data (self-report) are from post-training workshop questionnaires from a sample of 100 in-service Mathematics teachers in Hong Kong secondary schools; 90 completed all five questionnaires. Question areas included both perceptions of, and actual use of, technologies in teaching. The questionnaire also asked respondents to give tutor and session evaluations. Age, gender and prior experience were also included and the result suggested that these factors did influence the impact of training. Training was found to have a positive influence on teachers' perceived efficacy with technologies. Impact on beliefs about the pedagogical usefulness of technologies was less evident.

Enhancement of teacher self-efficacy is a recurrent theme in the research on CPD. Lee, Cawthon and Dawson (2013) explore the potential relationship between teacher self-efficacy and pedagogical conceptual change. Teacher self-efficacy was not found to be a predictor of conceptual change, in this study. Mowbray and Perry (2015) report improved teacher self-efficacy following a CPD intervention, and, in contrast to the previous study, they identified a "significant increase" in student attainment, which they aligned with the increase in self-efficacy. This is, however, a small-scale, relatively short (six weeks) study (see section 4.5 for more details). In a similar vein, Lumpe *et al.* (2012), reporting on a large-scale study of intense and sustained CPD for US Science schoolteachers, found that the teachers' self-efficacy improved significantly and that this was positively correlated to an improvement in students' standardised Science test scores. The authors conclude that "self-efficacy and professional development hours were positive predictors of student achievement" (Lumpe *et al.* 2012, p.15). The scale is large in this research, with a sample size of about 500 teachers and between 1,300 and 8,000 students, varying according to study strand. It should, however, be noted that

school teachers are subject to different and often mandatory professional requirements in terms of teacher training and this may impact on their response to professional development.

McGee *et al.* (2013) adapted Guskey's (2002) framework to investigate how teachers' perceptions of CPD and changes in self-efficacy affect transfer and impact. Centred on the implementation of a new, standards-based Mathematics curriculum, the CPD intervention comprised an intensive summer course followed by a year-long programme, similar to Lumpe *et al.* (2012). Researchers state that self-efficacy increased and that teachers' orientations to CPD at the outset influence its impact. However, neither of these findings is quantified.

4.2. Evidence of impact on teachers' behaviour and practice

Impact on teachers' behaviour and practice is an area that has motivated significant research particularly in terms of student perception of teachers' practice and ways in which teachers pursue their own pedagogic development in the period following CPD.

A mixed-methods study by Stes *et al.* (2013a) suggests that students perceive no impact on teachers' teaching behaviours following engagement with CPD. However Willett *et al.* (2014) offer evidence of improvement in teachers' pedagogical practice as determined by evaluating assignment prompts and student texts as part of a three-year mixed-methods study (this study is discussed further in section 4.5).

Rienties and Kinchin (2014) demonstrate that teachers' social behaviour within professional networks, that is, the extent to which they engage with and learn from their peers in relation to teaching and learning, is enhanced by CPD (see section 4.6 for a fuller discussion of this work in light of communities of practice and CPD impact).

Brown and Inglis (2013) attempt to identify factors that enable or hinder teachers' application of professional development learning in their practice, and the sustainability of their learning over time. One enabling factor was a continuing dialogue, which might support the findings of research on teachers' social behaviours and learning from peers (Rienties and Kinchin 2014; Stewart 2014; De Rijdt *et al.* 2013). Other factors which encouraged the embedding of CPD learning in day-to-day practice were, according to Brown and Inglis (2013): seeing resulting change in the students; supportive management and leadership; opportunities to discuss and share with peers; and time to reflect.

Dyment and O'Connell (2014) suggest that CPD programmes 'model' good practice, which participants transfer to their own teaching. It is, however, a small interview study (eight interviewees) with a very specific focus on the use of learning journals. Similarly, Han and Finkelstein (2013) explored the relationship between teachers' professional development in the use of clicker technology and their adoption of this in formative and summative assessment (see section 4.5) and Armour and Makopoulou (2012), evaluating a national teacher development programme, suggest that the programme would have been more effective had it enabled teachers to follow up particular interests over time and offered opportunities for ongoing dialogue.

In a different type of transfer, Trigwell *et al.* (2012) examining 10 years of data, show that academics who completed a CPD programme were more likely to be awarded teaching grants from the university. Similarly, staff who completed the programme were more likely to be recipients of teaching awards. They also reported a "small but significant difference" in students' satisfaction with their course when taught by staff after they had completed the CPD programme. Similarly, the authors found that students in faculties with a higher proportion of staff who had completed the CPD reported higher satisfaction rates with their courses.

4.3. Effects of disciplinary or generic programme focus

Possible differences in the effectiveness of CPD, depending on whether it had a disciplinary or generic focus, were considered by Parsons *et al.* (2012). As in that report, we found little comparison between disciplinary and 'generic' programmes in relation to impact. Throughout this review, there are studies that look exclusively at a subject or group of cognate disciplines (often Mathematics or Sciences), particularly in

relation to CPD in schools. However, they do not make claims for the efficacy of such programmes based on their disciplinary orientation.

Amundsen and Wilson (2012) address the distinction between disciplinary and generic CPD from a conceptual perspective in their six-point framework of educational development; they draw on theoretical rather than empirical work (see Section 5 for a fuller account of this research).

Rienties *et al.* (2013) find that discipline has a positive impact upon the retention of participants in an online CPD course. Additionally, Skelton (2013), considering impact in relation to identity construction of academic teachers, reminds us that in between 'disciplinary' and 'generic' is 'interdisciplinary' CPD in which the deliberate combining and interaction of academics from different disciplines plays a role in the manner in which they can challenge and learn from each other. He argues for the retention of interdisciplinary CPD and suggests that there are particular affordances of "critical interdisciplinarity", particularly in terms of the personal and professional changes experienced by the teachers themselves (see Section 6).

4.4. Compulsory vs non-compulsory

As in the previous category, we found scant research that explicitly investigates this comparison, although there was reference, often in passing, as to whether participants were undertaking CPD voluntarily or as a compulsory requirement. There is some evidence that staff on temporary contracts adopted a "defensive faculty development" orientation: they felt *compelled* to participate in *voluntary* CPD in order to enhance their chances for contract renewal (Rutz *et al.* 2012).

Rutz *et al.* (2012) also found that staff on temporary contracts were less likely to experiment in the classroom with their learning from CPD for fear of lowering student satisfaction scores; whereas permanent staff were more willing to experiment with new tasks and techniques even though they attended fewer CPD events. Of particular interest here is the breakdown along the lines of temporary and permanent. Other studies tend to distinguish between novice and experienced teachers but Rutz *et al.* (2012) are framing the comparison in terms of job security. This paper was the only one we encountered that *explicitly* considered job security in relation to engagement with and impact of CPD, and it would appear to be an area that warrants further attention.

Trigwell *et al.* (2012) observe that, over a 10-year period, compulsory CPD programmes had a positive impact on teachers' engagement with the scholarship of teaching when compared with those who had not participated in the CPD.

4.5. Student impact/impact on student learning

In relation to assessing impact on students (2012), we have not identified any striking advance on work reported by Parsons *et al.* Writers continue to highlight the difficulties of quantifying the impact of teacher CPD upon student learning, because causality of this nature is hard to isolate among the complex processes of student learning.

Nonetheless, there are a few studies that make claims about the impact of teacher CPD upon student behaviour and learning. Furthermore, although self-report is still a major source of data, a wider range of evidence has been sought in a number of mixed-methods studies, such as Antoniou and Kyriakides (2013). Control groups were also used in two studies (see below), which might lend weight to their findings.

Not surprisingly, research in a single discipline or around a single student skill or attribute brings student learning and attainment into focus. Examples include evaluation of teacher professional development in relation to writing development (e.g., Willett *et al.* 2014), critical thinking (e.g., Shim and Walczak 2012), Mathematics teaching and learning (Antoniou and Kyriakides 2013) and the use of personal response systems (Han and Finkelstein 2013).

Trigwell *et al.* (2012) argue that measuring the impact of CPD programmes on student learning is difficult and complex and that most studies that have attempted to measure these have found only small changes (much of what has gone before attempts to measure shifts between deep and surface learning). The authors found a “small but significant” indication that students’ overall satisfaction with their course increases when taught by a teacher who has completed the CPD (as compared with being taught by the same teacher prior to the CPD). Correspondingly, they found that, in faculties where “higher proportions” of academics have completed the CPD under consideration in their study, students report being more satisfied with their degree courses than students from faculties with lower proportions of teachers engaging in the CPD.

Mowbray and Perry (2015) report on a small-scale, mixed-methods study with 11 lecturers, which demonstrates that a particular CPD course in improving lecturing skills has had direct impact on student learning. The CPD took place over six weeks and in assessing its impact, researchers used pre and post-intervention questionnaires, interviews and exam performance of students from two cohorts. Results showed an improvement in teachers’ self-efficacy in relation to lecturing skills. Findings also show a “significant increase” in student attainment for those students whose lecturers participated in the CPD.

Student learning is a rather broad concept and is often quantitatively associated with performance on exams or overall achievement at the end of a course of study. Stes *et al.* (2013b) look at the impact of a one-year CPD programme for new teachers on the students’ approaches to studying, and they find little effect. Similarly, Stes *et al.* (2012) reported limited impact upon students’ learning outcomes (measured using a slightly modified version of Entwistle’s Experience of Teaching and Learning Questionnaire, ETLQ) among students of teachers who had undertaken a year-long CPD course. However, both of these studies are premised upon a deep vs surface conceptualisation of student learning which in itself is contested and rather narrow.

Pehmer *et al.* (2015), in the context of STEM disciplines, claim to have proved the effectiveness of a CPD programme and shown that students benefit. The study involved 135 student and teacher participants. Teachers participated in a video-based programme on classroom dialogue and the research aimed to investigate the impact of this on students’ perceptions of their higher order learning (broken down into “situational learning processes” and “cognitive elaboration strategies”). Likert scale statements were used with students to assess their perceptions of both their own ability (“self-concept”) in STEM subjects and these two higher order learning elements. Again, the focus is on perceptions, with evidence from self-report but there is a control group of 90 in which teachers followed a similar professional development programme but without video and this may make the findings more persuasive.

Antoniou and Kyriakides (2013), in the context of Mathematics teaching in Cypriot primary schools, measure both teacher skills and student achievement before and after a professional development programme. They followed the study up one year later to investigate sustainability. There are 130 teacher participants. The 'Dynamic Integrated Approach' (DIA) to professional development is used both as the basis for the CPD course and as an evaluation framework. This is a complex five-stage model, which sets out teacher development as a hierarchy. The authors claim an association between teachers operating at the higher DIA levels and higher student attainment. The 'before' evaluation consisted of observation, teacher questionnaire, student tests and student questionnaire. 'After' evaluation used the same methods and measures plus a feedback meeting with teachers. Students of teachers in the higher DIA levels made greater gains than those of teachers assessed as in the lower levels. Students of teachers in the DIA group made statistically significant gains while those of a control group did not. The follow-up revealed no further improvement and no decline.

In a study over four semesters with 74 academics and more than 5,000 students, Han and Finkelstein (2013) found evidence that CPD for teachers on using clicker assessment and feedback (CAF) tools influenced student perceptions of the technology. However, yet again this is a single area of skill development and reinforces the recognised limitations of scale in this area of research.

Rutz *et al.* (2012) identify improvement in student critical thinking as evidenced in written assignments. This mixed-methods study investigates the impact of CPD (mainly unaccredited) at two different US higher education institutions (HEIs) over three years. Willett *et al.* (2014) provide a detailed paper on the same study and advance a more tentative conclusion that student learning (clearly defined here with reference to writing, quantitative reasoning and critical thinking) is enhanced. Shim and Walczak (2012) also suggest a relationship between teacher practices and student development of critical thinking skills.

Additionally, Willett *et al.* (2014) focus on the development of a methodology for assessing impact using student work and teacher assignments. The Haswell paired-comparison rubric was used to analyse student texts and staff assessment prompts before and after CPD events to establish evidence of impact. The findings indicate clear change/enhancement in academics' practice and, as suggested above, some evidence of impact on student learning, although the latter findings are less strong.

Finally, as suggested in Section 4.1 above, Lumpe *et al.* (2012) found that teachers' self-efficacy was positively correlated to an improvement in students' standardised Science test scores. The authors conclude that "self-efficacy and professional development hours were positive predictors of student achievement" (Lumpe *et al.* 2012, p. 6).

4.6. Other references to impact not covered by the above

The literature also revealed a number of additional indicators that align to impact and transfer. Key among them are motivation, teacher experience, place and context for CPD, networks, affordances of online CPD in relation to impact, and time or distance from the course or intervention.

- **Motivation** – De Rijdt *et al.* (2013) identify motivation as a key variable in the success of transfer of CPD to the workplace. Han (2012), investigating "teacher-driven" CPD also views motivation as an important variable. Motivation and orientation or attitude towards CPD is a recurrent theme in the literature. (See Peters *et al.* (2012) at the end of this section for a related discussion of 'enjoyment' and impact.)
- **Teacher experience** - Stewart (2014) offers a tentative suggestion, based on a narrative study, that CPD (in this case a PGCert) had more impact for teachers who had some prior teaching experience than those who did not (this aligns with findings, similarly tentative, from De Rijdt *et al.* 2013). However, Stewart suggests that further research is needed to ascertain whether a PGCert has a *more sustained impact* on participants who had some prior teaching experience than those who are at the start of their career.
- **Online CPD** – Rienties *et al.* (2013) - while this paper is not explicitly about online CPD and its effectiveness, the authors imply that there are certain affordances in terms of online delivery that influence impact. Rienties *et al.* found that discipline and institutional culture also appeared to significantly influence whether participants successfully completed online CPD modules.
- **Creation of social networks/communities of practice** - Rientes and Kinchin (2014) identify the impact of CPD programmes on HE teachers' subsequent development of social network structures and social learning relationships with colleagues. They suggest that socially co-constructing and sharing knowledge after CPD has finished is evidence of an undervalued/under-reported type of impact which sees participants entering into communities of practice around teaching and learning.

Rientes and Kinchin (2014) suggest that their findings indicate that research into the impact of CPD should be broadened beyond a consideration of "formal programme boundaries" (p. 123). This research builds on Moolenaar *et al.* (2012) who argue that cohesive teacher networks improved self-efficacy and had an indirect impact on student (in this case school children's) achievement. Furthermore, knowledge "spillover" and a changing sense of institutional culture are also identified as a significant finding by Rutz *et al.* (2012).

Skelton (2013) and Watson (2014) also suggest that community building as a result of CPD should feature in a consideration of impact. Related to this, Belvis *et al.* (2013) found that transfer depended on more than one person from a work context (in this case, schools) participating in the CPD and they refer to a

participant's "sensitivity to impart" their learning to others as having an impact on transfer (although this is not described in more depth).

Viewing the impact of CPD in relation to social and professional networks and communities of practice introduces an important and complex dimension to the consideration of effectiveness. As Roxa *et al.* (2011) suggest, institutional cultures and their dynamics and complexities must be taken into account when considering the management of change, especially in relation to academic development. Seemingly, such awareness of organisational culture is important when analysing and (as Rienties and Kinchin suggest) extending the impact of CPD.

- > The **location of the CPD** in relation to participants' working environment may have an impact. De Rijdt *et al.* (2013) suggest that 'on the job' CPD has a greater impact than 'off the job' but indicate that this finding needs further research. Related to this is the 'learning climate' and the extent to which the institutional approach to CPD is framed as appreciative/developmental or remedial.

Similarly, Han (2012), analysing the impact of pre-school teachers' professional development on their "instructional strategy development", addresses transfer in terms of location and refers to 'on the job' CPD as being preferable to "shot in the arm" (off the job) training. Han distinguishes between "knowledge for practice" (off the job) often taught by external specialists through workshops or similar events, and "knowledge in practice" (on the job) which takes place within teaching.

The study looked at different features of CPD including "teacher-driven" activities in which teachers determined the topics of CPD events and "job-embedded" professional development (in which the CPD took place as part of teachers' work). Following analysis of the pre and post-intervention questionnaires, Han concluded that "teacher-driven" and "job-embedded" are significant attributes in relation to impact on teacher behaviour. As above, these findings address the issue of context for the delivery and engagement with CPD and further work is warranted to understand more fully ways in which these influence the impact of CPD.

- > **Time** – Many of the studies are evaluating impact soon after CPD has been offered and a number of researchers indicate that longitudinal research is needed to better understand impact over a sustained period. Recent exceptions are Trigwell *et al.* (2012), who look at the impact of a CPD programme using data collected over a 10-year period, and Stewart (2014), who investigates the impact of CPD on teachers after five-plus years.
- > Finally, Peters *et al.* (2012) bring together a number of the above factors in their research into online training and the impact of participant satisfaction and motivation to transfer. Satisfaction, and within this "**enjoyment of learning**", are foci of the research. Citing Axtell *et al.* (1997), Peters *et al.* remind us that "motivation to transfer" predicts the speed and likelihood of transfer. They also find that opportunities for interaction are linked to enjoyment and learning outcomes, and, indirectly, to the motivation to transfer. Their findings suggest that enjoyment as a feature of learning is an important dimension of motivation to transfer, which in turn, predicts the likelihood of transfer.

5. Research in the broad area of CPD impact that addresses the construction and use of frameworks

There is a variety of frameworks designed to describe or evaluate CPD programmes and activity. This range is due, in part, to the different value systems underpinning the work which, in turn, influences which characteristics, activities, points of view, and indicators of impact are foregrounded and described by the different frameworks.

The development and application of a framework to evaluate CPD is described in depth in Chalmers and Gardiner (2015), who argue that the impact of CPD programmes in HE is under-researched with a few exceptions. Working within an Australian context, where, increasingly, education is scrutinised for quality,

value for money and range of participation, Chalmers and Gardiner (2015) argue that in the absence of a rigorous and relevant evaluation tool, CPD programmes will continued to be assessed with blunt and limited instruments such as participation satisfaction surveys which do not report on richer, contextualised impacts of the programmes. Chalmers *et al.*'s (2012) own framework is designed to be used in a variety of contexts and is based upon four principles: relevance, rigour, context and reliability. This is a relatively complex framework with a matrix of indicators focusing on both programme and institutional contexts. It advocates the collection of data along a number of specific indicators which address processes, outputs and outcomes. The framework(s) and accompanying account are well-documented; however, potential criticisms are that it describes CPD activity within a context without sufficient emphasis on collecting evidence to demonstrate impact. Additionally, the student voice/learning perspective is not considered as prominently as it might be.

Building on a 'conceptual' review of the literature, and with particular reference to Stes *et al.* (2010), Amundsen and Wilson (2012) devise a six-point framework intended to enable new insights into practice design and to aid evaluation of effectiveness of CPD. Cautioning against being overly 'narrow' in questions about impact and effectiveness of CPD (and they argue that many previous empirical studies are too narrow), Amundsen and Wilson set out a framework that they suggest offers a broader account of educational development and is better suited to capturing its complexity. Their six "foci of practice", around which the framework is based, include skill, method, reflection, disciplinary, institutional and action research/inquiry.

Farley and Murphy (2013) report on the early stages of an Australian project to develop an evaluation framework for mobile learning, the ultimate goal of which is an evaluation toolkit that comprises: framework, guidelines, resources, examples and a "maturity mode". Rienties *et al.* (2013) use the TPACK model as a means of gathering data but also as a conceptual framing for their study. Various discussions of TPACK framing appear in North American schools research that addresses CPD and impact, particularly in relation to bolstering content knowledge.

Saunders (2014) reports on the evaluation of a programme based on "instructional intelligence", which is about developing expert behaviour (described in some detail). The conceptual framework is the Concerns Based Adoption Model (CBAM), a complex model designed to assess teachers' educational change. This use of CBAM includes a "stages of concern" questionnaire (SoCQ) and levels of use (LoU) interviews.

As suggested above, Trigwell *et al.* (2012), report on four studies into the impact of a year-long CPD programme at a research institution in Australia, which draw on data collected over a decade. Building on prior work (e.g., Guskey 2002 and Kirkpatrick 1998), the researchers developed a framework to assess satisfaction of CPD participants, the impact upon participants' practice and impact on student learners. Like Chalmers and Gardiner (2015), Trigwell *et al.* (2012) argue for the affordances of taking into account multiple indicators of impact; in their case they looked at both staff attainment and student satisfaction. Trigwell *et al.* suggest that the use of multiple indicators can more easily identify and demonstrate enhanced impact/significance than studies drawing on single indicators.

As an alternative to models designed to measure impact quantitatively, Bozalek *et al.* (2014) use the Tronto "political ethics of care" framework to evaluate CPD in a South African university. The framework is a reflective tool which addresses five characteristics: attentiveness, responsibility, competence, responsiveness and trust. This holistic, reflexive approach foregrounds the lived experiences of teachers and the practices of the team; members of the team reflect on their own practice in a systematic manner. This paper discusses the application of the framework in detail, and describes some of the reflections that emerged from working through it. From an exclusively 'impact' perspective, this does not yield much in the way of metrics or fixed findings; however, from a conceptual perspective, the valuing of the individual's and cohort's reflexivity and development is signalled, as is the importance of values. This work offers more of an orientation towards evaluation of CPD rather than a model for measuring or quantifying impact.

Belvis *et al.* (2013) evaluated a CPD intervention for Mathematics teachers (primary and secondary) by drawing upon the Holistic Model (Pineda 2002) which addresses dimensions of satisfaction, learning,

pedagogical appropriateness, transfer and impact. The data collection tools of the model include surveys, reports and interviews with participants, colleagues and managers. The framework is set out fully in the paper. The programme, with 284 participants from primary and secondary education, asked teachers to systematically reflect on their teaching practice and to share their reflections with colleagues in small groups. In this approach, teachers started with observations and “ended with strategic planning for performance improvement”. The ultimate aim was to enhance classroom teaching including the use of ICT.

The authors conclude that while the “study shows that the education programme generates high levels of satisfaction, pedagogical appropriateness and learning, its achievements in effectiveness are ‘moderate’ and there was “little evidence of its impact on student learning” (Belvis *et al.* 2013).

Like Chalmers *et al.* (2012), Fink (2013) suggests that impact is difficult to ascertain despite good intentions; evaluation of impact rarely goes beyond the measurement of participant reaction or satisfaction. This paper explores the reasons why measuring impact is important and from whose perspectives. It also offers a framework for considering impact (or, as it is termed here, “assessment”) and identifies four perspectives (students, academics, senior managers and “faculty development activities”) from which data might be gathered. Fink (2013) foregrounds the complexity and range of CPD within any given institution (or sector) and argues that different approaches to collecting information about impact are required: CPD is not a simple or straightforward process and nor should its evaluation.

Fink describes a protocol for collecting data about the impact of CPD on teaching practices and on student learning. Each branch of the protocol has four parts and the instruments can be used in any combination in order to reflect which aspect(s) of the framework are being evaluated. The data collection tools are based on recent research and employ a combination of qualitative and quantitative methods. The article closes with guidance on useful analytical approaches; these include creating comparison data, constructing measurable objectives and considering the “multiple meanings of impact”. In closing, Fink cites Hines’s (2009) eight dimensions of quality programme assessment:

1. **Systemic:** creates feedback from systemic and continuous assessment.
2. **Goal-directed:** clear programme goals guide the assessment.
3. **Measurable objectives:** objectives are designed in ways that enable measurement.
4. **Criteria for success:** standards have been set that define the desired level of goal achievement.
5. **Assessment methods measure the objectives:** the methods are valid measures of the objectives.
6. **Multiple measures:** the assessment uses multiple measures of programme quality.
7. **Summative and formative data:** the data gathered can serve the purposes of both programme improvement and a determination of end-of-programme effectiveness.
8. **Evidence of a causal relationship:** uses comparative data to establish a causal relationship between programme activities and its impact(s). (Hines 2009)

As suggested above, Guskey’s work (2002) still features strongly in framework development. McGee *et al.* (2013) critique and expand Guskey’s framework as a means of evaluating the impact of CPD; they describe in detail questions and data sources devised to gather evidence for each level of the resulting framework.

Also drawing upon Guskey and foregrounding reflection, Postareff and Nevgi (2015) report on a study that addresses the impact on individual teachers of a CPD course and analyses the pathways that 18 participants took through the course by researching their reflective diaries in an attempt to understand the complexity and variety in experiences. They identify five development pathways and analyse findings in light of Guskey. They suggest that teachers need opportunities to experiment with new pedagogic methods in order for the CPD to have impact. They also find that the motivation of teachers to “develop conceptions and understanding of learning” aids potential transfer.

Finally, Willett *et al.* (2014) offer a nuanced, well-illustrated discussion about the affordances and deficits of their approach to evaluating CPD and the implications for evaluating the impact of CPD in other HEIs. In

particular, they address the challenges of transferring evaluation techniques and frameworks developed for a particular institution into a new setting.

6. Research that goes beyond impact of CPD but which may be relevant more broadly

Recent research offers many observations about academic development and CPD that sits outside of a consideration of impact, but is potentially relevant for the current study, nonetheless. We also include here suggestions in recent literature for future research.

6.1. Reconceptualising academic development

Boud and Brew (2013) argue for a reconceptualisation of academic development and suggest that it should be viewed more as a social practice with a focus on the extent to which there is a cultural shift in the institution as opposed to the development of individual teachers. This gaze might usefully inform future frameworks. Amundsen and Wilson (2012) also observe this distinction in the orientation of CPD in their discussion of “contextual positioning”.

6.2. Impact of networks and brokers

Rienties and Kinchin (2014) suggest that future research should investigate the complex roles of “key brokers inside and outside” CPD programmes in HEIs who help with “knowledge spillover” and support the creation of links with colleagues beyond the original CPD programme. There is some synergy here with De Rijdt *et al.*'s (2013) tentative findings that novice teachers benefit and show more transfer of learning when they form collaborations with more experienced teachers. This thinking is in keeping with work by Roxa *et al.* (2011) who explore academic development and change in relation to the power of university cultures.

6.3. Narratives

Similarly, Stewart (2014), building on Stronach (2010), while recognising the need for large-scale studies into impact, argues that “the quest for generalisability” will necessarily omit “significant personal impacts”. The research, based on analysis of HE teachers' narratives some years after their participation in a formal CPD programme, is unusual in its focus on long-term impact. Significantly, Stewart (2014) cautions against an over dependence upon the discourse of impact and measurement, and suggests that a rich understanding of how teachers orient themselves to their CPD over time (> five years) helps illuminate shifts in personal development of teachers, and provides a “fuller understanding of teacher change”.

Although Stewart describes this study as moving away from impact evaluation, its consideration of sense-making, particularly how university teachers make sense of the course as their careers progress, is highly relevant to a broad view of impact.

6.4. Impact of diverse participation groups

Some studies suggest that diversity among participants may influence the outcomes of teacher professional development. Boman (2013) investigates outcomes of teacher development workshops for graduate teaching assistants in Canada. The mixed-methods (self-report, pre and post-test, observer coding) enquiry considered self-efficacy, confidence, and teaching behaviours and found variations between home (Canadian), international participants and between those who had previous teaching experience and those who had not. Lau and Yuen (2013), in a survey-based study, found changes in beliefs about learning technologies were greater in younger than more senior Mathematics teachers.

Herman (2013) suggests that the ratio between teaching and learning development unit staffing and institutional FTE and student numbers is an indicator of institutional commitment to teaching and learning. This is questionable but the data is easily obtained so it might be worth considering.

6.5. Identity construction, boundary crossing and impact

Postareff and Nevgi (2015) explore identity construction and boundary crossing of CPD participants looking at four indicators: identification, coordination, reflection and transformation. In this paper, these dimensions are presented as a feature of successful CPD design and participant orientation; however, this could be adapted and developed as potential indicators of impact in relation to teacher development. So, these indicators might be borne in mind when developing future frameworks. Another implication of the study appears to be that those designing and leading CPD should be attentive to sociocultural and disciplinary differences of the attendees.

Similarly, Skelton (2013) writes about a two-year Masters course at a research intensive HEI which takes a critical, reflexive, interdisciplinary approach to CPD. Exploring the implications for participants through semi-structured interviews, Skelton finds that a key impact is that of transformation in terms of personal and professional identities, with an enhanced sense of self-confidence in terms of professional practice; stronger theoretical underpinning of teaching and enhanced self-awareness. With reference to the recent HEA UKPSF Impact study (Turner *et al.* 2013), which recommends more discipline-based CPD, Skelton argues for the affordances and impact of *interdisciplinary* (as distinguished from disciplinary or generic) critique and awareness which emerge in this programme.

Van den Bos and Brouwer (2014) take a broadly similar approach to Postareff and Nevgi (2014) by following 'novice' university teacher journeys (albeit over a shorter period of five months) during a CPD programme, using interviews and digital logbooks to gather data. As part of the study, they use dilemmas (with quantitative and qualitative responses) as a means of evaluating participants' learning on the course and understanding 'what' was learned and 'how'. They advocate Clarke and Hollingsworth's (2002) "interconnected model of personal growth" as a framework for analysing research data of this nature and perhaps this would be worth investigating further.

Finally, Watson (2014) draws upon social learning theory to analyse a case study of a single teacher; the context is secondary school teaching and the specific focus is problem solving. The theory, as described, views learning as involving observation, self-efficacy and "reciprocal triadic determinism". The latter concept is defined here as the relationship between "individual thinking and beliefs, the social context and individual behaviour". Watson argues that this approach could be a useful evaluation tool, which aims to contribute to the theorising of professional development.

7. Critique of the impact discourse

There is much meta-level analysis and critique of the impact discourse as it relates to measurement in higher education, particularly academic development, in recent literature.

Stefani (2013) laments the "obsession with measuring performance" across HEIs and especially in relation to academic development. Nonetheless, she recognises the demand for accountability and observes that the academic community is increasingly expressing interest in "meaningful frameworks" for measuring performance. She cites the CADAD 2011 benchmarking statement with its eight key domains, as areas to consider, and in relation to benchmarking performance and measuring impact, she asks:

1. How do we conceptualise our contribution within the 'big picture' of organisational goals and the overarching purposes of higher education in the 21st century?
2. Would we set our performance measures at the operational level, at the strategic level or both?
3. Is it time for a shared, fit-for-purpose narrative for academic development for the 21st century?

Bozalek *et al.* (2014) argue that many models for measuring impact of CPD, while not explicitly addressing their underlying values, are nonetheless aligned with a neoliberal approach to evaluation, focussing on “efficiency, measurability and individualism” (p. 447). As an alternative, they develop a “political ethics of care framework” based on Tronto (1993) as a means of analysing individuals’ response to professional development (See Section 5 above).

Similarly, Mockler (2013) critiques the dominant discourse surrounding teacher CPD, particularly the Australian “teacher quality agenda” which he aligns with a neoliberal framing of education and one which risks becoming fixated on measurement and regulation and is ultimately damaging to the teaching profession. Citing Sachs (2003), Mockler distinguishes between CPD that is aligned with “managerial professionalism” and that which is associated with “democratic professionalism”. The latter is determined by teachers, relies on teachers’ professional judgement and is characterised by a level of trust.

Adopting a broader critical perspective, Di Napoli (2014) explores the tensions inherent in academic development, arguing that those working in the field often find themselves operating in contexts that are “saturated” with neoliberal discourses of marketisation which are “shot through” with superficial notions of what ‘good’ learning and teaching are. He reminds us of the complex nature of academic development and the extent to which it differs according to context. He also warns against unwittingly relinquishing personal and professional values that have traditionally characterised the profession through internalising a culture of compliance and conformity, rather than that of challenge. The quest for “frameworks, roles and regulations” to apply and measure activity around academic development, Di Napoli (2014) suggests, risks eclipsing “imagination, reflection and creativity”. In particular, he argues that it is important to “unpack how [the] discourses of care, support, and criticality meet those of efficiency and accountability”.

This discourse of critique, particularly in relation to frameworks and measurement, is an area not really explored in Parsons, yet, as Stefani (2013) notes, it is important to acknowledge and address this tension and remain alert to it in order to garner and maintain the support of academic developers. As Jordan (2014) argues, it is important to resist a reductive, “instrumental mindset” when evaluating impact and, instead, to remain alert to a broad range of ways in which the effect of academic development can be manifest.

8. Conclusion

8.1. UKPSF, teaching excellence and CPD frameworks

This project is an inquiry into how the effects of CPD can be evaluated over time to help understand its impact for teachers, students and institutions. Given this, it is useful to consider how the research on the evaluation of CPD intersects with the broader discourse and policy related to CPD for teachers, including the UKPSF and recent research on excellence. Professional development, teaching excellence, career progression and impact of CPD are all areas that are intertwined in experiences of academics, yet, as Gunn and Fisk (2013) and others have observed, the connections between them are often insufficiently explored in education policy, frameworks and research.

The UKPSF is one such example. This framework is intended to describe attributes and values associated with professional practice for those engaged in teaching and supporting learning in UK HE. The impact of this UKPSF itself is variable across the HE and FE sectors, with senior managers tending to suggest that it has informed CPD strategies, policy and practice, while subject academics indicate that the framework has had rather less impact (Turner *et al.* 2013). The UKPSF does not prescribe CPD or its intended impact; rather, as Gunn and Fisk (2013) suggest, the UKPSF is largely a benchmarking tool that does not ‘measure’ or record excellence as people progress in their careers. Nonetheless, increasingly, CPD courses, processes and events in UK HEIs are mapped against the UKPSF which is therefore arguably asserting considerable influence in the scope and development of CPD. Interestingly however, there is relatively little mention of the UKPSF in the literature reviewed in this report.

Furthermore, as Gunn and Fisk (2013) and Turner *et al.* (2013) argue, it is difficult to align the UKPSF to excellence at different stages of careers in the way that the Vitae Early Career Research Development framework enables with the mapping of research development. Gunn and Fisk (2013) urge an alignment between frameworks that articulate excellence at all stages of the academic career, including those that map research development and those which may map or guide excellence in teaching. An awareness of the various frameworks, policies and discourses that address the full spectrum of the academic career will be important for any synthesising framework that evaluates the impact of CPD; in other words, CPD should not be considered in isolation from other elements of the academic role.

Indeed, the consideration of career progression is implicit in a number of the studies cited above but not always articulated explicitly in the extent to which it relates to CPD. Throughout, the literature discussed here is generally addressing CPD as something which enhances teaching and student learning outcomes. Gunn and Fisk (2013) argue that a significant gap in literature, discourse, policy and practice is the relationship between models of teaching excellence, CPD frameworks and the acknowledgement that academics' careers vary over time. They argue for a robust methodology for "analysing the links between teaching excellence and student learning outcomes" and they suggest that such approaches should also be cognisant of the various roles and stages of an academic career. We suggest that the impact of CPD could usefully be included in such methodologies. Likewise, frameworks which model and guide the evaluation of CPD should also be mindful of career progression and the ways in which the impact of CPD articulates with teaching excellence.

8.2. Gaps in the literature

There are a number of gaps in the literature in relation to studies which evaluate the impact of CPD in HE teaching. Significant gaps include:

1. Little research that considers the relationship between engagement with the UKPSF and impact of CPD. As suggested above, other recent research has called for greater integration between frameworks and discourses which benchmark teaching and research practices and those that articulate teaching excellence. The same dislocation appears to hold in relation to CPD and its impact.
2. There is not a sufficient body of research on the complexities and range of contexts (e.g., institutional, disciplinary) and the way in which 'impact' of CPD might be both determined and evaluated in relation to context (work that might inform further research in this area includes Roxa *et al.* (2011) on teaching and learning cultures, and Gunn and Fisk (2013) who take a critical and nuanced view of the literature on teaching and teacher excellence).
3. Similarly, there is not a great deal of research on understanding the complexity and challenges of collecting evidence related to impact of CPD. Cashmore *et al.* (2013) address this issue in relation to the amassing of evidence around career progression in UK HE, and the same principles could be applied to identifying and collecting evidence to critically evaluate the effectiveness of CPD.
4. There appears to be relatively little work on how students' directly experience the impact of CPD undertaken by teachers. Studies that focused on student perspectives and experiences would be a valuable addition to the literature.
5. It is worth acknowledging that this literature review has only focused on literature specifically related to higher education. Issues of transfer of learning, and embedding CPD feature strongly in other literature fields (such as business, management, organisational studies and HR (Fitzpatrick 2001; Holton and Baldwin 2000; Kupritz 2002)) and therefore the HE sector may benefit from engaging with this wider literature to inform future developments in measuring the impact of CPD.

8.3. Key points and implications for future work on evaluating CPD

1. CPD is a wide-ranging term and how it is defined and used has implications for what can be researched and claimed.
2. The contexts for CPD – both where and how it is delivered – and the broader institutional orientation to it, influence its impact.

3. 'Student learning' has diverse meanings in the research – ranging from specific evidence of critical thinking to orientations to deep and surface learning implicit in study behaviours. Understanding and precisely describing what is meant by student learning is critical in investigating CPD.
4. Students' voices tend not to be heard directly in research on impact.
5. Assessing the impact of teacher CPD on students can build on existing descriptive frameworks or established associations between teacher behaviours and student attainment or perceptions, and even use these to create an analysis framework. Examples include the use of the DIA (Antoniou and Kyriakides 2013), and CBAM (Saunders 2014).
6. The impact and influence of networks – both online and within institutional contexts – are worth further investigation.
7. There is a wide range of frameworks in recent literature – both conceptual and practical and with different aims and underpinning values – which can potentially inform future evaluation and research. Established frameworks such as Guskey's (2002) and Kirkpatrick's (1998) are still widely drawn upon. Additionally, a number of studies, as suggested in Section 5, have extended these frameworks or devised alternative ones, many of which have the potential to help interpret and relate findings across studies.
8. Seeking 'evidence' is a feature of work in both teaching excellence and the UKPSF, further supporting the need to link CPD impact evaluation with these.
9. Any impact should relate to the UKPSF and this relationship should be explicitly described.
10. Teacher self-efficacy, although disregarded in some research as not demonstrating 'impact', has nonetheless been shown by Lumpe *et al.* (2012) to be a positive predictor of student achievement.
11. Time – although there is much talk about the need for longitudinal studies, these can be difficult to plan. However, both Trigwell *et al.* (2012) and Stewart (2014) offer ways of analysing existing datasets to observe impact over time.
12. Finally, the use of multiple indicators in analysing impact appears to offer a richer picture of what is happening as Trigwell *et al.* (2012) suggest.

9. Final thoughts

Impact is a difficult concept to define and measure, and, as with 'excellence' there is not consensus on the meaning of the term (Gunn and Fisk 2013). For some, impact is about quantifying a change in student attainment or a change in study behaviours; for others it entails understanding the extent to which teachers' reflections of their changing practice over time signal 'impact'. Another way of conceptualising impact involves examining teachers' engagement within peer networks following CPD.

Additionally, as Fink (2013) observes, an assessment of 'impact' can vary according to the standpoint from which it is measured: the student, teacher, staff development unit, institution, etc. There are clearly issues of power at play, potentially, when we begin to consider who determines what counts as 'impact' and how it is to be measured and by whom. In other words: Whose impact is it, anyway? This breadth within the literature lends both complexity and richness to a potential framework for evaluating CPD. Identifying methods to assess impact from multiple perspectives would be an important feature of future work.

Finally, as noted by Cashmore *et al.* (2013) in relation to understanding teaching excellence, 'evidence' for understanding impact is complex and challenging to collect. Bearing this in mind, a framework for the evaluation of CPD should be alert to this complexity and accommodate, as flexibly as possible, a range of dimensions (such as time, motivation, experience, point of view, communities of practice, student learning, etc.) when scoping, exploring and describing impact.

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