

Conceptions, Purposes and Processes of Ongoing Learning across Working Life

Author

Billett, Stephen, Dymock, Darryl, Choy, Sarojni

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Section 4: Learning across working life

The project of ongoing learning across working life

There is a growing need for a comprehensive and informed account of how learning across working life can be conceptualised, its range of purposes outlined and processes supporting that learning understood. Consensus exists across governments and supra-national agencies, spokespersons for industry, occupations, employees, workplaces, education systems and communities and by workers themselves that the ongoing development of occupational capacities is now required by all kinds of workers in all occupations across their working lives. This consensus arises from the recognition that not only is the knowledge required for occupational practice subject to constant change, but also the nature and form of that change are more than merely keeping up-to-date with the latest developments. Instead, many occupations are being transformed, which affects what constitutes occupational competence and extends to what is expected of those occupations by the community. Moreover, the nature and kinds of paid employment, how it is undertaken and by whom are also constantly changing. Therefore, there is a need to view workers' ongoing development across working lives as being a major education project. Given the importance of this project in securing economic and social goals, it warrants a fresh and informed approach to how these goals might be realised. The focus here is distinct from other educational projects in so far as its conceptions are far broader. The concern is to build upon both work and educational experiences, and to be open to a range of provisions of experiences and support going beyond the scope of what can be realised through the provision of experiences in educational institutions. So, this project needs to be realised not only through educational systems and institutions, but also in the circumstances where occupations are enacted (i.e., workplaces, work practices and communities). Considering that this need for ongoing learning across working life constitutes an entire educational project, there needs to be clarity about what conceptions underpin it, the kind of purposes to which it is directed and the processes used to realise these purposes. In this way, this concluding chapter draws upon contributions within this book and those from elsewhere to set out something of what comprises the educational project associated with ongoing learning across working life.

It follows that this chapter sets out something of what comprises the three elements of this emerging educational project (i.e., conceptions, purposes and processes). It commences by discussing key conceptions associated with learning across working life, to capture not only those in the schooling discourse (i.e., that privilege educational programs and teaching), but also those arising from the imperatives of work and working life. Then, building upon these conceptions, it considers the range of purposes that have been proposed for learning across working life as these set out the goals that this important educational project needs to address. Therefore, it is necessary to understand the particular kinds of purposes which are to be achieved so that the provision of educational experiences or those which are aimed to support learning within and across working life can be guided by clear purposes. It follows, therefore, that there is a need to consider broadly the kinds of workplace experiences and intentional educational provisions that can realise these goals. Whilst not claiming to be exhaustive, some of the kinds of curriculum and pedagogic practices that might be used to realise this project in work settings, educational institutions and elsewhere are identified and described. Within this consideration of provisions of experiences is the highlighting of the role that workers themselves need to play as active, engaged and intentional learners across their working lives. Hence, the adequacy of experiences in terms of their alignment with the leaning

required to sustain employability is an essential consideration as is the effort, direction and agency of workers as learners.

In all, these three kinds of contributions are required as a basis to understand, advance and enact the provision of the educational project associated with learning across working lives.

Conceptions

Conceptions of what constitutes learning across working life have been problematised by the lifelong learning policy agenda that often conflates both of these concepts of learning into what is essentially lifelong education (Billett & Hodges, 2016), that is, the provision of educational programs and experiences that are seen to be those going beyond compulsory and initial occupational preparation. Indeed, policy prescriptions about lifelong learning are often distorted because those proposing and discussing them fail to distinguish between lifelong learning and lifelong education, and privilege educational programs as the means through which worthwhile and purposeful lifelong learning arises (Billett, 2010). Therefore, it is important to outline something about the different ways in which provisions of learning across working life are conceptualised, given that many of these ways are not aligned with what is provided through or can be achieved by educational programs and provisions, as in taught experiences. Within this volume, for instance, learning across working life is conceived in a range of distinct ways. These are associated with:

- being embedded in work in addressing workplace issues and problems;
- evidence-based practice;
- mandatory processes of capacity assessment and occupational development;
- being focused on workplace viability and continuity;
- a phased process of individual development; and
- being organised, directed and enacted by workers.

In the following sections, these diverse conceptions are briefly outlined and illustrated.

Embedded in work and addressing workplace issues and problems

One conception of learning across working life is focused on the process of learning being richly embedded in the actual circumstances of work and as directed towards addressing specific workplace issues and problems. This kind of learning is purposeful, often quite situationally pertinent and directed towards both individual and institutional (i.e., workplace, occupational) continuity. Wegener (2016) provides an example of this conception of work-life learning through her account of welfare workers engaging collaboratively to identify how best to work more efficiently in circumstances of reduced resources. Hence, these developmental activities are embedded within and part of a process of workplace change and, in particular, arise through identifying innovative practices that are attempting to meet changing work requirements through more resource-efficient work practices. In a similar way, inter-professional or workplace interactions relating to work activities can also embed learning within practice. Indeed, there may be no other circumstance for learning to work collaboratively across occupations than when that development is embedded in practice (O'Keefe, McAllister, & Stupans, 2011). Some suggest that attempting to achieve inter-professional working through any other means is unlikely to be helpful (Thistlethwaite et al., 2014). For instance, in considering the development of junior doctors' prescribing capacities (i.e., their prescription of pharmaceutical products), Noble and Billett (2016) identified how pharmacists interacted with junior doctors, as part of their everyday work role, thereby providing important contributions to those doctors' learning about prescribing. It is the pharmacists' role to ensure the effective use of pharmaceutical products for patients (i.e., patient safety). One of their roles is to check the prescriptions made by doctors and then engage with them if there are problems or concerns about prescriptions. Consequently, with junior doctors whose prescriptions largely follow from the advice or instructions of senior clinicians, there are frequent interactions between

pharmacists and these junior doctors because of the need to clarify or adjust prescriptions. Hence, pharmacists' work tasks and the development needs of these doctors co-occur in quite specific ways as the latter prescribe. Hence, here there is an opportunity for ongoing professional development arising through ordinary work practice, but also effective inter-professional engagement and interaction.

Within this volume also, reference is made to the process of learning through errors in and through work (Bauer, Leicherb, & Mulder, 2016) which is also embedded in everyday work activities, that is, workers being able to report and discuss errors they have made with colleagues and supervisors for developmental purposes. These activities are inevitably embedded in work activities, and the quality of the environment that permits individuals to voluntarily report errors and receive constructive and supportive feedback is a product of the norms and practices of particular workplaces. The point here is that rather than the quality of an educational experience, it is the invitational qualities of the workplace that is central to this provision of learning across working life.

All of this suggests that, as Smith and Kelly (2016) propose, it is important to go beyond viewing continuing education and training as being something which arises through instruction in intentional education programs. Instead, they advocate for a broader range of activities to be included within conceptions of what constitutes this mode of supporting individuals' ongoing learning across working lives. Indeed, findings from a large national study involving workers from across a range of industry sectors, at different stages in their work lives, and in both metropolitan and non-metropolitan settings indicate strong preference by workers for the opportunities and support for their learning across working life to be largely located within work settings and enacted through work activities (Choy, Billett, & Dymock, 2016; R. Smith & Kelly, 2016). Hence, the strong associations between ongoing learning and development across working life and the circumstances of practice are rehearsed across a range of occupations, locations and stages within working lives. That is, this concept of learning across working life is inherently embedded in everyday work activities, as directed towards addressing particular learning needs.

Evidence-based practice

Another way in which learning across working life is conceptualised is when it is directed towards improving practice, that is, intentionally engaging in a process of remaking the occupational practice as circumstances change and new approaches are required. For instance, Avby (2016) refers to a process of identifying and reconciling knowledge that is sourced in both the practice of social workers and also scientific literature that informs social work through an intentional process directed towards improving practice. So, the key focus is on improving occupational practice and finding means through which to access the knowledge that can inform that improvement, and be engaged with and intentionally directed to those purposes. In all, it comprises a conception focused on informing evidence-based practice. This conception is also embraced within discussions and processes for the continued learning of medical practitioners. Converting evidence into action through authentic practice through the medium of talk (i.e., oral communication amongst practitioners) is described and discussed by Eppich, Rethans, Tueunissen, and Dornan (2016). Here, the conception of professional development is that realised through effective communications, and everyday occupational practices that include and promote talk amongst practitioners. The conception of learning across working life is about drawing upon, and mediating and applying knowledge that can be accessed within the practice community. This conception is one seen as a necessary response to the perceived failure of continuing professional development when it is conceptualised as the undertaking of courses and the completion of examinations that are remote from, and fail to influence, the nature of practice.

Mandatory processes of capacity assessment and occupational development

Aligned with the above focus on learning to remake the occupation, is that associated with how particular practitioners' needs for ongoing learning across professional careers are required to

progress. When referring to small-business operators (Billett, Ehrich, & Hernon-Tinning, 2003), transport workers (Choy et al., 2016; Lewis, 2005) and those who work in relative circumstances of social isolation, there is a need for engagement with others to promote learning of the kind required for effective practice. In some instances, this engagement needs to be made obligatory. Given the relative autonomy in practice and decision making granted to professionals, for instance, there is often an obligation upon them to ensure that they are using normative practices. Consequently, social workers, for instance, engage in peer-led conferences to share insights on practices, difficult cases confronted and personal difficulties associated with work. A particular example presented and discussed in this volume is about how sole medical practitioners engage in sustaining quality of their practice, including patient safety, and responding to new understandings and practices in health care (Cantillon, 2016). Despite the autonomy granted in many professions, it has been found that reliance upon professionals' self-assessment of their capacities is inadequate. Hence, for those engaged in occupations in which there could be risk to clients or patients, obligations to engage in professional development activities can occur. As cast in Cantillon's chapter, these activities both respect and honour the extent of professional autonomy granted to such practitioners. Yet, at the same time, there needs to be the provision of mediating processes through which their practices can be subject to appraisal by and discussions with peers, along with opportunities for seeking other opinions and perspectives. Another example represented in this text is of airline pilots who have to undertake 6-monthly assessment of their capacities and associated education/training processes aligned with those assessments (Mavin, Roth, & Munro, 2016). All of this sits within an occupational expectation about the currency of practice, with the assessment process also providing experiences to refresh and update pilots' knowledge of aviation practices. So, in this context, there is a rich alignment amongst processes of assessment of currency for occupational practice, and this assessment of performance being used to redress deficits in performance, as well as updating new regulations, findings, and requirements for practice.

Hence, ongoing learning across working life is cast here as an obligatory practice that is not well captured by a term such as lifelong education, nor how it is often currently portrayed in public policy.

Focused on workplace viability and continuity

Securing workplace viability and continuity stands as another way that workers' ongoing learning can be conceptualised. That is, learning across working life can be regarded as something primarily organised, directed and enacted in ways to achieve workplaces' organisational goals in both the short and long term. Workplaces confront demanding and complex issues associated with their viability. These can comprise responding productively to changing demands for the goods and services, the need to be increasingly competitive, or being able to confront shorter cycles of change in the provision of goods and services, which often increases in amplitude of that change to remain viable. Hence, the focus for their employees' learning across working life is tightly associated with achieving workplace goals (Tyler, Dymock, & Henderson, 2016). In particular, management within workplaces is likely to be concerned about and most likely to support and sponsor provisions of experiences directly associated with achieving workplace goals. In studies associated with cost-benefit analysis of provisions of enterprise-based sponsorship of workers' learning, it was workplace imperatives such as meeting new regulations, generating new products or enacting novel processes that attracted investment in employees' development by enterprises (A. Smith & Billett, 2005). This approach is often the focus of what is referred to as human resource development: preparing and advancing employees' capacities to achieve workplace goals. In this way, it is a common and legitimate conception of learning across working lives. It also needs to be reminded here that whilst these programs are directed towards institutional interests of the workplace, the sponsorship of most educational provisions is aligned with either state or religious interests. Hence, qualitatively there is little to distinguish state and private sector sponsored continuing education efforts, except perhaps in the scope and focus of the application. However, a key distinguishing factor will be the

degree by which individuals come to engage and take up opportunities for learning, in the absence of structured programs and teacherly guidance. An example of such an approach is the use of workplace errors as a basis for improving performance in critical areas of practice, such as nursing. By using actual workplace events (i.e., important occasions, such as when errors occur) a consideration of what led to the error can be used to prevent a re-occurrence (Bauer et al., 2016). So, the concern here is related to responding to performance issues within particular workplaces and avoiding repetition of errors or mistakes. It is the context where performance is seen to have failed that can be used to promote further learning to avoid subsequent errors. All of this is associated with workers' ongoing learning to sustain their workplaces' viability, as mediated by how they come to engage with such opportunities.

Phased and intentional processes of individual development

Most of the above conceptions of learning across working life are directed towards institutional facts: those of societal institutions (Searle, 1995). They are focused on or through practices within particular occupations and workplaces. However, ongoing learning across working life can also be associated with intentional process of individual development, that is, something focused upon the particular needs and trajectories of individuals as workers. This conception is often captured through the term professional development, in ways that many of the conceptions above would not. Many occupations have hierarchies through which individuals will move across their working lives, albeit at different paces and to different levels, and there are developmental processes associated with those levels. Boelryk and Amundsen (2016) provide an instance of this approach through a teacher professional development program in which individuals engage in a four-phased and sequenced process of development, the first arising from disequilibrium or problems experienced in teaching practice; the second, a process of supported interaction to generate a response in terms of changed or enhanced activities; thirdly, the implementation of those activities; and fourthly, deliberations about the outcomes of those processes. That is, the commencement and engagement is founded on issues that these workers have encountered and seek to redress. So, although consideration is given to both the social demand and contribution, and also individuals' engagement in and with the process of development, the focus here is based upon individuals' trajectories that represent quite distinct conceptions of learning across working lives.

Organised, directed and enacted by workers

Aligned with the previous conception is another focussed strongly on individuals which may sit outside of any organised program labelled as professional development or continuing education and training: that is, something organised, directed and enacted by workers themselves. This might comprise a process through which they need to identify, initiate, plan and enact a process of development to sustain their employability across changing work life circumstances and workplace changes (Poell & Van Der Krogt, 2016). In this way, professional development or continuing education is positioned as something that is essentially self-constructed, directed and enacted by individual workers. This, of course, raises issues associated with self-directed learning, and the degree by which the purposes for that learning as well as its enactment are able to be directed by individuals alone. Yet, sitting within this issue is a broader one about the way in which provisions of experiences prompted, promoted and enacted by institutional factors come to be engaged with by individuals and actually shape what they learn.

Conceptions of learning across working life

The above consideration of conceptions of learning across working life elaborate the two sets of concerns established in the opening chapter, that is, the degree by which what is advanced as the means through which individuals are to learn across working lives is restricted to the provision of taught courses, with pre-specified intentions that are offered through educational institutions of some kinds (Schuller & Watson, 2009) (i.e., lifelong education), or alternatively, those that are

emphasising how individuals come to engage with what they experience and learn across working life (i.e., lifelong learning). In this way, the conceptions through which learning across working life progresses as outlined above indicate that we need to consider such support as being far more broadly based than just through the provisions of taught courses. The latter are often preferred by governments, seemingly for administrative purposes; such courses are reported here also by management of businesses because they give the appearance of being able to offer some certainty of outcomes (Tyler et al., 2016). That is, and with some truth, a particular set of educational experiences directed towards some predetermined goals have the potential to develop the kinds of outcomes that both government and businesses want. Yet, beyond seeking to expand how these means of development occur and might be supported across working life, there is also a need to understand that whatever form of support is made available, there can be no guarantee that it will be engaged with as intended nor that the anticipated learning will arise. What might be proposed as an obligatory or mandatory process by an employer or licensing authority may well be engaged with superficially or enthusiastically depending upon the disposition, intentionality and capacities of the learner. It is perhaps worth returning here to consider the case that Cantillon (2016) used to open his chapter: the dramatic account of the sole medical practitioner Harold Shipman who is estimated to have murdered at least 250 of his patients in the northern English city of Manchester. Cantillon reminds us that it is unlikely that any of the mandatory or voluntary processes to promote learning across working life would have prevented these murders. So, although these conceptions indicate something of the diversity of what constitutes accounts of learning across working life, they still represent experiences which are ultimately mediated by individuals to engage in and with them.

Purposes

As with conceptions of learning across working life, its purposes can be quite diverse. Contributions within this edited monograph suggest that such goals are those directed towards realising innovation, currency of work capacities, supporting or directly contributing to transforming practice, developing specialisms and specific response to problems. As a means of capturing these diverse sets of purposes they can be broadly categorised under two headings, those associated with (a) the currency or maintenance of occupational capacities, and (b) transforming practice. Yet, these two broad sets of purposes are themselves delineated into those emphasising institutional (i.e., the workplace) and personal (i.e., workers) imperatives. It is these purposes that are delineated and discussed now.

Maintaining currency of work performance: Workplace and personal imperatives

Undoubtedly, a key purpose for ongoing learning across working life is to maintain the currency of occupational performance. This currency can focus on assisting workplaces to be responsive and adaptable, having a workforce which is able to address the demands made upon it. That is, the currency is directed to developing workers' capacities to achieve workplace goals (Choy et al., 2016; Tyler et al., 2016). This kind of purpose also plays out personally, as individuals seek to sustain their employability (Poell & Van Der Krogt, 2016). It can also include individuals demonstrating the currency of their work performance for mandated or legislated reasons that bring together both workplace and personal imperatives. For instance, a growing number of occupations have performance requirements that are periodically assessed and are required to be licensed because of the potentially dire consequences of poor work performance. Airline pilots, for instance, need to regularly demonstrate their competence to fly planes to hold a pilot's licence. In this way, mandatory checking and related training and development activities are a part of airline pilots' work-life cycle (Mavin et al., 2016). Similarly, for medical practitioners there is a strong emphasis on continuing professional development to ensure currency of what they know, can do and value and, in doing so, to sustain the healthcare institution or private practice in which they work (Cantillon, 2016). Analogous purposes are found within models of teacher professional development such as the intentional four-phased process that Boelryk and Amunsden (2016) advance. Here, the concern

is to identify and systematically respond to perceptions or actual problems in teaching work through a phased process of identification of a problem within practice, a consideration of a response, the enactment of that response and then an evaluation of its efficacy. Hence, there are intentional processes of identifying areas of development to maintain individuals' capacities.

There are also broader issues associated with the maintenance of employability that have become a key purpose for continuing education and training efforts. Indeed, stated purposes associated with ongoing development and sustaining employability were evident in a large national study of learning across working lives (Choy et al., 2016). In particular, workers consistently reported their key purposes were about achieving goals associated with employment, sustaining that employment and then seeking advancement, all of which are captured within the broad concept of employability (Smith & Kelly, 2016).

Yet, beyond the broad concern about employability, quite consistently, workers interviewed for this project indicated that personal purposes about their ongoing competence and advancement were important. It follows then that conceptions and considerations of models for ongoing learning support across working life (i.e., lifelong education) need to be more broadly cast to account for how individuals make choices about learning to promote their employability (Choy et al., 2016). Another associated approach to sustaining both institutional and personal work capacities is through addressing workplace errors and using these to develop further workplace competence by identifying and utilising such errors. That is, using grounded and focused approaches for supporting ongoing learning and development through addressing errors in performance can promote effective practice in the future (Bauer et al., 2016). Noble and Billett (2016) also note how pharmacists' identification and mediation of prescribing errors by junior doctors can both assist those doctors' capacities, and also the quality of healthcare. Consequently, the purpose in these instances is to augment everyday thinking and acting through processes that, in turn, intentionally promote active consideration of this evidence and its applicability to individuals' practice.

Securing opportunities for sustaining occupational competence can include overcoming barriers such as social isolation in practice. There can be a range of consequences for workers engaged in socially-isolated circumstances that extend beyond the currency of the technical professional knowledge. For instance, sole practising medical doctors can be subject to burnout and injurious behaviour, and require processes of revitalisation (Cantillon, 2016). Hence, as with pilots, the purposes of professional development are seen as being more than sustaining technical competence. In addition, there may be particular factors that need to be addressed, such as supporting practitioners who might otherwise be socially isolated. In an earlier study, it was found that beauty therapists who worked alone engaged in "product nights" offered by cosmetic companies as much as a vehicle to engage with other therapists, overcome isolation, and share stories and concerns, as to learn about the new products (Billett et al., 2003). Similarly, truck drivers whose work is socially-isolating find it necessary to engage with others to address issues associated with their learning (Lewis, 2005).

For similar purposes, Poell and Van Der Krogt (2016) note the importance of individuals engaging in organising and directing their own efforts to sustain their employability in quite personally strategic ways. These include workers creating career development programs as well as identifying and maximising learning opportunities to achieve the kinds of goals which are important for them. So, personal purposes about preserving employability may extend beyond the particular workplace or work area in which individuals engage. However, here the activities are associated with an important sub-purpose of being highly strategic and focused on individuals actively seeking out and achieving their desired employment outcomes. With these personal purposes, comes a shift away from an inherent privileging of courses and didactic approaches to those presenting a range of approaches that emphasise learner engagement. Such approaches highlight the importance of learners' agency and intentionality. That is, they recognise that for effective learning, individuals have to be engaged and active: their goals, processes and mediation of what they learn are shaped by learner intentionality.

A subset of maintenance of performance is the purpose of advancement: working in ways that advance individuals' career, remuneration or status of employment (Choy et al., 2016; Smith & Kelly, 2016). For instance, doctors' learning of medical specialism is not just aligned to their professional development per se, as having a specialism is essential for their employment and, therefore, any form of advancement. In many ways, the same kinds of issues associated with ongoing professional development are revisited here. Yet, as with others, Eppich et al. (2016) seek to find effective modes and models of continuing professional development that assist in realising these goals. Their concerns are that the current modes are ineffective, and more practice-based, engaged and authentic activities are required to overcome their limitations.

In these ways, a key purpose for learning across working life is maintaining occupational competence and in ways that both workplace and personal purposes. The imperatives can be found in the requirement for external certification to practise and to be employed, and can play out differently across occupations, work and workplaces and, accordingly, be subject to diverse bases of support for that learning. The kinds and extent of support that are afforded airline pilots, and perhaps some medical practitioners, might be quite different from those whose work is not seen as being worthy of or subject to strong regulation. Hence, whilst all forms of learning across working life will be subject to individuals' engagement and interest, the burden for the development and the kinds of support available as well as the appropriateness of that support are likely to be manifested in different ways across the workforce.

Transforming practice: Institutional and personal perspectives

The purposes of learning across working life can extend to transforming either the occupational practice or individuals' capacities. Hence, more than maintaining and developing further what individuals know, can do and value, significant change can also be an important purpose for learning across working life. Securing occupational viability can, for instance, extend to individuals embracing innovation to realise a more responsive work setting or occupational practice as work circumstances change. Without such a transformation the workplace or the occupation may become unviable or redundant. Hence, purpose associated with learning across working life could be to engage in and embrace the process of identifying and securing innovations in practice. Wegener (2016) in her study identified how welfare workers' occupational viability was, as noted earlier, aimed at identifying and enacting innovations in their professional practice. Faced with reductions in funding, they were pressed to engage in shared collaborative processes which required learning to work together in different ways and with clients, but also to identify different ways of working to achieve important professional goals within new resource regimes. Hence, these welfare workers are engaged in remaking and transforming occupational practice. That is, the acts of ongoing learning and remaking the occupation or work practices are co-occurring in response to situational needs and changing work requirements (Billett, Smith, & Barker, 2005) and, in some instances, are transforming the occupation given the extent and scope of those changes (Wegener, 2016). As foreshadowed, achieving these dual outcomes is likely to require considerations of what can be realised through educational programs alone (i.e., lifelong education). For instance, workplace interactions can also be used to transform occupational practice through inter-professional interactions (O'Keefe et al., 2011). Similarly, Noble and Billett (2016) suggest that pharmacists' engagement with medical teams through their involvement in clinical decision making can promote the transformation of occupational practices as they (the pharmacists) engage with doctors' decision making and advance all of the medical teams' knowledge about and nuanced use of pharmaceutical products. Hence, this remaking of occupational practice can respond to changing circumstances and be achieved through these interactions focussed on concerns about patient safety and positive health outcomes being the foremost goals.

Similarly, although much of airline pilots' professional development is associated with maintenance of capacities, the requirements for their work can also change, requiring transformations in how they practice. Mavin et al. (2016) refer to the growing importance of non-

technical aspects of flying commercial aeroplanes, after flight deck communications and shared understanding between pilots were recognised as an important aspect of that performance. Put simply, a key source of aeroplane incidents or crashes was from poor communication between pilots flying those aeroplanes. Hence, a key purpose for their continuing training and assessment is to transform pilots' work practices and to integrate the technical aspects of flying a plane more effectively with enhanced interpersonal interactions and communications between pilots. Analogously, professional development for teachers is often focused on the implementation of educational innovations or policy initiatives (Boelryk & Amundsen, 2016). That is, in response to requests for greater student performance, greater alignment with particular educational goals or societal concerns of some kinds, the task of teaching, and perhaps how teachers practise, is often subject to change. In this way, institutional and personal efforts associated with professional development can be directed towards transforming teachers' work (Vähäsantanen, Hökkä, Eteläpelto, Rasku-Puttonen, & Littleton, 2008). Yet, noteworthy here is that studies have identified the importance of their developing a commitment to new practices with that commitment arising from having developed the capacities to effectively enact the innovation (McLaughlin & Marsh, 1978). Hence, bringing about change or transformation will be heavily premised upon the degree by which individuals come to be committed to that initiative.

In this way, supporting changes in the status and standing of occupations – the act of ongoing learning – can be aligned to significant changes in the requirements for occupations and/or work practice. For instance, the need to respond to emerging requirements of professionalism from the range of occupations which have elevated status or importance, for example welfare work, provides such an example (Wegener, 2016), as does the importance of responding to errors within nursing work (Bauer et al., 2016). In a similar way, the transformation of internet security work (Billett et al., 2005) led to enhanced expectations and more salient roles and higher status of these workers. In these instances, significant changes occurred which led to a strong societal focus on these occupations thereby increasing the requirements and expectations of those who work within them. Consequently, ongoing learning by those undertaking these forms of work is likely to be a necessary requirement to support the changes in the status and standing of those occupations.

So, as indicated above, whilst the purposes of learning across working lives can be delineated into those associated with either sustaining or transforming occupational practice, these purposes have both personal and institutional dimensions. Both kinds and their dimensions need to be accounted for and aligned with the processes that are either enacted by individuals, or are afforded by workplaces, educational institutions or governments to support that learning.

Processes of support for learning across working life

Having identified and discussed some of the diverse conceptions of learning across working life and the purposes it is directed towards, it is necessary to consider something of the breadth of modes of support for that learning. As mentioned above, what is referred to as lifelong learning and lifelong education are often conflated (e.g., Schuller & Watson, 2009). More generally, the processes of this learning are often subsumed within and qualified by the discourse of education. All of this is despite learning and education being two very distinct concepts. However, it seems that within schooled societies (i.e., those where compulsory education, tertiary and higher education predominate) there is a privileging of experiences in intentional and organised educational programs that dominates considerations of what constitutes professional development, continuing education and training, and ongoing development. Hence, even processes that focus on individual development are often captured within such programs (i.e., personal reflection being guided by teachers or artefacts of educational provisions [e.g., reflective logs]). Yet, people learn across working lives in many different ways and through diverse kinds of activities and interactions outside of intentional educational programs and teacherly processes. In particular, the process of learning across adult life is characterised by learning and development arising in ways outside of direct guidance of others and where personal mediation of experiences is pre-eminent, except for crucial learning where

interactions with more informed others is required. Hence, it is important that considerations for the project of learning across working life not be limited to those found in intentional educational programs, important though those may be in some ways and at some times for all adults.

From a review of what has been proposed within this edited monograph and supported by other sources, three broad sets of processes are delineated and briefly discussed. These are:

- collegiate interactions;
- everyday work activities and interactions;
- programmed support; and
- personal projects.

Collegiate interactions

Collegiate interactions are often reported as an important source of ongoing learning across working life. That is, the ability to engage with an informed other, in ways that provide access to peers' ways of thinking and acting to compare, evaluate and assess individuals' practices, be appraised of developments in the professional field and monitor moderate performance, are important contributions to that learning. These interactions are often seen to be potent support for learning because they comprise a process where interlocutors verbalise or otherwise indicate accounts of their thinking and acting, and submit them to appraisals by others, thereby allowing processes which are ordinarily invisible or opaque to become accessible and engagable by others. These kinds of experiences are those used in the major professions in which workers enjoy high levels of autonomy in decision making, and yet need to engage to ensure that their practice is current and decision making well founded (Cantillon, 2016). There are likely to be particular kinds of processes deemed to be helpful and appropriate for particular occupations. For instance, Cantillon reports that a professional etiquette exists amongst doctors to engage in collegiate interactions and this is important for building trust over time and permitting open engagement in such interactions. Then, there is the talk amongst peers to which Eppich et al. (2016) refer in their account of learning by hospital-based medical practitioners. A central part of these interactions is collaborative problem solving and innovation efforts that promote individuals' attempts to negotiate understanding through joint encounters (Hutchins, 1993; Rogoff, 1995), that is, situations in which co-workers engage in processes whereby they have to work together to identify and respond to emerging problems in occupational practice (Filliettaz, Durand, & Trébert, 2015) and generate innovative responses (Wegener, 2016). Scribner (1984) suggests that this kind of problem solving emphasises the "continual interplay between internal representation and operations and external reality through the course of a problem-solving activity" (p. 23). These kinds of processes are engaged with as part of work-life activities, and can also be structured to assist both the achievement of occupational goals and the promotion of learning about an occupation. For instance, doctors' morbidity and mortality meetings are those through which patient safety can be monitored, and are sometimes scheduled as a regular workplace meeting event, but they also provide enormous potential for participants' learning. Cases are presented, processes outlined and outcomes stated. Yet, through discussions about these cases, alternative approaches, options, interlinked factors and diverse kinds of outcomes can be articulated, considered, appraised, and judgements about them made (Orr, 1996; Suchman, 1997).

Such experiences are important for developing deep understanding and strategic procedures (Greeno, 1989). These experiences can be highly supportive of the kinds of learning required across working lives, yet are of themselves difficult or impossible to replicate within an educational institution (Collins, Brown, & Newman, 1989). Indeed, such institutions sometimes expend significant resources on trying to replicate, through virtual reality, these kinds of experiences which are part of collegiate interactions. Importantly, something such as a morbidity and mortality meeting will be engaged in quite distinct ways by individuals given what they know, can do and value. Then, there are the inter-professional interactions in workplaces that can lead to rich learning outcomes. For instance, in the study of junior doctors learning prescribing, the role played by pharmacists in

checking their prescriptions has the potential to provide productive learning experiences for junior doctors, but also to contribute to the ongoing development of the medical teams' prescribing practices (Noble & Billett, 2016). In this way, collaborative interactions stand as a process through which ongoing learning across working life can be organised, embedded in everyday practice, and also have pertinence for the work task being undertaken and relevance to the goals of individuals, and their workplaces

Everyday work activities and interactions

More broadly, everyday work activities and interactions support and promote learning across working lives. This learning often arises in two distinct ways. Firstly, there is that which arises through individuals' everyday engagement in their occupational activities. Not only are these deemed to be effective modes of supporting that learning (Billett, 2001; Eraut, 2004; Marsick & Watkins, 1990; Tynjala, 2008), but also for many workers this is the preferred means by which they want to engage in ongoing work-life learning. It was found in one large study (Choy et al., 2016; R. Smith & Kelly, 2016) that workers' preferences were for (a) learning experiences to be enacted at and through work, (b) learning needs to be supported in work settings and through individuals' engagement in work, and (c) learning needs to be supported in ways which are convenient and accessible, which is often the great attribute of workplace experiences. That is, the kinds of experiences they need to support and promote their learning are available gratuitously in and through work. This preference in many ways rehearses what has long been understood about the efficacy of learning through practice (Billett, 2011), and specifically referred to here in terms of workplace talk (Eppich et al., 2016). A key aspect of support for learning provided through workplace activities and interactions is the quality and kind of oral communication at work (Filliettaz et al., 2015). For instance, Eppich et al. (2016) focus on the role of oral communication (i.e., talk), both within particular kinds of work activities and also work-related social interactions (i.e., professional conversations during meal breaks). They refer to long-standing practices of medical case presentation and the use of questioning in clinical rounds. Yet, like others (Billett, 2001; Filliettaz, 2010), these authors indicate that there can be weaknesses and limitations of professional learning experiences arising through everyday work activities. They point to poor oral communication or miscommunication through talk. Consequently, they refer to means by which continuing professional development can utilise these experiences yet can also be supported and augmented through engaging in enhancing interdisciplinary collaboration on ward rounds, using artefacts such as safety checklists, promoting the use of simulations to improve workplace communication and explicitly aligning particular kinds of simulations with specific kinds of workplace learning activities. Elsewhere, it has been found that these interactions can be enriched through the use of practice-based pedagogic strategies such as heuristics (Billett & Rose, 1997), and mnemonics (Rice, 2008; Sinclair, 1997).

Secondly, there are particular kinds of work activities and interactions that are inherently pedagogically rich that can be used to promote learning. For instance, nurses' handover meetings and doctors' morbidity and mortality meetings are particular kinds of work activities that offer experiences that can inherently promote this ongoing learning. These events provide experiences that permit active engagement, consideration of cases, comparisons of options and circumstances, and that otherwise offer means through which individuals can secure new knowledge. They are also of the kind that can develop links and associations amongst what they already know and can do, and that are required for developing depth in understanding and procedures that are strategic (Brown, Collins, & Duguid, 1989; Collins et al., 1989). They can also be personal practices on the part of experienced workers who might for instance talk aloud as they engage in tasks (Gowlland, 2012). Then, there are events that are outside of everyday work activities that are used to promote learning from events arising through everyday work activities. Broadly, these are referred to as "teachable" moments. A particular instance is the use of workplace errors as a platform for further developing workers' capacities (Bauer & Mulder, 2007). That is, when a mistake or error has occurred in the

workplace, these events are used as a basis for workers' ongoing learning and specific forms of development (Bauer et al., 2016). As with handovers and morbidity and mortality meetings, there are conventions associated with making these as effective learning experiences. For instance, there seems to be a distinct difference between the quality of interactions when morbidity and mortality meetings comprise a group of doctors who work together, perhaps held in their own work area, and when they are part of a large hospital-wide meeting held in a conference room type facility with many participants.

There are also likely to be the case with learning through errors. Tolerance in the workplace to making errors and using these as a basis for individuals or work teams to consider what has occurred and how that can be used to develop further workers capacities is essential. Hence, an environment in which workers feel comfortable to acknowledge errors have been made, and work to ensure that learning arises from these errors, is likely to be required. For instance, airline pilots are open to reporting errors that have occurred in the long-term interest of passenger safety, rather than being fearful of censure. In a recent instance, reported in the popular press, two pilots both fell asleep and overflew the destination city, then had to return after being woken up by request from air traffic control. They reported it and an investigation into tight timeframes between shifts led to considerations about pilot fatigue, associated with shifts and accommodation between flights.

So, there is significant potential for ongoing learning across working life from engaging in everyday work activities and interactions. Yet, that potential is particularly rich in specific kinds of workplace activities in which cases or issues are discussed and options and diverse practices can be appraised in terms of their utility. Beyond these, more generally, it is suggested that these workplace experiences can be enhanced through how communication is enacted, and the use of specific pedagogic strategies to enrich the experiences provided gratuitously through work. Yet, it is also evident that the basis for productive interactions is not necessarily just given. Indeed, it might be necessary to construct an environment in which productive interactions can occur and errors, when made, can be seen as opportunities for learning rather than apportionment of blame.

Programmed support

As noted, there are important roles to be played by having intentional program of support and engagement across working life. A programmatic approach is quite frequently adopted when there are particular imperatives associated with either individuals' performance or new initiatives or requirements for change in practice. These kinds of professional development processes are quite common, with training programs perhaps the most common. For instance, Mavin et al. (2016) refer to the close alignment between assessment and training processes for commercial aviation pilots. These programs have clear intents associated with assessing pilots' current competency and having training experiences aimed at updating or addressing perceived shortcomings in their performance. These kinds of interventions are seemingly preferred by workplace managers who often view intentional programs as providing some certainty of outcomes (Tyler et al., 2016). For these managers, rightly or wrongly, a set of pre-specified outcomes and educational processes identified and enacted to achieve them offer some certainty about securing the kinds of goals that workplaces want. Hence, when continuing education and training programs are sponsored by employers or workplaces, they may have very clear statements about outcomes to be achieved, but also strongly privileged training programs, seen as a reliable way of securing those outcomes. In this study, it was found that workplace managers are having an increasing role in decision making about how resources are used to support employees' learning across working life. Yet, these managers may have limited experience in, or understanding of, how to make effective decisions about the kinds of experiences to be provided. Hence, there is a need to consider on what bases workplaces invest resources in supporting work-life learning, and how that investment is best utilised. Moreover, in terms of workplace imperatives, in some instances training programs require specific kinds of essential infrastructure to provide experiences which would not ordinarily occur through practice. For instance, the use of simulations and simulators for assessment and training of airline pilots is

necessary in areas of high risk, as Mavin et al. (2016) describe. Similarly, Cantillon (2016) refers to the online resources such as virtual morbidity and mortality conferences through which isolated practitioners can participate to gauge the responses to medical scenarios and assess the currency of their medical competence.

Well-established models such as action learning, action research and so on can be categorised as programmed support. Many use a particular sequence of activities that are designed to engage participants in a set of experiences that are intended to generate change in their practice. For instance, the four-phased model proposed by Boelryk and Amunsden (2016) is of this kind. It involves identifying a particular practice-related problem or area of required development, the generation of a response, its trialling, and an appraisal of its worth. These kinds of models can be either open ended or directed towards specific kinds of learning outcomes. Such an approach is also evident in Avby's (2016) use of reflective groups that aim to go beyond personal reflections and promote a critical engagement with evidence from practice and research. She describes and advocates for the use of these groups to engage in intentional and planned processes guided by a facilitator. In this approach, the developmental processes emphasise shared discussion and collaborative engagement and also emphasise effortful engagement by participants. The intentional processes here can extend to deliberate engagement in responding to feedback and considering others responses and individuals' personal development through the use of logbooks and such artefacts. Also, in some models, facilitators are seen as being necessary to guide the development process. This may be particularly appropriate when such a group might have participants from different levels within hierarchically-organised workplaces. As Avby (2016) acknowledges, the ideas here build on Dewey's (1977) earlier concerns (i.e. originally in 1911) about the importance of improving how we think and act through intentional efforts to do so, and the term reflection that he coined. It is evident that there are likely to be circumstances where that promotion of effective thinking and acting needs to be supported through structured arrangements and guidance by others who play roles either as expert informants or as individuals who work to support the learning process, or both.

Yet, what is also required within provisions of intentional and programmed educational experiences such as those mentioned above is the need for learners to engage effectively and effortfully in those experiences. For instance, in Avby's (2016) account, emphasis is given to workers enacting deliberate practice (Ericsson, 2006) as a means to support their learning, through engaging with the sources of knowledge they encounter. Consequently, as well as the organisation of experiences and the efforts of educators, workplace trainers, professional development practitioners and experienced co-workers, how those who are positioned as learners come to engage in those work-related learning activities and interactions is central to the nature and quality of learning outcomes.

Personal projects

As noted above, the kinds and quality of ongoing learning across working life will inevitably be shaped by what individuals know, can do and value. Ultimately, this mediates how they engage in processes associated with developing further their work-related capacities. Hence, the process of ongoing learning, professional development or whatever it is referred to within a particular disciplinary domain will always be premised on and mediated by individuals' readiness to engage (i.e., their capacities, including interest intentionalities)(Malle, Moses, & Baldwin, 2001). This includes how they come to engage with what opportunities, experiences, provisions of support, educational programs, mentoring arrangements, projects and so on that they are afforded (Ericsson & Lehmann, 1996). This individual mediation of learning and development is enacted in a number of ways and at different levels of engagement. At a foundational level, that mediation shapes the degree by which individuals come to engage and learn through everyday experiences and the kind of opportunities referred to above (Billett, 2009, 2014). For these experiences to have significant consequences for workers' learning will ultimately depend on how they engage with them. Hence,

much learning across working life is premised upon individuals' decisions to engage with what is afforded them. At another level, the degree by which those learning-related efforts are specifically directed towards strategic goals, which may or may not relate to the particular workplace in which they are employed, are also mediated by individuals' intentions. So, whether that learning is everyday sense making and responding to work activities and interactions or intentional efforts to achieve specific learning outcomes, individuals' mediation is quite central. Poell and Van Der Krogt (2016) referred to a number of processes that individuals use to achieve the second type of goals. This includes them establishing learning pathways or trajectories upon which to progress to secure the opportunities for the learning they desire. Then, there is intentional networking to secure that learning, and actions that are quite explicit in seeking to achieve those goals. This can include engaging with managers or supervisors and, in proposing and negotiating, securing opportunities they need to learn effectively in and through their work. Then, either explicitly or implicitly, there is a process of individual planning which is important for these goals to be enacted and achieved.

Although much attention is given to practices often referred to as individual reflection upon performance, such reflection likely requires more than the practitioner's introspection. Direct information about actual performance is also likely to be required for these practices to be helpful. As with airline pilots, it was found that sole medical practitioners' ability to self-assess performance is limited (Cantillon, 2016). Mavin et al.'s (2016) study indicated that pilots' self-assessments were unreliable as were techniques which sought to draw on and reflect upon memories of events that had occurred. Low levels of reliability in the recall of flight events, particularly those in demanding circumstances, and matters associated with those events, indicated that self-assessment is insufficient and, potentially, error-prone. Hence, the importance of arrangements in which examiners make judgements about performance and then are able to engage with pilots about their performance was underscored. In this instance, artefacts and information, including replaying what the pilots had said and done, was essential because recall and introspection on that recall were seen as being insufficient. For this reason, the examiners' notes, flight details, and recordings played a role in providing a form of recall that informed the developmental process rather than being based upon practitioner speculation. The important point here is that a very common process advanced for professionals and other workers' ongoing development is critical reflection on practice. However, what this study indicates is that the basis for the reflection may be quite insubstantial unless it can be enriched by data, and perhaps the insights of somebody able to analyse that performance.

So, regardless of whether the learning is about individuals securing the capacity to undertake some specific work activity, or whether it is about workers making highly strategic decisions about their career trajectories which may extend beyond the particular workplace in which they are currently employed, all of this is a product of individuals' intentionality and engagement. Consequently, it is not possible to consider the processes associated with learning across working life, without a consideration of how individuals actively mediate those experiences for better or worse. This means that independent efforts can be quite limited, and interdependence, including the contribution of others, is quite central even to what is seen as being individual learning projects. As noted, the ongoing development of workers' capacities, as in continuing professional development, can be realised interdependently through inter-professional encounters. For instance, interactions between pharmacists and junior doctors can be used to improve their prescribing skills, because these junior doctors engage in a range of rotation through different hospital wards and will be unaware of the particular specialist pharmaceutical requirements of each ward (Noble & Billett, 2016). However, that ongoing development is realised through the role that pharmacists play to ensure pharmaceutical security and patient safety. Hence, their ongoing interactions with junior doctors provide advice and feedback that is supportive of their ongoing learning, and if systematically engaged, also the development of the entire medical team.

It sum, there are a range of processes for supporting effective ongoing learning across working life that extend well beyond the orthodoxy of intentional programmed experiences, and this learning, by degree, is realisable through work activities and interactions. Sometimes, these

experiences will need to be augmented with the use of specific strategies, and, seemingly always, the quality of workplace sociality will mediate the degree by which these strategies can be used and are engaged with, and the extent to which individuals are willing to participate in workplace collaborations. It is unnecessary, therefore, to restrict the kind and range of experiences that can support ongoing learning to those associated with intentional programmed experiences. These might best be left for those outcomes to which they are most suited to achieve. For it is certainly the case that individuals' actions and mediations alone will be insufficient for developing particular kinds of knowledge, and that which is hard to access and learn is certainly among those forms of knowledge. Moreover, given the criticality of much of the kinds of learning discussed above, it is important that measures exist to moderate and guide individuals' mediating efforts.

Learning across working life: Conceptions, purposes and processes

To conclude, it has been proposed in this final chapter that the conceptions of, purposes for and means of supporting learning across working life are not singular, linear or merely the product of learning experiences intentionally organised to achieve particular kinds of outcomes. Instead, there are a range of conceptions of learning across working life, many of which are richly embedded in the practice of work itself, its enactment, progression and transformation. There are also those that can be used to enrich what is provided gratuitously through workplace activities and interactions through the use of particular kinds of practice pedagogies. Nevertheless, there is also the need, in some instances, to secure a separation of work and working life to achieve outcomes that might not be realisable through everyday work activities and interactions alone. Then, purposes are broadly seen as comprising the maintenance of occupational skills, on the one hand, and associated with transforming practice in response to changing work requirements, on the other. Yet, within each of these there are both institutional purposes (i.e., those of the workplace, community, nation state) and also those for the individual (e.g., their personal trajectories, employability or advancement). Sometimes there is rich alignment between these two dimensions. Then, finally, sets of processes through which support for learning is found and can be potentially enhanced have been delineated. These include support that can be found within collegiate interactions, everyday work activities, programmed experiences and also the personal projects of individuals. Across all of these processes, what is evident is a duality between support or interventions that can be provided by the social world and their relationship with how workers come to mediate what they experience, including that support. All of this then contributes to a comprehensive consideration of what constitutes learning across working life in terms of how it needs to be considered, the kind of goals it is proposed to achieve and the means by which they can be achieved.

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