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Linking Reflective Activities for Self-managed Development of Higher-level Abilities

John Cowan, Edinburgh Napier University, UK

ABSTRACT

The writer suggests that the potential of the available range of critically analysed and widely practiced approaches to reflection could generally be better realised. The case is made in relation to the purposeful development of higher-level abilities in higher education, which are increasingly important for employers and learners. In courses where such development is deemed a priority, the writer advocates the structured and self-managed linking of integrated reflective activities, based upon an ePortfolio, which can readily accommodate and accumulate linked digital materials of various types and forms without effort devoted to rewriting. Four common approaches to reflection by learners are outlined and amplified through descriptions of their use, to illustrate the type of outcomes they can generate and their usefulness if linked to other reflections. It is argued that logical course design should structure complementary tasks contributing linked entries to an ePortfolio, so that the affordances of their separate contributions to learning and development are realised.

Keywords: reflection, linking, higher-level abilities, self-managed learning, ePortfolio

Introduction

Hindsight can nurture real regrets on occasion. During the war years, for example, I studied in five primary schools. Following one switch, I was transferred into a class which had been taught 'joined-up handwriting'. It was wrongly assumed that I had acquired this skill. Thereafter I prevaricated by developing my slow pseudo-printing. Throughout my lifetime, I have frequently regretted my inability to join up my handwriting.

In my academic years, I have made good use of various forms of reflection in my course designs. I have built reflections into various programmes, where they have yielded various valuable outcomes for my students' learning. I have lately seen with hindsight that these reflective affordances could have been usefully featured and linked in a purposefully assembled course structure, where the outcome of one reflection would be an input to the next one. I regret that my teaching involvement did not extend to programme structures based on the explicit linking of joined-up reflections.

That second regret has prompted me to write this paper. I will first justify the value that academia nowadays places on reflective development of abilities. I next introduce four forms of reflection advocated by respected authorities in this field, and widely practiced academically and in professional development. I then present anecdotal examples of each approach, first to illustrate their characteristics and then to suggest how they might contribute if linked into an overall structure assembled within an ePortfolio. Finally, I outline the main features that a purposefully linked self-managed approach could readily embody.

The need for development of abilities

The advent of information technology has transformed the aims and pedagogy of higher education; the development of abilities has become increasingly important. Graduates were once expected to recall significant factual matter, and to apply familiar algorithms to obtain solutions to common problems. These demands have now mainly been remitted to the computer. Almost anyone can quickly obtain more information than yesterday's graduates could have been expected to recall – simply by exercising competence in using an effective search engine. Similarly, a wealth of apps and commercial programmes apply more algorithms more effectively than was possible in the past for a graduate with pencil, paper and hand calculator. Consequently, yesterday's programme learning outcomes are mainly obsolete. It is instead a priority for higher education to concentrate on the development of those higher-level cognitive and interpersonal abilities, such as analysing, problem-solving, evaluating, empathising, critical thinking, reasoning and persuading, which employers and society expect graduates to possess, and to apply through effective use of technology.

Academics who respond to this widespread and well-established expectation (Anon, 1981) are confronted by two complications. The first is the diminishing amount of resource available for staff/student interaction. Self-managed learning is thus not only pedagogically attractive where higher-level abilities are concerned; it is also economically essential that many responsibilities for learning are devolved to learners and peers. The second complication for teachers is the difficulty of pinpointing proven and evaluated advice on how to purposefully develop the abilities which they are expected and wish to nurture, and how to harness

effectively the potential for self-development in apps and IT resources, sharpening students' own self-reliance. The reflective practitioner is certainly a familiar concept; but the routes by which learners can travel to reach desirable reflective competence are less well defined. This paper offers suggestions for enhancement of that process, through bringing together technological abilities and reflective practice.

Useful reflective approaches

Reflection has been explored as a contribution to the development of abilities since that was first propounded by Dewey (1933). The title "reflective practice" was coined by Schön (1983) to describe the use of reflection in professional or educational settings. Academic attention to this possibility has subsequently burgeoned. Brockbank and McGill (2007, p. 121) reported that, in 2006, 21 of the 46 Quality Assurance Agency benchmark statements for UK honours degrees featured reflective learning or reflective practice, as do many professional bodies in their requirements for continuing professional development. Moon (1999, pp. 55-64) explained at some length the reasons which have led professions to advocate reflective practice for the development of professional skills and abilities, and summarised the features of effective arrangements set up with the development of professional skills in mind.

Rogers (2001) presented a meta-analysis of the then established options and their theoretical bases, as did the highly readable yet scholarly Moon (2004). More recently Rose (2016) has published a recent and perceptive review of the literature in this field, which follows her erudite and useful reference text (Rose, 2013). The field has thus been well analysed and reviewed in recent authoritative writings. From my own experience, I identify four distinct reflective approaches that I have found effective in the development of abilities, because habitual use by a student enables them to create their own scaffold for learning (Vygotsky, 1978).

Reflection-for-action precedes learning activity. It identifies forthcoming demands, and needs for the associated learning and development. It identifies and considers the available options; reflectively evaluates their implications and potential, chooses between them and lays plans accordingly (Moon, 1999, p. 49). It was not mentioned by Schön, but was featured by Van Manen (1991) as "anticipatory reflection". He strongly made the case for constructive considerations taken before an event, or in the planning of activity. The student here is asking themselves 'what am I being required to do, what is my plan of action for this fresh task including any necessary development of my abilities?'

Reflection-in-action occurs in intimate association with action (Moon, 1999, pp. 43-44). An event may generate significant insights, of whose significance the learner should not lose sight when consolidating their learning (Brockbank & McGill, 2007, pp. 89-91). This is distinct from knowing-in-action, which Schön (1983, pp. 27-29) described as the ability to make skilled decisions effectively, without being able to state the rules or procedures that are being followed. Reflection-in-action, in contrast, centres on sudden surprise arising from an unexpected outcome that does not conform to our knowing-in-action. It gives rise to on-the-spot experiments to probe the new understanding, yielding an insight taken from the midst of activity. There is, of course, a risk that this learning may evaporate, unless captured in some way. Here the student asks themselves 'what have I just spotted?'

Reflection-on-action is the commonest form encountered in academic provision and in professional body procedures promoting development of reflective practitioners. It entails systematic review of recent and relevant past events, ranging from critical incident analysis (Moon, 1999, pp. 209-210) to holistic programme review (O'Connell & Dymont, 2011). The learner analyses their experiences and draws lessons from them for future and similar demands. The emerging generalisations should be substantiated by evidence-based reasoning, tested out in what Dewey (1933) called active experimentation, and possibly leading to subsequent refinement of conclusions. Here the student asks themselves 'did that go according to plan? If not, what happened? What have I learnt from this?'

Composting reflection (Cowan & Stroud, 2016) is a refined form of what Moon (2004, p. 148) described as second-order reflection. It arises from reconsideration of previous reflective work, leading to a deeper overview. The claims and generalisations made in earlier reflections may benefit from testing, refinement and application. They may provide food for thought in regard to imminent demands, and so enrich forthcoming activity, just as compost can enrich the next growth in a garden.

It is the linked potential of these four approaches that is explored in this paper.

Harnessing reflections to develop abilities

I will offer examples to illustrate my use of these different forms of reflection in practice. First, however, a brief account of the assorted contexts from which these examples are taken.

Around 1982, I purchased a paperback with the attractive sub-title: 'How to use a journal for self-guidance and expanded creativity' (Rainier, 1978). Rainier's work inspired me to reshape our first year programme for civil engineers at Heriot-Watt University (Cowan, 2006, pp. 15-18) around reflection-*on*-action. It offered promise of stimulating deep engagement by student learners in what could become an ongoing learning process. I planned weekly activities to assist in the development of relevant transferable abilities. I required each student to then reflectively address, in a written journal, the question 'What have I learnt about learning or thought about thinking this week, which should make me more effective next week than I was last week?' A colleague and I speedily commented formatively on these journals, without assessing them. At the end of each term, we asked students to review their journals, and to prepare a short claim regarding their development of generic abilities. In a small group activity, each claim was audited for credibility by peers. The influential educationist Graham Gibbs, interested in this development as with many other

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educational initiatives at that time, invited himself in 1985 to meet with second year students to discuss their journaling experiences of the previous year. Some informed him that they continued to keep a reflective journal (Gibbs, 1988), even although there was no requirement to do so. (Similar testimony to the perceived worth of journaling was volunteered explicitly at a later date by Cherry (Cowan & Cherry, 2012).

Fifteen years later, I introduced facilitated online reflective journaling for third year project students of social science and computer science (Weedon & Cowan, 2005), within what became the University of the Highlands and Islands (UHI). The header question was now different: ‘What unfamiliar demands do I expect to encounter in the coming week; and how should I prepare myself for them?’ This reflection-*for*-action was a requirement, but was not assessed. Feedback from students reported strong endorsement of the value of the activity and its facilitation, in providing effective support for their efforts to satisfy project demands.

In 2005 I was recruited to Edinburgh Napier University Business School. With a team leader, Francis, I devised a scheme in which postgraduate MSc (HRM) students were charged, in parallel with their course studies, to satisfy the requirement for membership of the Chartered Institute of Personnel Development (CIPD). Students were required to plan and implement self-managed and self-assessed development for six abilities which were not featured explicitly in their course, but which the students valued (Francis & Cowan, 2008). Their planning originated from this reflection-*for*-action.

I take four examples from these experiences to illustrate how the reflections featured in Figure 1 can contribute to the systematic development of abilities. In so doing I seek initially to illustrate what each approach can entail; and then to highlight how they can be linked constructively to other reflections.

Examples of reflective activities and their outcomes

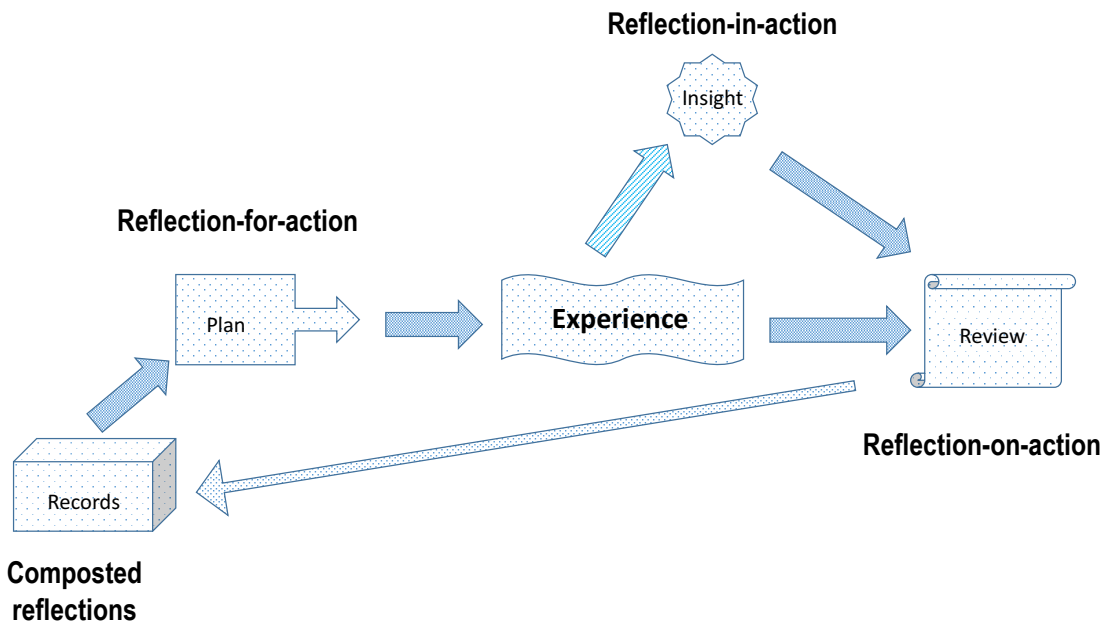


Fig 1: Linked reflections and outcomes

The following four examples are from these four different learning contexts, arranged however in the order in which reflection may be variously related to an experience.

Example 1: Reflection-for-action

We required third year UHI students of Social Sciences to keep a weekly reflective journal, and to submit it (electronically) for facilitative comment (but not assessment). In these journals they should look forward to forthcoming demands in their group project, consider their implications in personal terms, and make plans to cope with them, having first identified the options open to them.

One such student was charged by her group to carry out a series of open-ended interviews. This approach had not featured in her course to date. Having read up the topic, she was very apprehensive. However, she thoughtfully identified in her journal the implications in terms of the demands that the interviewing would place on her, and how she might handle them. I facilitated this journal entry in my usual supportive and non-directive style on the Friday before her interviewing week, abstaining from advice and

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direction. I noted her diligence in exploring options, and expressed empathy with her high level of concern and lack of confidence. While I tried to encourage movement into her Zone of Proximal Development (Vygotsky, 1978), accompanied by positive self-efficacy, the latter feature seeming somewhat elusive in view of her apprehension, which I privately shared.

I was surprised to receive an email from her on the Monday evening. This began as reflection-on-action. She recounted the significant and encouraging aspects of the events of the day. She briefly summarised how she now felt about her efforts, and moved into summarising what she had learnt from the positives and negatives in relation to her plan. She moved into further reflection-for-action, to consider how she could be more effective on day 2 than on day 1. She did not ask for comment; she merely wished to share her news. In my response, I simply encouraged her to pursue this revised strategy, and expressed pleasure that she had felt positive about the first day. Twenty-four hours later, she again emailed, reporting further progress and reflection-for-further enhancement. By the end of that intense week, she was able to consolidate a great deal of learning for future interviewing, from her reflection-on-action which owed so much to sustained reflection-for-action. This student achieved significant development of her ability for open-ended interviewing and in her confidence to engage in interactions with strangers.

However, the linkage from her reflection-for-interviewing to her evaluative reflection-on-interviewing via some reflection-in-interviewing was at her own initiative, which was not exercised in that way by all members of her class. In a more effective course structure, I submit, reflection-on-action specifically linked to the initial forward planning would have been desirable. In relation to the significant pressures on staff I identified at the start, my time commitment here was minimal, our email contact enabled flexible asynchronous exchanges; yet the scaffolding it provided supported significant self-fuelled development in the student.

Example 2: Reflection-in-action

During the same programme, a different student had been wrestling to comprehend just what this strange demand for reflection should entail. After wandering somewhat in her “stream-of-consciousness” writing, she summarised that reflection should entail what she described as a “Geronimo moment”, when she would suddenly gain a new understanding or insight. She wanted to take this further, and now asked herself what she could do to bring about such flashes of insight. Understandably the answer eluded her. She again rambled around in her written searching, until suddenly she broke off in mid-sentence to “exclaim” in her journal writing: “Wait a minute, wait a minute, I think I feel a Geronimo coming on”. The insight that had emerged was reflection-in-action. She stored it in her mind and featured it in her next reflective journals.

Reflection-in-action, however pointed as it occurs, can readily evaporate if not recorded. In this case, the recording occurred naturally in the journaling. However, it is difficult to estimate how many other insights went unrecorded in that class, and were soon forgotten. A scheme which encourages brief notes of insights-in-action could helpfully be carried forward in a recording system, such as an ePortfolio, to inform and enrich reflection-on-action in due course. Again, a light staff input, facilitated by group forum reflection, for example, could produce significant change.

Example 3: Reflection-on-action

In the Heriot-Watt programme, we centred each week on a generic ability demanded of first year students. The scheme featured a two-hour afternoon activity followed by an hour of consolidation next morning. Students should then reflect-on-action, as described earlier. One student claimed to have discovered a new way of tackling problems. I literally could not understand the journal’s opening page. I struggled to find something – anything – on which I could offer a constructive comment. I was restricted to an utterly bland comment about the amount of thought he had given it. With a feeling of failure, I turned to the next page. This began with the acknowledgement that he didn’t expect anyone else would understand what he had written – “But I do” he wrote. He then described with joy and pride how he had used his new method on the following day, and for the first time ever had successfully solved the problems on the Physics tutorial sheet.

In a very long journal entry, he continued to relate how, as a Scout leader with a difficult assistant who often gave him problems, he had applied his method – which I still did not understand – with successful outcomes, of which he persuaded me. He concluded this entry by writing “I know I’ve written far more than I should have done, but it’s been a great week, and I just wanted to tell someone about it.” Reflection-on-action had led to significant development of an important ability. This student remained committed to his self-discovered method of problem-solving during the remainder of his now demonstrably more successful studies (and perhaps thereafter).

The generic activity that week had been specific in encouraging reflective review of failures or difficulties in problem solving, and some learner-initiated consideration in groups of possible options for development. This reflection-for-action could perhaps have led to a more succinct and clear summary if the problem-solving method of that outcome had been identified in reflection-for-action, and addressed, as an aim. It is interesting to compare the ease of such facilitation now with the time spent dealing with hard copy reflection then. Light touches of comment and query on an e-script take little time, but can be stimulating and effective.

Example 4: Composted reflection

During his final composting review of his entire year's Heriot-Watt journals, one student described (Cowan, 2006, pp. 69-70) what was emerging for him:

When I'm working at home at my desk, it's maybe fanciful, but I often feel as if a ghost has come out of me, and is looking over my shoulder at what I'm doing, offering useful comments and suggestions.

He was thinking usefully about his thinking, as he had been asked to do – even if he didn't know he was engaging in what is called meta-cognition. But then, unprompted, he had gone on to experience thinking about thinking about thinking...

And, even more weird, sometimes it's as if another ghost has come out of the first ghost, and is offering comments and suggestions to the first ghost, about how to advise me.

This otherwise undistinguished first year student had discovered in his composted reflections, and had been practicing, what psychologist Pask (1975) had earlier identified as meta-meta-cognition. The student had never heard of Pask, nor of the concept of meta-meta-cognition. Yet, in his next years of study, he was to find the quality of his metacognitive thinking enriched by the composted message he had drawn from recycling his reflections after the passage of time. It would probably not have occurred to him that he had been thinking about thinking to such effect, had he not been prompted to revisit his records of earlier reflections.

A composite proposal

After these preliminaries, I directly address two questions:

1. How can a module or course scheme offer self-managed and linked reflective development of higher level cognitive and interpersonal abilities, centred on an ePortfolio?
2. What commitment would then be expected of academic staff?

The context/platform for this development would be an ePortfolio, an online personal space or repository of digital items, purposefully assembled, combined with tools to support the process (JISC, 2008), with accessible digital links between posted items. What we are looking at is the transformation of the rich array of exchanges in a face-to-face learning context, into an online version. This presumes that students are already able to use some form of ePortfolio, which has recently been described as “transformative” for learning (Landis, Scott, & Kahn, 2015), with potential for learners to engage pro-actively in the process of their development (Yancey, 2009) and especially of their skills development (Joyes, Gray, & Hartnell-Young, 2010). Many schemes featuring ePortfolios have envisaged their use as devoted simply to the collection of artefacts for use in overall course assessments or in a CV (Joyes, Gray, & Hartnell-Young, 2010; Beetham, 2005). Moreover, Landis et al. had pointed out bluntly that few programmes featuring ePortfolios had reflection and the recording of reflections as a primary goal. This proposal sets out to remedy that omission, assuming that at least some of the learning outcomes specified are precisely for this kind of self-managed development with assessment of relevant, transferable and assessed abilities. The activities suggested for tutors and students are summarised in Table 1. These demands on learners are significant, and so should feature in the prescribed notional hours of student effort, with attendant revision of the allocation of time demands.

The suggested induction period features a half-day workshop introducing the methods, criteria and standards for the self-management of development, and for subsequent self-evaluation. Before enrolling, students will have been given a brief outline of that part of the programme which is devoted to the development of abilities. They are reminded of this, and divided into groups of 6-8 members. Each student receives their own copy of a simulated forward plan, featuring a range of SMART (specific, measurable, attainable, realistic and tangible) goals for development or consolidation, and featuring abilities that will be relevant in their forthcoming study (Watson & Gallagher, 2005). This plan reads as if it were prepared by an imaginary student for a programme akin to that of the present students. It is thus readily understood, but does not lend itself to direct imitation – and it is weak in certain respects. Students are asked individually, and then in groups, to draft advice to the writer about how the plan can be improved. These suggestions are posted, and groups are encouraged to peruse what others have pinpointed and suggested. The facilitative tutor chairs a short session to collate generally agreed advice about preparing sound plans with SMART goals, and in so doing comments on the principles and criteria which are embodied in that advice. Students are then asked to summarise, for their e-Portfolios, the points they should bear in mind when preparing their own individual plans. A similar sequence of activity follows, this time devoted to enhancing a proffered fictional intermediate claim for development, substantiated to a certain extent by relevant data. Students are then asked to summarise in their ePortfolio advice to themselves when offering feedforward later to a peer on the peer's data-based self-evaluation.

Each student's personal plan is to be drafted shortly after the workshop. It should carefully identify and address SMART criteria. Thus it will provide a framework for the collection and summarising of evaluative data during the course. Arrangements are made for students to obtain formative peer feedforward on their plans, in an arrangement determined by the course team. Students should record in their ePortfolio the feedforward which they receive, and note the actions they decide to take, or not to take. They should then go on to monitor progress, perhaps once a week during the course, by noting in their own terms and for their own use, data describing their progress in the use of their chosen abilities.

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Midway through the course, students are expected to reflect-on-action to date against the plan recorded in their ePortfolio, and to summarise the progress they have made so far. They should go on to draft consequent reflection-for-action, identifying what should have their attention in the time remaining, and how they will attend to these needs. These drafts are to be passed by individual email to a selected member of their group, prior to a group meeting. Each peer in turn offers and reports feedforward on both aspects of the documentation offered. These documents and feedforward thereon are tabled at a face to face or virtual group meeting which concludes by students discussing general advice to themselves. Individuals are left to summarise in their ePortfolios what they have found personally relevant.

A similar procedure is followed in the closing week of the course, leading to the submission of the revised claim for development and for engagement with self-managed developing for assessment by tutors. The resulting process of learning and teaching provides a scaffolding for development of the specified skills which specifically encourages students to find their own pathways, and tips the balance of time commitment towards the students – thus minimising staff time – whilst ensuring that the right support is given at the right moments, and the right questions are asked at the right time.

Table 1: Summary of linked activities, time demands and recorded outcomes

Event	Form	Tutor's involvement	Student's involvement	Outcomes recorded in ePortfolio
Induction workshop	Training in planning development with SMART objectives Training in assembling evidence-based claims for development	Preparing simulated plan: 1 hour (once only) Preparing simulated claim: 1 hour (once only) Facilitating workshop: 3 hours	Workshop: 3 hours Drafting own plan: 3 hours Providing peer feedforward: 1 hour Responding to peer feedforward: 1 hour	Reflection-for-action Plan + feedforward + any revisions
Consulting any previous reflections	Scan previous records seeking ideas and outstanding items Augment plan accordingly	None	Maybe 1 hour	Composted reflection
Self-managed development	Collecting data to inform monitoring Noting any emergent insights	None	Regular monitoring, perhaps 0.5 hours per fortnight Speedy note in metaphorical 'shoe-box'	Reflections-on-action Reflection-in-action
Intermediate review	Group meeting initiated by facilitative tutor	Introduction: 0.5 hours	Drafting progress report: 1 hour Providing and receiving constructive peer feedforward Revising forward plan: 2 hours	Reflection-on-action Reflection-for-action
Final review and self-assessed claim	Individual drafting Peer feedforward in pairs Revise claim from feedforward	None None None	Conflating entries in compound claim set against plan: 3 hours 0.5 hours 0.5 hours	Reflection-on-action

Event	Form	Tutor's involvement	Student's involvement	Outcomes recorded in ePortfolio
Submission	Submit claim supported by artefacts in ePortfolio	Marking: 0.5 hours	Electronic submission: 5 minutes	

Conclusion

None of the approaches to reflection in this suggestion are new. Each one has featured successfully in established and evaluated provision in a wide range of examples in the literature, and have been reflectively reviewed (Cowan, 2014). Recent publications regarding ePortfolios (Beetham, 2005; Stefani, Mason, & Pegler, 2007) certainly suggest comprehensive coverage of reflections undertaken during studies; but data to support that description is difficult to find, other than my own work with Francis (Francis & Cowan, 2008). I sought assistance in my search from 17 educationists with whom I correspond frequently. I asked them to pass on to me the location of a published report of a scheme featuring linked reflections for overall learning, and explaining why I thought this important. One commented that this was an interesting enquiry. One indicated that he would have to consult in his faculty, but did not reply further. Fifteen were unusually, and I suggest significantly, silent. Lack of further examples from a wide range of colleagues and correspondents tends to support my belief that schemes for integrated reflective learning and development are rare. Other than my own work with Francis (Francis & Cowan, 2008). Demands for individual forms of reflection are certainly common; but it is unusual to find a systematic framework for reflective development such as this.

So what is new in this paper, and is worthy of serious consideration, is the reasoned public suggestion to firmly structure the linking of appropriate reflections to take the outputs from one reflection forward as inputs to the next one, within an ePortfolio which concentrates on supporting development in addition to recording evidence of progress. Is the suggestion worth pursuing? One consequence of drafting this paper and sharing it with others is a current collaboration with Professor Tom Cosgrove of the University of Limerick. We are linking up the reflective arrangements that he has put in place with students of civil engineering and architecture, for their self-directed development of higher level cognitive and interpersonal abilities. I have also been invited to facilitate a workshop with Dr Susi Peacock to enable module tutors in Queen Margaret University to explore the potential of comprehensive and linked reflective activity in their modules.

Biography

John Cowan is an octogenarian doctoral supervisor in the Business School at Edinburgh Napier University. He concentrates nowadays on the facilitation of development of higher level cognitive and interpersonal abilities. He currently provides online feedforward on such self-managed activity by students of civil engineering at the University of Limerick.

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