

Design and Development of a Professional Skills Coaching Framework for Engineering and Computing Degree Apprenticeship (DA) Programmes at Aston University

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SUMMARY

Aston University has provided Work-Based Learning (WBL) courses since the 1960's. The introduction of Degree Apprenticeship (DA) levy funding in 2015 has led to a change of focus at Aston University from delivery of traditional WBL programmes to development of more than ten level 6 and 7 Engineering and Computing programmes in the College of Engineering and Physical Sciences (EPS). These programmes were designed and developed organically over the years leading to different student support mechanisms and practice across the varying DA programmes. The growth of these programmes led to the establishment of the Aston Professional Engineering Centre (APEC) as a department in late 2020, overseeing all Engineering and Computing DA and non-DA programmes in the College. This, together with the regulatory aspects of DA programmes, in turn, led to investigating the historic role of the Professional Supervisor. This investigation combined with the prospective Ofsted New Provider Monitoring Visit (NPMV) in 2022 instigated a need for a shift from solely utilising professional supervisory roles for WBL activities to a consistent framework for skills-based, systems level thinking approaches, conducive to the corporate environment, via Professional Skills Coach adoption. This concept paper presents our innovative approach in supporting Engineering and Computing DA learners at Aston University by designing and developing a Professional Skills Coaching framework in 2022, underpinned by the pedagogical coaching approaches, as well as the way in which the model concept could be adopted by other STEM educators to support learners.

INTRODUCTION

Engineering WBL has a long tradition at Aston University and APEC. WBL Professional Engineering programmes at levels 5-7 were developed in APEC since 2002 in line with the industrial skills gaps and needs and initiatives such as Engineering Council's Gateway programmes (Poursharif and Doss, 2022 and EC, 2012). Since these programmes placed equal emphasis on academic and professional development of learners concurrently, the innovative model of supporting WBL learners through a robust academic and professional supervision system was developed in APEC. With the development of new DA programmes in APEC since 2015 and the extra importance on mapping, tracking, and reporting of apprentices' Knowledge, Skills, and Behaviours (KSBs) in line with the compliance requirements of the Education and Skills Funding Agency (ESFA) and OfS (through Ofsted) and the need for apprentices to develop and adopt a reflective approach towards their skills development throughout their DA journey, there emerged a need to review the current student support systems in APEC to address this gap. In 2022, a comprehensive Professional Skills Coaching framework was developed in APEC to bridge this gap in practice.

We created standardised processes, ensuring all apprentices benefitted from allocation of a singular coach, acting as a supporter, for the duration of the apprenticeship. The complexity of this approach, as opposed to professional supervision which required limited additional input, required working with internal and external stakeholders to develop the framework, ensuring continuous support and training was provided for the coaches as well as employers and apprentices. Defining the role of a Professional Skills Coach and a practice framework, as outlined in the next sections, enabled a focus on discovery focused question selection to support navigation through time poor landscapes, aiding the apprentices to greater self-conceptualisation and to construct their own responses from their varied experiences in the workplace with the premise that 'words create worlds' (Glaser, 2014). We considered the benefits of a complimentary non-directive and non-judgemental relationship (Thomson, 2009), acquired through the introduction of a Professional Skills Coach throughout the apprentice's journey to provide a personalised and tailored service.

The Professional Skills Coach role was initially considered as adjunct to that of the Academic Supervisor who historically solely led the tripartite process, but with the introduction of the DAs, a renewed focus required a sharpened lens on what would propel the apprentice to maximise their potential (Glaser, 2014). Previously, the Professional Skills Coach had engaged with 'In Delivery' coaching as part of modules and 'Out of Delivery' for tripartite reviews, which led to confusion over coaching boundaries.

The Professional Supervisor role combined ownership of apprentice compliance activities and operated, to a degree, with a coaching mindset whilst satisfying core supervision duties, leading to a notable lack of stretch with varying experiences in work and gaps with closing the loop for holistic career progression. The apprentice was unable to set the agenda and was

limited with having open and transparent conversation to unpick 'burning issues' due to the supervisor acting as 'advisor' and providing directed guidance.

A 'stuck-state' developed with the apprentice purported to require validation with no clear steps towards personal affirmation and there was a challenge of a lack of direct intervention for decision making. With regards to the blurred lines referenced, the distinct lens of both an Academic and Professional Supervisor's purview surrounding attainment and competencies for chartership left the challenge of operating from a directive position. As such, it was noted that there was a risk for the apprentice feeling unable to fully 'express' their broad challenges with the Professional Supervisor, or to 'savour', (Schellenberg, et al.,2022) the intricacies of their apprenticeship experiences in an impartial environment, leading to a gap with them being viewed in a similar manner to a traditional undergraduate and not one as an 'employee'. With a growth in employer partners and frequent changes to reviewers allocated to the apprentice, there was a fracture with forming strong rapport and disjointed transactions were created with no clear line of communication.

Fundamentally, our work aimed to clarify the role and responsibilities of Professional Skills Coaches in DAs and consider how the 'pure coaching' sphere could provide solutions to these issues, (Armitage and Cogger, 2019). With this new role in place, we successfully achieved clarity over the holistic tripartite process and defined a set approach to follow. The implementation of a clear coaching framework and approach throughout the apprentice's journey for purposes of collaborating for implementation of periodic SMART (Specific, Measurable, Achievable, Realistic, Timely) goals has led to closing the gap between academic aims and holistic professional skill acquisition.

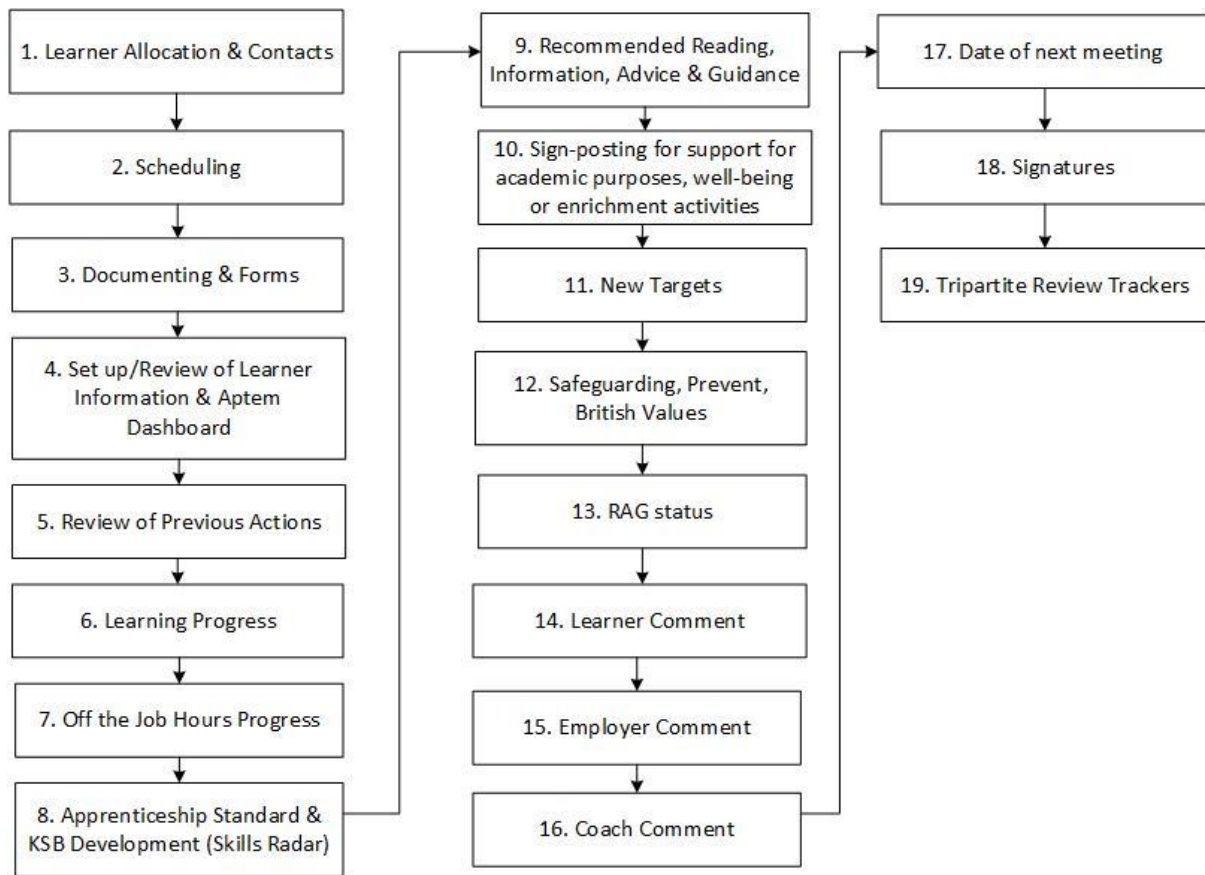
Development of the New Framework

Tripartite review meetings between apprentice, employer and provider are a core expectation of apprenticeship delivery. The reviews run alongside work on the job and study of the academic award to enable clear and precise identification of work-based opportunities for apprentices. These opportunities are used to embed practice and theory and demonstrate capability against the Knowledge, Skills and Behaviours (KSB) of the Apprenticeship Standard.

These tripartite reviews provide a key input into a separate employer review process managed by the Service Delivery Managers and key account team and therefore regular communication with the Service Delivery Managers is encouraged.

We defined a standardised model intended for Professional Skills Coaches who have been allocated responsibility for the tripartite reviews. It was developed to assist and to define some consistent standards and expectations about approach, interpretation, and completion of these activities, allowing scope for wider apprentice exploration using coaching pedagogy. Figure 1 demonstrates the reviewed tripartite review process for DA programmes at APEC from 2022 onwards.

Figure 1. Tripartite Review Process for DA Programmes at APEC from 2022 onwards



Professional Skills Coaching Framework in Action

Within the tripartite meeting, a Professional Skills Coach records information about progress on actions since the last review. The apprentice is encouraged to calibrate with how they are feeling, and using reflective practice models, consider what is going well, their challenges and what have been their highlights to date. This is framed in the positive and retains a future focussed lens.

Whilst there is universal dialogue about how the apprentice’s workload is managed from both a workplace and university perspective, the Professional Skills Coach zooms in to wellbeing from discussion centred on progress to date and details of upcoming modules to ensure that they are accessing everything well and will signpost for further support where required.

The apprentice is asked about key changes to their role and/or responsibilities and invited to discuss their current working project and working environment. There is a set target to ensure that the apprentice is recording their ‘Off the Job’ hours in an appropriate way and in line with ESFA guidance. Aston University uses a centralised apprenticeship management

system (Aptem) so these records are populated in this system. Any significant shortfalls or issues are flagged to the relevant Service Delivery Managers, and actions agreed as a result to be reported back to SDM to enable communications with employers.

A further standing agenda item is encouragement for the apprentice to engage with the core British Values, Prevent and Safeguarding agenda, making the concepts applicable to them in the workplace. Whilst there appears to be compliance-based limitations to the focus of the discussion, a Professional Skills Coach will identify where more time needs to be allocated to certain areas in scope directly from the apprentice's wishes and encourage the apprentice to invest their energy within their Circle of Influence, (Covey, 1989).

The apprentices are coached through bringing their KSBs to life with reflection from situational examples. The Professional Skills Coach will conduct a progressive gap analysis alongside the apprentice and employer representative, uncovering developmental areas for wider exploration. It is the Professional Skills Coach role to instil the closure of the loop from academic activities to the application within the workplace.

Progressive monitoring of progress is conducted and for any integrated DAs, a Professional Skills Coach will support the apprentice to make sense of any modular mapping documents aligned to the apprenticeship standards. Universal across all apprenticeships, a Professional Skills Coach will enable the apprentice to familiarise with the apprenticeship standard and aspire to gain unconscious competence, (Platts, 1997) in development of competencies in preparation for the End Point Assessment (EPA). The employer will be engaged in discussions surrounding goal setting for professional competency. For DAs with a discrete portfolio requirement, a Professional Skills Coach will facilitate the production of evidence for the portfolio to meet the Apprenticeship Standard and work with the apprentice to identify the KSBs they intend to focus on next. Whilst a Professional Skills Coach sits outside of the academic function, it may still be appropriate to direct the apprentice to any supporting materials which may enhance their practice, if deemed appropriate. The distinction here is that it is offered by the Professional Skills Coach but not forced upon the apprentice.

Apprentices are encouraged to bring 'burning issues' with them to the tripartite review and the Professional Skills Coach will allow a confidential safe space for the formulation of SMART goals with deadlines. The focus is on what the apprentice believes is possible and achievable over the issue itself and moves away from the past, but instead looks at how they show up in their future. This is achieved by looking at the apprentice holistically from a Gestalt perspective as 'strong and not wrong' within the infancy of their careers and identifying both what they value and how they create meaning for themselves, considering that 'Problem talk creates problems. Solution talk creates solutions', (De Shazer, 2012). At Aston, apprentices are encouraged to buy in to the 'atomic habits' concepts, (Clear, 2022).

If an apprentice is on track with all elements of their apprenticeship journey, including a key focus on English and maths development, a Professional Skills Coach will invite the apprentice to RAG rate themselves as red, amber, or green. If they are amber or red, corrective actions

form the basis of the goal setting. Furthermore, for red ratings, concerns are raised with appropriate staff at Aston and with the employer.

At Aston and within this model, the Professional Skills Coach's role is to help the apprentice understand that they are never complete and act as an enabler to move into their stretch zone, (Johnston-Wilder, 2017) to discover their own self-worth and develop a growth mindset, giving emphasis on the 'power of yet', (Dweck, 2016) to create resilience.

This evolved coaching approach focuses on behaviour both systemically and via the situational lens, to provide rich ground for apprentice's exploration of innate motivational drivers and intrinsic value systems. This is achieved when the Professional Skills Coach is successful with embodying unconditional positive regard, (Bozarth, et al., 2022), operating from a place of partnership, (Whitmore, 2009) and enabling a thinking environment, (Kline, 2009) for successful goal setting.

A necessity for the Professional Skills Coach is to act with intuition and recognise energy shifts to draw past being stuck on too many barriers which would make evaluative efforts too convoluted. Furthermore, it may be the case that getting into the 'zone of uncomfortable debate', (Blakey and Day, 2012) presents as a barrier to success with highly sensitive topics. The apprentice should be encouraged to step into this zone for the partnership to work through root cause evaluative processes uncovered by utilising coaching tools. This is underpinned by a secure rapport created progressively between Professional Skills Coach and apprentice.

The Professional Skills Coach is required to initiate the relationship via a discovery session to learn more about the apprentice's strengths, limitations and areas for development. This is also true in the triad relationship with employer representatives aligning to organisational strategic aims in respective organisations. A designed alliance should be created post psychological contracting, (Hay, 2008) with due consideration taken for space to explore if an apprentice is not progressing, how they will move this on in an environment free of demands. This creation of psychological safety encourages courage in the relationship to speak with transparency and to explore behaviours which are non-serving to the apprentice. The Professional Skills Coach, through positive inquiry, will discuss how to share feedback about non serving behaviours to the apprentice, where personal boundaries lie, and will identify the degree of support vs challenge that the apprentice requires, creating the container to do the best work in partnership. The benefit of alignment between all parties within the coaching contract encourages adult to adult complimentary ego state transactions, (Berne, 2021) leading to the formulation of SMART goal setting within each tripartite review.

Through the use of peer observations of Professional Skills Coaches and recording of CPD, it was noted that there was a lack of experimentation with coaching tools and methodology. The guiding principles of coaching and code of conduct were not being respected sufficiently throughout apprentice transactions. This initiated a review of professional practices, leading to standardised apprentice review processes, and the creation of a training tool kit to be adopted by Professional Skills Coaches. Training was provided for coaches across APEC; the

creation of a 'Coach Meet' platform and bi-weekly meetings gave rise to progressive reflective activities and tools to be used with the apprentice, spanning fields of Positive Psychology, Cognitive Behavioural Coaching, Solutions Focussed Coaching and Gestalt principles. We adopted these methods to bridge the gap of surface level behaviour and issues that the apprentice may have presented with in historic tripartite reviews to get under the skin to the root cause of issues which can elicit transformational change.

DISCUSSION

The Professional Skills Coaching framework draws on the research conducted as part of the 2021 IEEE Global Engineering Education Conference (EDUCON) which considered the movement towards a 21st Century Personalised Learning Skills Taxonomy, (Ward et al, 2021). This focused on the importance of a common learning language and proposed that learning outcomes did not suitably communicate progression against competencies to employers, or for the apprentice to own the language to communicate to their employer regarding their movement from capability to competence. The gap between the capabilities learnt within a qualification stated as learning outcomes and the competencies required within job roles was regarded as a Capability-Competency Chasm. Whilst this prior research sought to simplify the complexity of translation between learning and 21st Century skills by considering learning blocks approaches over learning outcomes, the capability-based expectations, to a degree, would still be directed by the HE institution. There is a rigidity with skills frameworks which predefine the disciplinary skills within certain domains, based on the preference and experiences of the academic professionals.

The behavioural and personalised guidance focus of the Professional Skills Coaching framework enables a reduction in the rigidity of pre discussed frameworks and offers flexibility for apprentices to take ownership of the skills that are deemed as highly sought after by their employer, rather than referring to pre laid out constructs. Co-creation of outcomes and valued skills by employers, mapped to the apprenticeship standard, allow for greater engagement from the employer for the DA's continued holistic development, (Potrac, 2012). Considering not only the technical or academic aspects, but also the emotional and interpersonal skills of learners, this approach helps DA's become well-rounded individuals capable of navigating complex challenges in both their personal and professional lives. This personalised approach can significantly enhance the learning experience (Smith, 2014).

Within the structured coaching process, we have added another level of collecting data and continuous feedback from the learners which can be used to enhance escalation to wider institutional support services. Whilst the tripartite reviews follow along with a structured process with the employer representative, the professional discretion of the coach to flex and dance in the moment to meet the DA where they are at is imperative.

Therefore, in the proposed model, the coaches are encouraged to predominantly work as a Professional Skills Coach and as a result their involvement to teaching has been significantly

decreased. This is in contradiction with the practice of some of the other apprentice providers where the Professional Skills Coaches are part of the teaching delivery team.

Based on the existing literature, this has improved the current practice at Aston which employs all of these types of methodologies and approaches into one comprehensive and cohesive framework, focusing on levelling the value of psychological coaching input to compliment consideration of academic output for the enhancement of DA skills and capabilities.

CONCLUSIONS & RECOMMENDATIONS

Based on the above consideration and following the review process of the roles of the Professional Skills Coach redefined at APEC, Aston University, we defined a standardised model that can be easily followed by the current coaches. The proposed model adds consistency to the team and helps the whole apprenticeship team to have a better understanding of expectations about approach, interpretation, and completion of activities by all the stakeholders, allowing scope for wider apprentice exploration using coaching pedagogy. The proposed model can be undoubtedly adopted by other training providers across the UK; however, certain issues such as contractual and cultural aspects need to be considered and contextualised.

REFERENCES

Armitage, A. and Cogger, A. (2019) 'The New Apprenticeships: Facilitating Learning, mentoring, coaching and assessing'. Critical Publishing.

Berne, E. (2021) 'Transactional analysis in Psychotherapy', Eastford (Connecticut): Martino fine books.

Blakey, J. and Day, I. (2012) 'Challenging coaching: Going beyond traditional coaching to face the facts'. London: Nicholas Brealey Pub.

Bozarth, J. and Wilkins, P. (2002) 'Rogers' therapeutic conditions: Evolution, theory and Practice', Monmouth, UK: PCCS BOOK.

Clear, J. (2022) 'Atomic habits: Tiny changes, remarkable results: An easy and proven way to build good habits and break bad ones', London: Cornerstone press.

Covey, S. (1989) 'The seven habits of highly effective people', New York: Simon and Schuster.

De Shazer S, Dolan YM, Korman H. (2012) 'More than miracles: the state of the art of solution-focused brief therapy', London; New York: Routledge.

Dweck, C.S. (2016) 'Mindset the new psychology of Success', New York: Ballantine Books.

Engineering Council, (2012) 'Engineering gateways: toolkit for universities', Engineering Council UK, URL: <http://gatewaystoolkit.engc.org.uk/>.

Glaser, J. (2014) 'Conversational Intelligence: How Great Leaders Build Trust & Get Extraordinary Results', Bibliomotion, Inc.

Hay, J., (2008) Reflective Practice and Supervision for Coaches. Maidenhead: Open University Press.

Hochmuth, M. et al. (2022) 'How are apprentice satisfaction and concerns changing as a consequence of the coronavirus pandemic?', Social Sciences & Humanities Open, 5(1), p. 100258.

Kline, N., (2009) 'More time to think. Pool-in-Wharfedale', Fisher King Pub.

Lee, C. and Johnston-Wilder, S. (2017) 'In Understanding Emotions in Mathematical Thinking and Learning'. 2017 :269-291 Language: English. DOI: 10.1016/B978-0-12-802218-4.00010-8, Database: ScienceDirect.

Platts, M.J. (1997) 'Competence: The virtue of maturity', IFAC Proceedings Volumes, 30(24), pp. 213–216. doi:10.1016/S1474-6670(17)42261-0.

Portrac, P. et al. (2012) 'Towards an holistic understanding of the coaching process', Quest, 52:2, 186-199, DOI: 10.1080/00336297.2000.10491709

Poursharif, G and Doss, T. P. (2022) 'Design and Development of Innovative Engineering Degree Apprenticeship Programmes in Collaboration with Industry', International Symposium for Engineering Education (ISEE), Glasgow.

Schellenberg, B.J. et al. (2022) 'Good times, Bad Times: A closer look at the relationship between savoring and self-compassion' [Preprint]. doi:10.31234/osf.io/wv7u2.

Smith, L. D. (2014) Academic mentoring and how it can support personalised learning. EdD e-thesis, University of Nottingham.

Thomson, B. (2009) 'Don't just do something, sit there!: An introduction to non-directive coaching', Oxford: Chandos.

Ward, R. et al. (2021) 'Towards a 21st century personalised learning skills taxonomy', 2021 IEEE Global Engineering Education Conference (EDUCON) [Preprint]. doi:10.1109/educon46332.2021.9453883.

Whitmore, J. (2009) 'Coaching for Performance: Growing Human Potential and Purpose—The Principles and Practice of Coaching and Leadership', 4th Edition, Nicholas Brealey Publishing, London.