Exploring the Use of E-portfolios in Higher Education Coaching Programs

Katie Dray

Canterbury Christ Church University

Kristy Howells

Canterbury Christ Church University

Date of submission: 15th October, 2018.

Date of Resubmission: 5th June, 2019.

Abstract:

The contribution of higher education to the development of the coaching workforce worldwide has been most recently emphasised by the development of the ICCE's Coaching Degree Standards (2016). These standards recognise the increasing value of learning technologies, suggesting that the use of technology in such coaching programs should aim to a) "enhance the learning experience of the student-coach" and b) "gain relevant theoretical and practical knowledge to make the most of technology whilst coaching" (p.23). This article presents one coach developer's experience of using e-portfolios with undergraduate students on a BSc. Sport Coaching Science undergraduate program that represents an effort to address both of these aims simultaneously. Drawing from a broader field of education research and through the provision of examples, it is suggested that e-portfolios might afford the coach learner a number of benefits including their accessibility, the role they play in developing meta-cognition, and their ability to provide a space that can bring together the different communities that influence the learner. Lastly, the benefits and challenges are presented through the eyes of the academic tutor and the relevance for coach education contexts outside of HE are discussed.

Key words: Coach Development, Coach Learning, Learning Technologies, Technology Enhanced Learning

Technology Enhanced Learning (TEL) in coach education has, in recent years, become part of the learning experience for many coaches. In their recent review, Cushion and Townsend (2019) highlight that the use of TEL in coaching may provide opportunities to expand our models of coach education, but also that further research and discussion around these topics are warranted to fully understand the impacts on coaching learning and practice. In particular, they highlight the complexities of understanding how these learning practices might translate across different coach education contexts, suggesting that the discussion of specific interventions would benefit from being clear about the contexts in which they are implemented. One example of a TEL tool is the e-portfolio. Using technology to facilitate portfolio building can increase accessibility and allows learners to document and reflect on their experiences using multiple media (Lin, 2008). With this in mind, this paper attempts to provide a contextualised example of how e-portfolios have been used in Higher Education (HE) with undergraduate students studying Sport Coaching Science. In doing so, it aims to provide a pedagogical rationale for their inclusion, the benefits and challenges for both students and tutors, and lastly suggestions as to the implications this practice may have for other coach education settings.

The HE sector has seen a recent proliferation of sport coaching related courses, making them a key stakeholder in the provision of coach education. In 2009, Turner and Nelson suggested in the UK alone, 245 HE sport coaching related courses were available and more recently UCAS (Universities and Colleges Admissions Service) suggests that for 2019 entry, there are 466 courses available from 136 different UK providers (UCAS, 2019). This, in part, is likely to be in recognition of the ongoing professionalization of coaching more broadly, but also recognises that coaches hold a key position in the implementation of important policy around health, wellbeing and engaging different populations in physical

activity (ICCE, 2016). This key position has been particularly evident in UK primary schools as the Department for Education (2014) has reported that one of the most common uses of the PE and sport premium was to employ new sports coaches to deliver lessons and to help upskill and train existing teachers.

Reflecting this increase, a growing body of research literature exploring experiences of coach education within an HE environment has begun to emerge (e.g. Cronin & Lowes, 2016; Hall, Cowan, & Vickery, 2018; Jones & Turner, 2006; Knowles, Gilbourne, Borrie, & Neville, 2001; Knowles, Tyler, Gilbourne, & Eubank, 2006; Morgan, Jones, Gilbourne, & Llewellyn, 2013; Reddan, McNally, & Chipperfield, 2016; Roberts & Ryrie, 2014; Stoszkowski & Collins, 2015; Stoszkowski, Collins, & Olsson 2015; Turner & Nelson, 2009). Common to much of this literature and discussion around coach education more broadly, is the value of embracing more constructivist approaches, in contrast to traditional educational practices that have been typically underpinned by behavioural approaches (Cushion, Armour, & Jones, 2003). More specifically, this might include a shift in focus from teaching behaviour and what is taught, to considerations of "what is learned, how it is learned, and how the teacher can assist in this learning…" (Light & Wallian, 2008, pg 389). In essence, learning to thrive in the social complexities and diverse realities of the coaching process, might be best learned by engaging in pedagogies that are also multifaceted and context driven. Such learning should place the coach learner in charge and appreciate the role of the coaches' own biography, acknowledging that learning is an individual and life-long endeavour, influenced by the setting in which it occurs (Trudel, Gilbert, & Werthner, 2010).

The development of Web 2.0 technologies has offered a number of tools that can support learning environments that are underpinned by constructivist principles, affording the learner individual content control, whilst also creating opportunities for collaboration and the co-construction of knowledge (Paily, 2013). As part of their review, Cushion and Townsend

(2019) highlight a number of research studies examining how some of these technologies (including blogs, video diaries and online journals) have been used in coaching learning environments both inside and outside of HE. Such technologies can not only be used for coach learning, but may also provide coaches with tools they can use with their athletes. Indeed, the recent standards for Bachelor degrees developed by the ICCE (2016), suggest that coaching programs should aim to a) "enhance the learning experience of the student-coach" and b) "gain relevant theoretical and practical knowledge to make the most of technology whilst coaching*"* (p.23).

Despite the growing body of examples demonstrating a) how constructivist principles have been applied to HE coach education programs and b) TEL practices in coach education more broadly, there is a dearth of research that specifically examines the use of particular TEL Tools for coach learning. One potential example is the e-portfolio. Whilst traditional hard copy portfolios have been highlighted as valuable for learning, particularly in developing reflection (Klenowski, Askew, & Carnell, 2006), the development of e-portfolios using technology provides a number of additional advantages. These can include increased accessibility, a wider range of media to employ, and ease with which they can update, amend and develop entries (Lin, 2008), warranting further exploration as to how these advantages might contribute to the learning of the coach. Acknowledging suggestions that it would be prudent to consider the vast body of learner centred literature in education more broadly (Cushion & Townsend, 2019; Paquette, Hussain, Trudel, & Camirè, 2014), this paper draws on principles and research from teacher education and other educational contexts, to provide a rationale for, and outline the process of, using online portfolio building tasks with undergraduate coaching students.

E-portfolios for coach learning in HE: The Context

Coach education contexts can vary considerably. Cushion and Townsend (2019) highlight that understanding the context in which TEL practices are implemented in coach education might be best informed by referencing the teaching and learning application and the social context in addition to the specific application of the technology. In the case of the example provided in this paper, the learners were undergraduate sport coaching science students, many of which were novice coaches with limited experience of reflection both in terms of coaching practice and their own learning at HE level. Additionally, it is typical that students entering HE have a wide variety of skills and experiences with learning technologies (Kennedy, Judd, Dalgarno, & Waycott, 2010). With this in mind, attention was paid to introducing the technology of the e-portfolio software (Pebblepad), through various learning and teaching strategies, including the use of face to face instruction, online guidance, and individual support. Students were able to engage with the e-portfolio in a number of social contexts, including: class settings; placement; and other community settings (such as employment). The tutor responsible for delivering each of the example tasks below is an active coach in both participation and performance environments, and is an experienced deliverer of coach education within HE and other wider contexts (e.g. working with national governing bodies and organisations).

The rapid pace of digital and technological revolution means that learners (and educators), particularly in HE are often surrounded by a mass of learning technologies at their disposal (Walker, Voce, & Ahmed, 2012). Given this, the selection and use of any particular learning technology should be carefully considered in relation to learning objectives and broader learner outcomes. Taking into account the above context, the use of e-portfolios was seen as useful for three key reasons: a) as an accessible learning space; b) as a tool that would stimulate reflection and meta-cognition; and c) as a tool to provide links to the student coaches' learning communities.

An accessible learning space

The portfolio (digital or non digital) represents a medium through which learners can collate, reflect on, and present information related to their achievements or particular competencies, and if appropriate, be assessed (De Rijdt, Tiquet, Dochy, & Devolder, 2006). The generation of technology that has taken the traditional portfolio method online, affords the student not only greater accessibility, but also a wider range of media through to which to build their portfolio. For the student coach, this is seen as particularly advantageous, allowing the capture of coaching sessions as well as online and digital content that might inform learning. Indeed, students themselves report a number of benefits including; the storage, organisation and management of documents; the support it provides to reflective processes; the ability to measure growth; improved technology skills; and the potential for future employment (Wetzel & Strudler, 2006)

A tool to simulate reflection and meta-cognition

A number of studies suggest that portfolios play a role in the development of reflective skills in undergraduate students (Hatton & Smith, 1995), allowing students to deliberately think about their actions with a view to improve them (Lin, 2008; Ward & McCotter, 2004). The practice of reflection for learning has gained considerable traction in coach education (e.g. Gilbert & Trudel, 2001; Nelson & Cushion, 2006) and more specifically in HE coach education (Knowles et al., 2001; Knowles et al., 2006; Stoszkowski & Collins, 2015; Stoszkowski et al., 2015). Such research alludes to the importance of applying structured scaffolding to the learning of reflective skills (Knowles et al., 2001) and that web technologies such as blogging might help to enhance these skills (Stoszkowski et al., 2015).

The use of portfolios more broadly can be seen as both a product and a process (Loughran & Corrigan, 1995), through which the learner can both present their understanding of the content, but also engage more meaningfully in understanding the learning process. According to Hillyer and Ley (1996), learners using e-portfolios engage in more self-regulated learning by assuming more responsibility for their learning, understanding their strengths and weaknesses and acting on these to generate their learning goals. Indeed, a number of studies have supported the idea that the generation of e-portfolios encourages the development of meta-cognitive skills in learners (Avraamidou, 2002; Azevedo, 2005). For example, student teachers report that e-portfolio building contributes to their ability to synthesise information and think about it critically, to changes in their understanding of reflection and that they became increasingly aware of their teaching philosophy and how to articulate it (Britten, Mullen, & Stuve, 2003; Wang, 2004). It could easily be argued that these meta-cognitive skills are critical for any practitioner who is involved in developing the learning of others. Being able to understand and reflect upon your own learning strategies and experiences, places the teacher (or coach) in a better position to be able to understand the learning experiences of those they are teaching. Put more simply, it is argued here that by experiencing and reflecting on the different pedagogies experienced as a learner, the student coach might be better positioned to use them in their own practice with athletes.

A tool to provide links to the student coaches' learning communities.

The learning process is assumed to be an individual endeavour, but is also influenced by the social context in which it occurs (Trudel, Gilbert, & Werthner, 2010). Tinto (2003) suggests that "most students experience universities as isolated learners whose learning is disconnected from that of others" (p.1). Conversely, literature within coach education (and other learning contexts), repeatedly advocates for the value of 'community' to the learning process (e.g. Stoszkowski & Collins, 2014). Student coaches, as in this case, are often

involved in several (often disparate) communities that impact their learning, including university community (e.g. peers, tutors, or other support networks), placement or other work community (e.g. organisations, mentors, or colleagues) and home community (e.g. family members, friends or team mates), which may or may not be localised. The diversity of these coaching communities are important in driving the experiential learning that is valued so highly in coach education (Cushion, Armour, & Jones, 2003) and students can utilise these communities in different ways to meet their own individualised learning needs. Digital learning spaces (such as online portfolio systems) where appropriate content can be shared amongst the learner, mentors, tutors and peers, may provide a space through which students can document and track the building of networks in these communities and provide a space where students can appreciate how those communities intersect. Indeed, it is suggested that the ability to build and link these communities is not only important in helping students to feel more connected and have a sense of belonging, but also to student outcomes (Greenhow & Burton, 2011).

The e-portfolio tool: Pebblepad

Pebblepad describes itself as a "portfolio and personal learning platform" (Pebble Learning Ltd, 2018). The platform provides a learning space where learners can upload various types of documents, media, internet links or embed code linking to other platforms and is supported by a number of pre-existing templates learners can use (or create their own) to document and reflect on learning activities. Although each individual's learning space is private, work that is shared allows tutors or other mentors to provide ongoing formative feedback by commenting in a chat style dialogue alongside the work, a process intended to promote deeper learning (Segers, Gijbels, & Thurlings, 2008). This enables learners to get input that feeds forward into the next learning activity helping them to appreciate assessment and feedback as a cyclical process (Headington, 2000). Importantly, this tool can be used in a

number of ways that support student coaches in their learning, several of which are identified below.

Examples of portfolio tasks:

Video reflection and feedback; In this task, student coaches are required to document the preparation and delivery of a micro coaching session (around 10 minutes), based around the incorporation of a particular concept (examples include things like specific learning theories, strategies for communication or delivering effective demonstration). Learners are asked to video their session and upload it into a template where they can highlight specific time points in the video, making evaluative comments as to their effectiveness when trying to incorporate the concept. As a portfolio, these tasks are built upon as learners are able to consider more concepts within the delivery of their sessions whilst tutors are able to provide ongoing feedback as learners, progress through the task. This also affords the opportunity to comment on the developing reflective skills of the learner. The use of videos as a reflective source are considered as particularly important for this context, whereby both the tutor and the learner can share real time moments and analyse coaching situations. This also allows the learner to engage in more multifaceted reflection, not just the technical, but also the "pedagogical and contextual aspects" of their delivery (Calandra, Brantley-Dias, Lee, & Fox, 2009, p.87). The ongoing nature of feedback for these tasks can also help learners to identify their strengths and weaknesses and to be more focussed on their own learning goals (Hillyer & Ley, 1996).

Placement reflection; In this task, student coaches are required to keep a series of reflective journal entries in relation to their placement experiences. Students are initially encouraged to use a model of reflection, in this instance Gibbs (1988). These journal entries are supported by templates that highlight the stages of Gibbs' model with directed questions

to remind students of the focus of each cycle stage (e.g. What happened? What are you thinking and feeling? What was good and bad about the experience? What sense can you make of the situation? What else could you have done? If it arose again what would you do?) These templates can be generated by tutors or students and used repeatedly. Students can keep each reflection stored electronically, build these together into a portfolio and share them with tutor and others when they are seeking feedback. Students are encouraged to consider the development of these reflective skills over time, to link their reflections together and to draw out any similar themes or ideas that repeat themselves.

The use of templates in this example offer some structure to reflections, identified as beneficial to student coaches developing reflective skills (Knowles et al., 2001), and represent the provision of a theoretically grounded framework to reflective practice as suggested by Cushion and Nelson (2013). The prompting questions included in the template support previous findings that structured prompts can help student coaches with the development of depth in their reflections (Kuklick, Gearity, & Thompson, 2015). Although caution has been expressed around the limitations of following structured models (Johns, 1994), as students in this instance were mostly early career coaches inexperienced with reflection, Gibbs' (1988) model was selected for its simplicity and ability to provide some structural questions to stimulate deeper reflection.

The sharing of reflections contributes to the development of the students' learning communities. With granted permissions, Pebblepad allows multiple 'tutors' to comment and feedback on work. In this example, this provides the opportunity for the student, the placement mentor and their academic tutor to interact in support of the learning goals. This helps to alleviate the increasing time pressures on all of the community members by incorporating some aspects of e-mentoring proposed by coach development literature

(McQuade, Davis, & Nash, 2015) but also helps to establish a multi mentoring approach to support coach learning (Sawuik, Taylor, & Groom, 2017).

Interview preparation; Student coaches keep a portfolio of class related tasks that they use to inform an interview process. Throughout the module, students document their learning by incorporating session notes, reflections, video footage and other media into a portfolio that is presented digitally and discussed in a mock interview scenario hosted by partner placement mentors. Throughout this process student coaches are asked to reflect on their experiences as learners and to consider how this impacts their role in facilitating learning for others.

The ability of students to articulate their learning and experiences in relation to a job role and specification is highlighted as an important part of their employability skills (Maher, 2005). The digital e-portfolio offers the student a space to bring a range of media together in order to reflect effectively on the skills they are acquiring and how these relate to potential employment opportunities. As neophyte practitioners, it is also proposed that critically reflecting on these learning tasks, helps these student coaches to identify some tools they can use to provide learning experiences to others, promoting their meta-cognitive skills.

Benefits and Challenges: The coach educator perspective.

In an attempt to capture the benefits and challenges of facilitating student coaches in using e-portfolios, a number of reflections are offered from the coach educator perspective, who in this context, is in the role of an academic tutor (and first author).

There were a number of perceived benefits, including the level of engagement students demonstrated with the tool and the ability to provide contextualised and individual feedback during, and not just after, the assessment process. Importantly, most student coaches

demonstrated engagement with the tasks and informally reported being motivated to engage by the ease with which they could access and develop material on their own devices. The value of this 'mobility' is supported by research suggesting that mobile learning often takes place outside of formal classroom environments and with limited guidance (Chen & deNoyelles, 2013). A significant advantage to the tutor, and way of measuring this engagement, is the ability to see the ongoing progress of the learner with this e-portfolio tool. In practice, this resulted in being able to adapt planned learning experiences for student coaches based on a clearer understanding of their grasp of the concepts. Furthermore, being able to provide and engage with ongoing digital conversation linked to the work, provided an opportunity to engage in a feedback loop, rather than a one way process whereby the tutor is unsure of the extent to which the learner has engaged with, or understood any feedback. Importantly, this could be conducted at an individual level. Carless, Suter, Yang, and Lam (2011) suggest to emphasise student self-regulation in the feedback process, sustainable feedback mechanisms that enhance the student's role should be employed and that technology might play a role in developing more dialogic feedback.

Given the individualised nature of learning, inevitably the level of engagement from learners varied, particularly when not driven by assessment. When encouraged to engage in ongoing documentation of learning, some students did not embrace this concept, preferring to complete work close to the assessment deadline, negating the utilisation of feedforward information. Although digital technology is credited by students as keeping them on track in relation to assessment deadlines (Henderson, Selwyn, & Aston, 2017), there are students who do not make use of this. Furthermore, student coaches often felt challenged by the freedom being offered in some assessment tasks to choose suitable material. Indeed, Gordon (2014) identifies that one of the challenges of flexible technology is that for some students it can cause confusion around deciding what to select and how to carry out the assignments. Lastly,

some students felt challenged by the technology itself. With this in mind, it is important to note that despite the range of technology that now proliferates everyday tasks, the related assumption that the generation of students now entering higher education can all be classed as 'digital natives' (Prensky, 2001), being well versed in, and frequent users of technology, has been questioned in more recent evidence based work (Kennedy et al., 2010). Students typically demonstrate less engagement with newer and emerging web 2.0 technologies such as blogs, wikis or podcasts, than more social media related technologies (Oliver & Goerke 2007; Kennedy, Judd, Churchward, Gray, & Krause 2008, Kennedy et al., 2010; Jones, Ramanau, Cross, & Healing, 2010). Although, it might be true that the current generation of students are more familiar with technology use in their downtime, the translation of this technology use to educational practices, is not perhaps as unproblematic as previously assumed (Bennet, Maton, & Kervin, 2008). Emergent from this experience is the high variation of individuals to embrace and effectively use these technologies to support their learning. Indeed, evidence suggests this generation of students to be less homogenous in their technology use than assumed, showing considerable variation in their patterns of use. (Kennedy et al., 2008)

Opportunities for other contexts

The e-portfolio is one tool at the coach developer's disposal that may help coaches to both document and self-regulate their learning and a number of examples have been offered here that can have application in other coach education settings. The documentation of coaching videos, reflective templates and session plans can occur in any coach education environment where the coach is actively engaged with practice. It is proposed that a number of benefits may transfer across to different contexts. For example, the potential to make coach education materials more accessible, to promote reflection on pedagogic practices, and to draw together the various communities that may have influence on a coach's development.

Although these communities may differ in scope to a student coach in HE, recent research speaks to the potential value of multiple mentors for coach learners (Sawiuk, Taylor, & Groom, 2017), and e-portfolios that allow sharing amongst these mentors may prove advantageous. Moreover, the ongoing development of tools to create e-portfolios means that software is often user friendly which may stimulate engagement and promote the ongoing and individualised feedback that is most useful for learning (Carless et al., 2011). Lastly, formal coach education courses have attracted criticism for lacking the contextualisation required by individual coaches and are often conducted over a limited time period, further limiting the reflective learning that might be achieved by subsequent ongoing coaching practice (Mallet, Trudel, Lyle, & Rynne, 2009). The use of technology in the development of coaching e-portfolios over a period of time, might be used to combat some of these issues.

Conclusion

The need to develop more learner centred approaches to coach development and education has been emphasised by recent literature exploring the variety of learning and teaching methods for coaches both within, and beyond, HE settings. The challenge of coach education programs more broadly is to develop coaches who will continually develop effective strategies to be successful in their chosen coaching context(s) and learning communities. The preparation for continual life-long learning is key to this approach (Maher, 2005). The development of coaches who consistently seek to develop their learning and question their practice is argued to be pertinent to this endeavour (Trudel & Gilbert, 2006). Furthermore, the ability to question, critique, and 'problematicise' coaching practice and prevailing coaching discourse has been identified as important in the development of coaching as a discipline (Denison, Mills, & Konoval, 2017; Stoszkowski & Collins, 2014).

Recent pedagogical discussion in coach education literature has focussed on the value of employing constructivist approaches in coach education and detailed a range of innovative pedagogies that might be used to better prepare coaches for their everyday practice, including problem-based learning, action research and ethnodrama (Morgan, Jones, Gilbourne, & Llewellyn, 2012). Moreover, technology may serve to enhance some of this practice, including as suggested here, the use of the e-portfolio that serves as an online learning environment where coaches can construct knowledge and skills themselves (Baeten, Dochy, & Struyven, 2008). Indeed, the example provided in this paper suggests a number of ways this technology might contribute to student and coach learning. For example, affording learners the opportunity to engage in a feedback dialogue (which is supported by the technology used here) rather than employing feedback as a one-way transmission of information, has been highlighted as a practice that can promote students to better self-regulate their learning (Carless et al., 2011). In addition, the use of technology in this example that allowed tutors to view student progress on tasks was key in the design of ongoing learning experiences, resulting in the adaptation to sessions in order to reinforce areas in which students were perceived to need greater support. Importantly, students themselves were able to note their own progress by engaging directly with others in their learning communities and began to build appreciation for how they could create similar experiences for learners in their own charge. Students also identified that they valued the extent to which they could engage with the portfolio using their own mobile devices. Although the link between specific devices and learning is yet to be fully established (Chen & deNoyelles, 2013), given students in this case were motivated to use them to record and document their experiences outside of classroom settings, this shows some promise for the coaching context, given coaching occurs in a wide range of environments.

E-portfolios may provide a number of useful solutions to the challenges identified in developing well equipped future coaches (e.g. making learning and support more accessible and promoting meta-cognitive skills) however, as with most technology, the process is not without challenges. In the HE context the ongoing collection of, and reflection on, learning materials can be a challenge for students who are assessment driven, and coach developers in other settings might be cognisant that this may not be specific to the HE environment. Similarly, the upskilling and support of coaches to allow proficient use of technologies is pertinent across many other contexts, and is likely to involve significant investment. Perhaps more importantly, to be effective as a learning tool, coach educators should be able to reflect on the pedagogical rationale for using any technology, including e-portfolios. The use of technology is unlikely to develop learning, unless it is grounded in an understanding of why it is being used (Cushion & Townsend, 2019). Indeed, to be effective in either setting, it is proposed that the purpose of the e-portfolio and the constructivist principles on which they are based should be emphasised as part of ongoing discussion with learners (Klenowski et al., 2006). Gatlin and Jacob (2002) suggest that if learners do not understand its purpose, the e-portfolio would be reduced to a static collection of material, and dynamic reflections on teaching and learning would not be possible. Indeed, research in coach education that explores the integration of constructivist principles into large scale coach education programs, highlights the challenges and resistance that arise when all of the parties involved are not fully subscribed to these pedagogies (Hussain, Trudel, Patrick, & Rossi, 2012; Paquette et al., 2014).

Lastly, whilst this paper provides a contextualised example of e-portfolio use for developing coaches, there is a burgeoning need for a greater evidence base for the use of technology enhanced learning in coach education, including the use of e-portfolios (Cushion & Townsend, 2019). Such research would be fruitful in demonstrating the efficacy of such

tools to promote coach learning and more fully understand the implications of this learning for developing coaching practice.

References

Avraamidou, L. (2003). Exploring the Influence of Web-Based Portfolio Development on Learning to Teach Elementary Science. Journal of Technology and Teacher Education, 11(3), 415-442. Retrieved from https://www.learntechlib.org/noaccess/1685/

Azevedo, R. (2005). Using hypermedia as a metacognitive tool for enhancing student learning ? The role of self- regulated learning. *Educational Psychologist, 40*(4), 199–209. https://doi.org/10.1207/s15326985ep4004

Baeten, M., Dochy, F., & Struyven, K. (2008). Students' approaches to learning and assessment preferences in a portfolio-based learning environment. *Instructional Science, 36*(5-6), 359-374.

Bennett, S., Maton, K. A. & Kervin, L. (2008) The 'digital Natives' Debate: A Critical Review of the Evidence. *British Journal of Educational Technology*, 39 (5), pp. 775–786.

Britten, J. S., Mullen, L., & Stuve, M. (2003). Program reflections on the role of longitudinal portfolios in the development of technology competence. *The Teacher Educator, 39*(2), 79–94.

Calandra, B., Brantley-Dias, L., Lee, J. K., & Fox, D. L. (2009). Using video editing to cultivate novice teachers' practice. *Journal of research on technology in education, 42*(1), 73-94.

Carless, D., Salter, D., Yang, M., & Lam, J. (2011). Developing sustainable feedback practices. *Studies in higher Education*, *36*(4), 395-407.

Chen, B., & deNoyelles, A. (2013). Exploring students' mobile learning practices in higher education. *Educause Review, 7*. Available at; https://er.educause.edu/articles/2013/10/exploring-students-mobile-learning-practices-in-higher-education

Cronin, C. J., & Lowes, J. (2016). Embedding experiential learning in HE sport coaching courses: An action research study. *Journal of Hospitality, Leisure, Sport and Tourism Education*, *18*, 1–8. https://doi.org/10.1016/j.jhlste.2016.02.001

Cushion, C. J., Armour, K. M., & Jones, R. L. (2003). Coach education and continuing professional development: Experience and learning to coach. *Quest*, *55*(3), 215–230. https://doi.org/10.1080/00336297.2003.10491800

Cushion, C. J., & Townsend, R. C. (2019). Technology-enhanced learning in coaching: A review of literature. Educational Review, 71(5), 631-649. doi: 10.1080/00131911.2018.1457010

Cushion, C., & Nelson, L. (2013) Coach education and learning: Developing the field. In P. Potrac, W. Gilbert & J. Denison (Eds.) *Routledge Handbook of Sports Coaching* (pp.359-374). New York, NY: Routledge.

De Rijdt, C., Tiquet, E., Dochy, F., & Devolder, M. (2006). Teaching portfolios in higher education and their effects: An explorative study. *Teaching and Teacher Education*, *22*(8), 1084–1093. https://doi.org/10.1016/j.tate.2006.07.002

Denison, J., Mills, J. P., & Konoval, T. (2017). Sports' disciplinary legacy and the challenge of 'coaching differently.' *Sport, Education and Society*, *22*(6), 772–783. https://doi.org/10.1080/13573322.2015.1061986

Department for Education. (2014). *PE and sport premium: an investigation in primary schools. Research brief*. Retrieved from https://www.gov.uk/government/publications/pe-and-sport-premium-an-investigation-in-primary-schools

Gatlin, L., & Jacob, S. (2002). Standards-Based Digital Portfolios: A Component of Authentic Assessment for Preservice Teachers. *Action in Teacher Education*, *23*(4), 35–42. https://doi.org/10.1080/01626620.2002.10463086

Gibbs, G. (1988) *Learning by Doing: A guide to teaching and learning methods*. Further Education Unit. Oxford Polytechnic: Oxford

Gilbert, W. D., & Trudel, P. (2001). Learning to Coach through Experience: Reflection in Model Youth Sport Coaches. *Journal of Teaching in Physical Education*, *21*(1), 16–34. https://doi.org/10.1123/jtpe.21.1.16

Gordon, N. (2014) *Flexible Pedagogies: technology-enhanced learning*. York: The Higher Education Academy.

Greenhow, C., & Burton, L. (2011). Help from my 'Friends'. Social capital in the social network sites of low-income high school students. *Journal of Educational Computing Research*, *45*(20) ,223 – 245.

Hall, E. T., Cowan, D. T., & Vickery, W. (2018). 'You don't need a degree to get a coaching job': investigating the employability of sports coaching degree students. *Sport, Education and Society*, pp. 1–21. https://doi.org/10.1080/13573322.2018.1482265

Hatton, N. & Smith, D. (1995) Reflection in Teacher Education: towards definition and implementation, *Teaching & Teacher Education*, *11*, 33-49.

Headington, R. (2000) *Monitoring, Assessment, Recording, Reporting.* London: Routledge.

Henderson, M., Selwyn, N., & Aston, R. (2017). What works and why? Student perceptions of 'useful'digital technology in university teaching and learning. *Studies in Higher Education*, *42*(8), 1567-1579.

Hillyer, J., & Ley, T. C. (1996). Portfolio and Second Graders' Self-Assessments of Their Development as Writers. *Reading Improvement*, *33*, 148–159.

Hussain, A., Trudel, P., Patrick, T., & Rossi, A. (2012). Reflections on a Novel Coach Education Program: A Narrative Analysis. *International Journal of Sports Science & Coaching*, *7*(2), 227–240. https://doi.org/10.1260/1747-9541.7.2.227

International Council for Coaching Excellence (ICCE) (2016) *ICCE Standards for Higher Education Sport Coaching Bachelor Degrees*. ICCE: Leeds

Johns, C. (1994) *Reflective practice in nursing: the growth of the professional practitioner.* Oxford: Blackwell Science.

Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or Digital Natives: Is there a distinct new generation entering university? *Computers and Education*, *54*(3), 722–732. https://doi.org/10.1016/j.compedu.2009.09.022

Jones, R. L., & Turner, P. (2006). Teaching coaches to coach holistically: can Problem-Based Learning (PBL) help? *Physical Education & Sport Pedagogy*, *11*(2), 181–202. https://doi.org/10.1080/17408980600708429

Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: Exploring types of net generation students. *Journal of Computer Assisted Learning*, *26*(5), 332–343. https://doi.org/10.1111/j.1365-2729.2010.00371.x

Kennedy, G. E., Judd, T. S., Churchward, A., Gray, K., & Krause, K.-L. (2008). First year students ' experiences with technology : Are they really digital natives ? *Australasian Journal of Educational Technology*, *24*(1), 108–122. https://doi.org/10.1.1.85.9526

Klenowski, V., Askew, S., & Carnell, E. (2006). Portfolios for learning, assessment and professional development in higher education. *Assessment & Evaluation in Higher Education*, *31*(3), 267–286. https://doi.org/10.1080/02602930500352816

Knowles, Z., Gilbourne, D., Borrie, A., & Nevill, A. (2001). Developing the Reflective Sports Coach: A study exploring the processes of reflective practice within a higher education coaching programme. *Reflective Practice*, *2*, 185–207. https://doi.org/10.1080/14623940123820

Knowles, Z., Tyler, G., Gilbourne, D., & Eubank, M. (2006). Reflecting on reflection: exploring the practice of sports coaching graduates. *Reflective Practice*, *7*(2), 163–179. https://doi.org/10.1080/14623940600688423

Kuklick, C.R., Gearity, B.T., & Thompson, M. (2015) Reflective Practice in a University-Based Coach Education Program. *International Sport Coaching Journal*, *2*, 248 -260.

Light, R., & Wallian, N. (2008). A constructivist-informed approach to teaching swimming. *Quest*, *60*(3), 387–404. https://doi.org/10.1080/00336297.2008.10483588

Lin, Q. (2008). Preservice teachers' learning experiences of constructing e-portfolios online. *Internet and Higher Education*, *11*(3–4), 194–200. https://doi.org/10.1016/j.iheduc.2008.07.002

Loughran, J., & Corrigan, D. (1995). Teaching portfolios: A strategy for developing learning and teaching in preservice education. *Teaching and Teacher Education*, *11*(6), 565–577. https://doi.org/10.1016/0742-051X(95)00012-9

Mallett, C. J., Trudel, P., Lyle, J., & Rynne, S. B. (2009). Formal vs. informal coach education. *International Journal of Sports Science & Coaching*, *4*(3), 325-364.

Maher, A. (2005) Embedding employability in the curriculum: enhancing students career planning. Hospitality, Leisure, Sport and Tourism Network. Available from:http://www.heacademy.ac.uk/hlst/resources/detail/resources/casestudies/employability_case_studies

McQuade, S., Davis, L., & Nash, C. (2015). Positioning Mentoring as a Coach Development Tool: Recommendations for Future Practice and Research. *Quest*, *67*(3), 317–329. https://doi.org/10.1080/00336297.2015.1048810

Morgan, K., Jones, R. L., Gilbourne, D., & Llewellyn, D. (2012) Innovative approaches in coach education pedagogy. In P. Potrac, W. Gilbert & J. Denison (Eds.) *Routledge handbook of sports coaching* (pp.486-496). New York, NY: Routledge.

Morgan, K., Jones, R. L., Gilbourne, D., & Llewellyn, D. (2013). Changing the face of coach education: using ethno-drama to depict lived realities. *Physical Education and Sport Pedagogy*, *18*(5), 520–533. https://doi.org/10.1080/17408989.2012.690863

Nelson, L. J., & Cushion, C. J. (2006). Reflection in coach education: The case of the National Governing Body coaching certificate. *The Sport Psychologist*, *20*(174), 174–183. https://doi.org/10.1123/tsp.20.2.174

Oliver, B., & Goerke, V. (2007). Australian undergraduates' use and ownership of emerging technologies: Implications and opportunities for creating engaging learning experiences for the Net Generation. *Australasian Journal of Educational Technology*, *23*(2), 171–186. https://doi.org/10.14742/ajet.v23i2.1263

Paily, M.U. (2013). Creating Constructivist Learning Environment: Role of "Web 2.0" Technology. *International Forum of Teaching and Studies*, *9*(1), 39–50. Retrieved from https://www.researchgate.net/publication/309160632

Paquette, K. J., Hussain, A., Trudel, P., & Camiré, M. (2014). A Sport Federation's Attempt to Restructure a Coach Education Program Using Constructivist Principles. *International Sport Coaching Journal*, *1*(2), 75–85. https://doi.org/10.1123/iscj.2013-0006

Pebble Learning (2018) PebblePad. Available at: https://www.pebblepad.co.uk/ (Accessed 1st October, 2018)

Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. *On the Horizon*, *9*(5), 1–6. https://doi.org/10.1108/10748120510627303

Reddan, G., McNally, B., & Chipperfield, J. (2016). Flipping the classroom in an undergraduate sports coaching course. *International Journal of Sports Science and Coaching*, *11*(2), 270–278. https://doi.org/10.1177/1747954116637497

Roberts, S. J., & Ryrie, A. (2014). Socratic case-method teaching in sports coach education: reflections of students and course tutors. *Sport, Education and Society*, *19*(1), 63–79. https://doi.org/10.1080/13573322.2011.632626

Sawiuk, R., Taylor, W. G., & Groom, R. (2017). An analysis of the value of multiple mentors in formalised elite coach mentoring programmes. *Physical Education and Sport Pedagogy*, *22*(4), 403–413. https://doi.org/10.1080/17408989.2016.1268587

Segers, M., Gijbels, D., & Thurlings, M. (2008). The relationship between students' perceptions of portfolio assessment practice and their approaches to learning. *Educational Studies*, *34*(1), 35–44. https://doi.org/10.1080/03055690701785269

Stoszkowski, J., & Collins, D. (2015). Using shared online blogs to structure and support informal coach learning—part 1: a tool to promote reflection and communities of practice. *Sport, Education and Society*, *22*(2), 247–270. https://doi.org/10.1080/13573322.2015.1019447

Stoszkowski, J., & Collins, D. (2014). Communities of practice, social learning and networks: exploiting the social side of coach development. *Sport, Education and Society*, (November), 1–16. https://doi.org/10.1080/13573322.2012.692671

Stoszkowski, J., Collins, D., & Olsson, C. (2015). Using shared online blogs to structure and support informal coach learning. Part 2: the participants' view and implications for

coach education. *Sport, Education and Society*, *22*(3), 407–425. https://doi.org/10.1080/13573322.2015.1030382

Tinto, V. (2003). Learning better together: The impact of learning communities on student success. *Higher Education monograph series*, *1*(8), 1-8.

Turner, D., & Nelson, L. J. (2009). Graduate Perceptions of a UK University Based Coach Education Programme, and Impacts on Development and Employability. *International Journal of Coaching Science*, *3*(2), 3–28.

Trudel, P. & Gilbert, W.D. (2006). Coaching and Coach Education. In: D. Kirk, M. O'Sullivan, &. D. McDonald (Eds.) *Handbook of Physical Education* (pp. 516-539). London: Sage.

Trudel, P., Gilbert, W., & Werthner, P. (2010) Coach Education Effectiveness. in J. Lyle, & C. Cushion (Eds.) Sports Coaching: Professionalisation and Practice (pp. 135-152) London: Elsevier.

UCAS. (2019). Retrieved February 15, 2019, from https://www.ucas.com/search/explore?keywords=sport coaching

Wang, S. (2004). Learning experience in developing electronic portfolios in a master's educational technology program: A Case Study. (Doctoral thesis). Ohio University, Athens, Ohio. Retrieved from https://etd.ohiolink.edu/rws_etd/document/get/ohiou1088535495/inline

Walker, R., Voce, J., & Ahmed, J. (2012). *2012 Survey of Technology Enhanced Learning for higher education in the UK*. Retrieved from www.ucisa.ac.uk

Ward, J.R. & McCotter, S.S. (2004). Reflection as a visible outcome for preservice teachers. *Teaching and Teacher Education, 20,* 243-257.

Wetzel, K., & Strudler, N. (2006). Costs and benefits of electronic portfolios in teacher education: Student voices. *Journal of Computing in Teacher Education, 22*(3), 99-108.