ENTRUSTABLE PROFESSIONAL ACTIVITIES FOR COMPETENCY DEVELOPMENT IN THE SPORT AND EXERCISE SCIENCES

Drs Eddie Bradley, Charlotte Chandler, and Mark Smith discuss a pedagogic approach to practical skill development related to BASES accreditation and curriculum design.

The British Association of Sport and Exercise Sciences (BASES) is the professional body overseeing sport and exercise science (SES) in the United Kingdom (UK); it drives excellence in SES across three key themes of research, applied practical support, and pedagogy. Key to this is the development and maintenance of professional standards which are operationalised through the Supervised Experience (SE) process, accreditation of practitioners, and endorsement of degree programmes. The BASES Sport and Exercise Scientist Accreditation establishes the professional standard within the UK against a set of core competencies. Many activities undertaken by applied practitioners require training specifically aligned to that profession and authentic learning environments are therefore key to supporting student development, especially for those pursuing a practitioner career pathway.

In the SES disciplines, the ability to perform tasks safely and effectively is of paramount importance, and the development of an outcome-based educational approach therefore seems prudent. Competency-based education shifts the learning process from dispensing to applying knowledge, enabling learners to perform tasks with increasing confidence as they progress through programmes of study and into the workforce. In educational settings, these tasks are typically delivered through practical laboratory and field-based activities and assessed by way of competency-based evaluations in the form of, for example, applied practical observation, laboratory reports, or portfolios of evidence. Learners who become competent, being those that have reached a required standard of proficiency in accordance with a learning outcome, are deemed to have the necessary ability to undertake similar forms of activity thereafter.

WHAT ARE ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAS)?

EPAs are units of professional practice, defined as "tasks or responsibilities to be entrusted to the unsupervised execution by a trainee once he or she has attained sufficient specific competence" (Ten Cate, 2013, pg 157). EPAs constitute a description of work and define professional activities associated with the day-to-day requirements of a profession and how to undertake these safely and effectively (Ten Cate, 2018). Essentially, EPAs link competencies to work-based actions and when the required level of competency is achieved, the student can be trusted to select and complete the appropriate task (Ten Cate, 2013). However, an EPA is not a singular entity but must incorporate abilities across domains of performance and apply these as an integrated skill when required in the workplace. Within SES, an EPA could be the application of a heart rate monitor and associated documentation of readings, or the set-up, use, and interpretation of a motion capture system. It is important to note that EPAs will differ across the sub-disciplines of SES with regards to what is viable, particularly where the skills developed are less tangible i.e., the interpersonal skills associated with the development of an effective working relationship in sport and exercise psychology practice. This does not mean to say that EPAs cannot be applied across SES, but that we need to be mindful as to how they are embedded and assessed given the nuances of our respective sub-disciplines. This is also of significance in the context of developing students to be able to evidence competence aligned to BASES accreditation.

	EPA DOMAIN AND COMPETENCIES											
	EFFECTIVE IMPLEMENTATION				EVALUATION OF PRACTICE					STUDENT BEHAVIOURS		
BASES COMPETENCY AREA	GOAL SETTING AND PLANNING	COMMUNICATION OF PROCEDURE	SELECTION OF EQUIPMENT / TECHNOLOGY	MEASUREMENT AND DATA HANDLING	MAINTAIN HEALTH & SAFETY	ANALYSIS AND INTERPRETATION	IMPLEMENT VALIDITY & RELIABILITY ASSESSMENT	ENGAGEMENT WITH CLIENT/ ATHLETE	ABILITY TO RESEARCH APPROPRIATE PRACTICE	AUTONOMY OF PRACTICE	MAINTAINING INCLUSION AND DIVERSITY	DUTY OF CARE TOWARDS CLIENT/ATHLETE
SCIENTIFIC KNOWLEDGE			✓			✓	✓		✓			
TECHNICAL SKILLS			✓	✓	✓	✓						
APPLICATION OF KNOWLEDGE AND SKILLS	✓					✓						
USE OF RESEARCH				✓			✓		✓			
SELF-EVALUATION AND PERSONAL DEVELOPMENT							✓		✓	✓		
COMMUNICATION		✓						✓			✓	✓
PROBLEM SOLVING AND IMPACT	✓		✓		✓					✓		
MANAGEMENT OF SELF, OTHERS AND PRACTICE				✓	✓			✓		✓	✓	✓
UNDERSTANDING THE DELIVERY ENVIRONMENT	✓	✓						✓			✓	✓
PROFESSIONAL RELATIONSHIPS AND BEHAVIOURS		✓			✓			✓			✓	✓

▲ **Table 1:** Example mapping of BASES accreditation competencies to EPA domains

EPAS AND BASES ACCREDITATION

In Higher Education, EPAs represent a formal process for recognising and documenting students' capabilities and thus developing their work-readiness. Therefore, embedded EPAs create a development pathway for all students and act as a pedagogic strategy to improve employability. The criteria for BASES Accreditation are based on evidencing competency within the chosen sub-discipline, with the competencies developed through an appropriate SES curriculum. Many undergraduate programmes in the UK are endorsed via the BASES Undergraduate Endorsement Scheme (BUES) which verifies that their curriculum covers the skills and knowledge required to enter the profession. Aligning curricula to BASES accreditation through an EPA framework could be a method to further facilitate student development and thus the enhancement of professionalism within our academic field. Practitioners in this field frequently operate individually and without supervision and thus, the principles of competency-based education and EPAs would be valuable to guide SES education.

EPA EXAMPLES

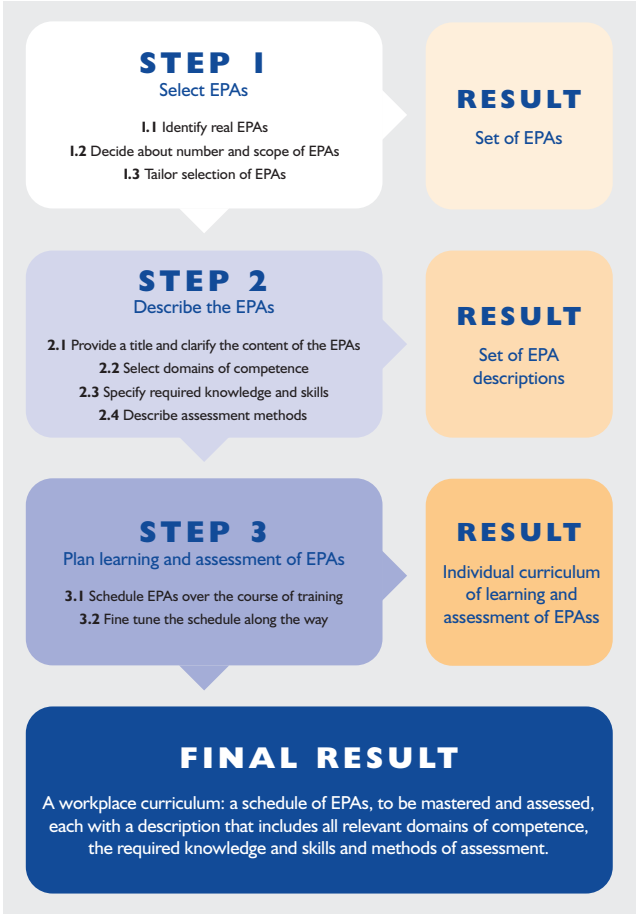
To follow are two examples of how EPAs have been embedded in SES curriculums at both undergraduate and postgraduate level.

The first example (Bradley *et al.*, 2022a) is of an introductory (Level 4) Sport and Exercise Sciences module, which was structured to introduce the three key disciplines of physiology, psychology, and biomechanics by demonstration and practice of test protocols. An EPA framework, or 'competency matrix', was developed, with a list of desired attributes for a sport and exercise scientist defined and assigned to three EPA domains; 'Effective Implementation', 'Evaluation of Practice', and 'Student Behaviours' (Table 1). EPAs were not related to specific tasks and were designed to cover each of the different tests included in the module. Therefore, the EPA framework described attributes that the students should display, rather than specific SES activities the student should perform to show competence due to the level of the module.

The second example (Smith, 2019) relates to EPAs embedded within a Level 7 Sport Physiology module. The module's practical component was assessed through an applied, athlete-centred physiological support evaluation (i.e., live roleplay). The defining module objective for this practical component of the curriculum was that the 'applied sport scientist' (i.e., the student) should be able to complete, without supervision, an athlete physiological assessment in a safe and effective manner, capturing the desired outcomes in accordance with agreed athlete-centred goals. These principles were broadly grouped into EPA1: that athlete safety and welfare were ensured and maintained throughout the assessment period, and EPA2: that the physiological assessment was undertaken effectively. If a student was able to demonstrate both these principles, it was deemed that the module component objective had been met and the overarching professional activity reached (entrustment would be granted to the student).

STUDENT FEEDBACK

Both practical examples of EPAs in action resulted in positive student feedback on the process. For example, most students considered the competency matrix easy



▲ **Figure 1:** Steps in building a practice-based curriculum around EPAs

to understand (93%), clearly defined (97%), well communicated to them (80%), and the listed competencies were distinguishable to the profession i.e. 'maintaining health and safety' and 'communication of procedure' (Bradley *et al.*, 2022b). Qualitative feedback suggested that EPAs developed students' understanding of the role of a sport scientist and requirements of applied practice, their ability to work independently, their knowledge of specific protocols and equipment, and interest in pursuing associated careers (Bradley *et al.*, 2022b; Smith, 2019).

SUMMARY AND RECOMMENDATIONS

EPAs are a well-structured teaching and learning tool with clear alignment of learning activities and practical skill development within the SES discipline. EPAs aid students' professional development and their acquisition of the attributes and skills required for work-ready SES graduates. Competencies provide the pillars of academic knowledge and skill required for applied practice and EPAs provide the bridge between the two.

Individual accreditation as a Sport and Exercise Scientist is a career path many graduates choose to take and there remains, therefore, an opportunity to explore ways to develop and assure practical and professional competency at the undergraduate level of education. While BASES accreditation is at postgraduate level, it is important to provide students with early exposure to the skills and competencies necessary for applied work and an understanding of how these relate to their progression and development within SES. A key part of this developmental process, across all levels, is the documenting of evidence and we propose our recommendations to be of most benefit if students are supported to formalise and record their progress against EPAs. Not only will this encourage students to engage in this practice throughout their development but represent added value to their degree programme as they look to progress.

ARE EPAS APPROPRIATE FOR SES EDUCATION?

The simple answer is 'yes'. EPAs can have a valuable place in a practice-based SES curriculum and can be advantageous to the development of work-ready graduates within and beyond their subject.

Future steps should include consideration of how a range of EPAs could be embedded within SES curriculums (Figure 1), especially in relation to sub-disciplines and the nature of skills required. The EPAs aligned to physiological or biomechanical testing will differ significantly to those required for a psychological consultation, and so too will the way in which they can be assessed. There is opportunity to explore BASES competencies and associated EPAs in terms of degree levels, identifying those most appropriate for assessment at different stages and scaffolding personal and professional development across the student journey. Examples of 'quick wins' to achieve this include:

- Mapping of module content against BASES accreditation competencies.
- Adjust assessment to reflect vocational/ authentic activity.
- Raise awareness of BASES accreditation through modules.
- Document and evidence skill and competency development.

Ultimately, we see EPAs as an opportunity to support the development of future generations of practitioners and promote student progression onto BASES SE from the outset of a degree. ■

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