HE Bioscience Teacher of the Year 2021 Application
Dr Helen Vosper – Robert Gordon University, Aberdeen

1. **Individual excellence in the development and implementation of approaches to teaching**
   In not more than 500 words please outline, with evidence (references are not included in the 500-word limit), detail how the candidate displays individual excellence through the development and implementation of approaches to teaching that have proven successful in promoting bioscience student learning and achievement.

I teach in a School with a predominantly healthcare portfolio, delivering biomedical sciences content across several courses. I have Principal Fellowship of Advance HE, and gained RGU Teaching Fellowship in 2013 for teaching excellence. For the past 7 years, my annual performance review indicates exceptional performance, including contribution to the student experience. I have received three student-led teaching awards, my 2020 award highlighting 'exceptional student support during Covid-19.' Indeed, a student nomination, citing passion, expertise, approachability and 'making us think differently,' triggered this application for HEBTOY. I have been an institutional nominee for the National Teaching Fellowship Awards. Although unsuccessful, feedback was excellent, describing my impact on students (within and beyond RGU) as 'transformative,' 'innovative' and 'enabling.' My teaching philosophy is underpinned by student partnership and staff development.

Belief in partnership formed early: student contribution to their own learning became apparent in my first assessment (a diabetes essay). High-performing students had personal experience, introducing me to the 'hidden curriculum' – unintended learning transmitted through experiences outside formal teaching. Argyris and Schon argue professional behaviour is driven by implicit 'theories in use,' different from 'espoused theories' taught at university[1]. 'Learning' involves students testing these schemata, requiring opportunities to link theory with practice, helped by exposing the hidden curriculum, and exploring its influence. 'Teaching' to me means providing enabling environments facilitating students as 'masters of their own learning.'

"[Helen] always treats students as equals... vitally important in encouraging critical thinking, active learning and development of independent learning skills" [Student]. "Fundamental to success is the engagement, enthusiasm, passion and openness Helen fosters in staff and students… resulting in strong collaborative partnerships based on shared values and goals. Her natural ability as a teacher and leader... fosters an enabling culture, help[ing] others achieve their full potential" [Professor].

Involving students in 'educationally purposive activities' also develops employability skills[2]. I built a robust model of Student Learning Enhancement Teams (SLETs), arising from an HEA Change Programme I led, which recognised the need for simulation to appear realistic, requiring working with students, exploring their experiences of clinical practice[3]. Participants were introduced to pedagogical theory which they used to tackle student-identified areas for curriculum enhancement. The impact is significant – SLET initiatives are embedded in modules, supporting development of 1500+ students, and academic performance has

improved (in one case from a 50% first-time pass rate to 98%). A particular impact was the cardiovascular risk assessment described in **section 4**.

"…[partnership] has brought back the passion. This is a genuinely safe place for developing ideas; it breaks down barriers between staff and students, [which] get in the way of learning and enjoyment." [Student]

"Partnership... heightened awareness of my responsibility for personal development, causing a fundamental shift from passive acceptance to an independent, creative and inspired mindset... I took ownership of my learning… this wouldn't have been possible without... her student-orientated philosophy. This has shaped my clinical pharmacist professional development." [Graduate]

At an Annual Subscribers Meeting, Stephanie Marshall (then HEA CEO) singled out SLET as a 'wonderful example of partnership benefitting students.'

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2. Involvement in scholarly and professional development activities

In not more than 500 words please describe all scholarly or professional development activities that the candidate has undertaken, which have influenced and enhanced the learning of bioscience students.

An early mistake was spending contact time delivering knowledge, expecting students to apply this on their own. In response, I developed 'integrated learning objects' including published reviews[1-3]. For example, students needed to understand fat transport in the blood, and its relationship with heart disease. I spent 11 years researching this, but it took me 5 years to fully understand because it is rarely written about holistically. My reviews changed this, providing resources for 1500+ students so far.

"No other lecturer provides such comprehensive and understandable material for us." [Student]

"Helen's second year learning materials were particularly valuable during later years of study… and when I qualified as a pharmacist. [Biomed subjects] weren't taught again and her resources formed the foundation of my work performance... she is critical to my professional practice." [Graduate and Staff member]

I also encourage our student learning enhancers to engage in a scholarly manner, including contributing to published output[4-10].

"You provide outstanding evidence of having enhanced both student outcomes and the wider field of scholarship." (NTFS Feedback from NTF application).

My professional recognition includes Principal Fellowship of Advance HE and Senior Fellow of the Staff and Educational Development Association. This recognises my impact on staff

and student development, but also requires me to remain in good standing, evidencing ongoing commitment to professional development.

My most profound CPD relates to Human Factors. Human Factors (also called Ergonomics; HFE) is a scientific discipline taking a design-driven systems approach to optimising system performance and human wellbeing[9]. HFE has much to offer patient safety, crucial for healthcare and related courses. It draws directly on biomedical science – for example, if we consider drug safety, many of the risks relate to the mechanism of action of the drug, and this would be considered as part of the overall system. When I first started teaching, I had some HFE experience from the aviation sector, and I recognised its value, but struggled to bring others along. One of the outputs from SLET was student recognition of curriculum gas in patient safety teaching. Consequently, I undertook a Healthcare Ergonomics MSc.

What did this mean for students? Many struggle with transition to practice, finding the gap between the undergraduate environment and 'real life' too. HFE competencies support transition to practice, as described in **Section 4**. This was too important to remain local and I used networking opportunities provided by my MSc. I am now a Scientific Advisor in Human Factors to NHS Education for Scotland. I am on the national strategy group, working with those responsible for patient safety training. I have produced guidance supporting HFE embedding in educational curricula[11,12].

"Helen respected students as individuals and treated everyone with dignity. She provided a professional role model... [and] puts students at the heart of education... she instilled confidence in me that I am capable of suggesting improvement to create a safer healthcare system. I find myself reflecting on knowledge gained during my undergraduate studies and how I can apply it through my role as clinical pharmacist." [Graduate]

References

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2. Vosper H. 2011. Extended release niacin-laropiprant in patients with hypercholesterolemia or mixed dyslipidemias improves clinical parameters. Clin Med Insights: Cardiology 5: 85-101
3. Vosper H. Lipid regulation with niacin extended-release (Niaspan-RTM). Clin Med Rev Vasc Health 2011; 3: 1-18
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3. Supporting colleagues and influencing learning

In not more than 500 words please provide evidence of how the candidate supports colleagues and influences bioscience student learning beyond their department and institution.

Measuring impact is challenging, but evidence regarding effective pedagogical design is summarised in the HEA 'What works?' model[1]. Embedding this within learning, teaching and assessment (LTA) strategies makes positive student outcomes more likely. Pedagogically sound approaches include inclusively designed curricula; professionally-relevant learning activities; 'flipped' classrooms; explicit assessment criteria; appropriate feedback; student partnership; simulation for safe transition into practice.

Examples applied through my own practice (and transfer to others' practice) have been published[2-10]. 'What works?' guides my School LTA strategy, addressing a key issue - the link between staff continuing professional development (CPD) and student impact. My Strategy uses CPD to encourage adoption of 'What works?,' strengthening this link.

This approach has evolved over years, beginning with my Pharmacy Strategy, an accreditation requirement. The accreditation team described it as the best they had seen. The latest development is a cross-School strategy, resting on key principles, including Student Partnership and 'What works'. It is also underpinned by ISO 27500 (**Section 5**) - the 'Universal Design' element of this Standard supports widening access and internationalisation. The Strategy promotes a quality student experience by impacting staff behaviour: it provides clear guidance (and performance indicators) and also embeds staff development, helping them build effective learning environments. The Strategy is for staff and students and champions access, inclusion and wellbeing. This "wedding" of staff and student experiences is critical to its success.

"…it is a fantastic Strategy … a wonderful illustration of what we are and what we strive to do as a School. You have delivered something we can all be very proud of - we are lucky to have your vision and endless enthusiasm." [Course leader]

"The LTA strategy was particularly effective in conveying staff practice - and how it supports students - to the accreditation panel.' [Accreditor]

Work with SLET raised an interesting perspective – students don't like 'individual excellence' - it raises expectations not met elsewhere. To quote, they prefer 'universal mediocrity!' To aim higher, we need leadership ensuring all staff receive contextually-relevant development. Such leadership works best when distributed: peer influence is better than 'top-down' demands. I mentored several staff to apply for Senior Fellowship of Advance HE to provide

this leadership. They work with peers, supporting development by engaging staff with projects addressing strategic School needs. To underpin this, I developed an enhanced approach to peer-observation of teaching[11]. Staff operate as 'buddies,' making it less adversarial. The longitudinal element allows observers to understand processes underlying teaching output, rather than merely observing the output.

"I care passionately about what we are doing – you especially – in terms of continually enhancing our teaching of the next generation of professionals. Your idea for buddies has moved us on significantly in our understanding of each other. You are pivotal to the change we are seeing in the School." [Professor]

This model was rolled out across the university, with 'my' staff central to the operationalisation of the institutional Professional Development Framework.

"Your support of colleagues through... the mentoring programme was an excellent example of how you raise the profile of teaching." (NTFS feedback)

References

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4. Exhibit innovation that has proven to improve teaching practice to enhance student learning

In not more than 500 words please provide evidence of how the candidate exhibits innovation in their teaching practices to enhance student learning.

Initiatives like SLET demonstrate innovation. This example from the undergraduate MPharm curriculum is just one output.

Modernising the future pharmacy workforce is a priority[1]. Undergraduate pharmacy students have limited access to the clinical environment: placement is concentrated in the later years, with science theory delivered in the early years. Students lack opportunities to integrate science with clinical practice. Furthermore, while Education Standards articulate the need for curricula to be underpinned by patient safety, there is no guidance as to how this might be achieved. My innovation features learning activities based on cardiovascular risk assessment. Cardiovascular disease is a 'family' of diseases, linked by common risk factors. There is a quantitative relationship between risk factors and disease incidence[2]. High quality longitudinal studies allow this relationship to be mathematically modelled, underpinning 'risk engines' such as QRisk2[3]. This relationship arises because the risk factors are tightly coupled with the processes that cause blood vessel damage (atherosclerosis).

Targeting population risk is effective, and in England, this is done through the NHS Health Check screening programme[4]. This involves history-taking and near patient testing, entering the results into a risk engine which calculates a 10-year risk of a cardiovascular event. High-risk individuals are referred for further investigation, while the rest are given advice to lower risk. Cardiovascular risk management is therefore an area of practice where (i) there is an unusually tight relationship between the pathology (atherosclerosis) and the clinical outcome and (ii) understanding the detail of the pathology allows planning of risk reduction strategies. It is highly relevant to pharmacy, supporting meaningful integration of science and practice. The Health Check itself is a complex sociotechnical system and amenable to analysis using human factors tools as described in the previous section. It can only reduce population risk if it is carried out (and reported) correctly. Complexity combined with organisational pressures (time and profitability) make it challenging. Allowing students to analyse the system and suggest targets for re-design links HFE theory with practice. This single activity, explored from multiple angles, supports development of knowledge and skills, ranging from basic biomedical understanding through to its safe and effective application in clinical practice.

The early work was selected by the Higher Education Academy as an 'Impact Case Study[5]', and a 'real life example of how organisational change can promote good practice and improve the student learning experience.' The fully developed model has also been adopted as a template for teaching healthcare human factors by NHS Education for Scotland[6], where the Director of Safety and Quality Improvement described it as 'brilliant.'

"Approaching the course with such a clinical and medical approach emphasised was brilliant as it finally felt like we were working towards being pharmacists."

"Fantastic – it really brought atherosclerosis to life, and because I could see how it might impact on patients, it [provided] an extra incentive to learn."

"...demonstrates how you have approached some of the more difficult pedagogic questions with innovation and reflection... there is outstanding evidence of national

and international impact (NTFS feedback)."

References

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5. Embedding inclusive approaches to bioscience teaching

In not more than 500 words please provide evidence of how the candidate embeds inclusive approaches to bioscience teaching, ensuring equality of participation and outcomes for those from disadvantaged backgrounds

Academic practice is also a complex sociotechnical system. Like 'safety', student 'success' and 'satisfaction' are global outcomes. I have used an HFE framework to update the LTA Strategy. I believe this approach is unique and supports success within a diverse student and staff body. My work confirmed my instinctive philosophy - enablers include student partnership and staff development.

Systems modelling requires building a picture of 'work as done'. Quantitative data is available for outcomes such as student achievement, and there is physical evidence in terms of documentation and resources. Focus groups, interviews, and direct observation were also used. This supports healthcare students in relation to their development of safety competencies – student partnership provides space within the curriculum to 'debrief' 'hidden' experiences, turning them into learning opportunities. It was also useful in addressing internationalisation. During data gathering I found output from a student identity project. It suggested international students felt the university identified them with their course cohort, which was positive – their international status didn't confer an isolating 'otherness.' However, sometimes it meant their needs were overlooked. For example, language proficiency is a risk factor influencing student success. Multiple-choice examinations are particularly challenging for students working in languages other than their first. Such assessments are perhaps not measuring the international student's knowledge, but their translation skills. This has been dealt with by suggesting extending examination times, but also reducing reliance on such questions.

This approach is an example of 'Universal Design' ("Design… usable by all people to the greatest extent possible without need for adaptation)[1]." It is a key HFE principle and the Universal Design for Learning Framework supports teachers in proactively accommodating diverse learner needs, encouraging development of materials with flexibility in terms of content, assessment tools and teaching methods. Examples include customisable online materials, or alternatives to visual and auditory sources. I have embedded these principles within the School LTA Strategy, which is based on ISO 27500, the International Standard describing the 'Human-Centred Organization.' As a result of this activity, I was invited to contribute a book chapter 'Becoming a Human-Centred Organization Supports a Strategic Approach to Internationalization[2]' for the International Perspectives in Higher Education: Strategies for Fostering Inclusive Classrooms.

"[in relation to diversity and inclusivity]… your approach is unusual, not simply focussing on legislative demands, but a truly aspirational consideration of the broader picture." [Accreditation panel member]

"Your sessions are the only place I feel comfortable talking about [ethnicity]. You find 'difference' exciting and want to learn from it… that makes me happy." [Student]

This inclusive approach underpinned my response to student needs during Covid: I was able to understand and address their needs, recognising that not all students had ideal working environments once away from the university.

"Helen Vosper is an angel ...

Her support has been both informative and light hearted, still with keeping in the theme of study at home. She has also sustained this contact without making us feel bogged down in a time that it would be so easy to do that."

References

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