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Criminology meets nursing simulated technology: Taking blended learning in new directions

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Abstract

This article presents an innovative approach to blended learning that integrates criminology and nursing pedagogy in a higher educational institution. It explores a Crime Scene Investigation module from a criminology undergraduate degree programme that used an Anatomage table, a life-size high-resolution tool used in the nursing degree courses, that allows students to have interactions with digitised human cadavers. A murder victim, investigated by the students during this module, was aligned with one of the five digitised cadavers from the Anatomage table. Within the module presented in this article, the students investigated a staged crime scene of a murder victim with stab wounds. They then attended a simulation laboratory to explore the anatomical structures below each stab wound, enabling them to identify the fatal incision. The activity was designed to develop critical thinking, forensic interpretation, and real-world problem solving by using pedagogical approaches such as contingency, fading, and scaffolding. This scoping case study demonstrates the potential of cross-disciplinary pedagogical innovations and how diversifying the use of technologies can enhance the student experience through blended learning approaches. It does not provide formal data collection but highlights potential for future empirical research

Keywords: interprofessional teaching, blended learning, higher education, innovation, digital simulation, active learning

Introduction

Teaching in Higher Education (HE) has been through many changes over the years, with various pedagogies and methods being developed, tried, and accepted or rejected in different disciplines worldwide. However, it has been suggested that HE will only successfully offer and broaden these learning formats in the long run, without compromising student achievement, if they can substitute the traditional in-person classroom focused approach with more adaptable learning environments (Müller & Mildenberger, 2021). Blended learning is one of those adaptable environments.

'Blended learning' has a number of definitions but for this article we are focused on the integration of online and digital content intertwined with class-based engagement and activities which is different than a fully online approach (Kumar et al., 2021). Blended learning is a pedagogical method that has those who extol its virtues while others are more skeptical of its effectiveness and usefulness within HE settings. Zain and Sailin (2020) report on a number of studies spanning from 2012 to 2022 that state that this learning approach is not always effective. For example, in their review they examine the studies of Butt (2014), who, in his own study of Australian students' views on flipped classroom pedagogical approaches, found that providing too many learning activities rather than formal teaching sessions led to student dissatisfaction. However, we propose that taking learning away from formal lectures and seminars can enhance the student

experience and match the variety of learning preferences present in a mixed cohort of students. This links into the 'flipped learning' approach which replaces traditional in class learning with pre-learning activities that then allows dedicated class time for interactive teaching activities to reinforce it (Sajiid et al. 2016). Flipped learning has been described as a derivative and variation of the blended learning approach (Schmid et al., 2023), and that an approach that combines the two together can be an effective way of teaching and learning (Halasa et al., 2020). The authors present a scoping case study between criminology and nursing of an enhanced Crime Scene Investigation module using simulated technology. It does not provide formal data collection but highlights potential for future empirical research.

Blended learning

Blended learning is a teaching technique that has become more popular over the last decade. It involves students being taught using a mixture of formal teaching, such as instructional lecture style approaches prior to attendance in the classroom, followed by engaging in learning activities that can be student or lecturer-led (Bredow et al., 2021).

Its pedagogical approach is one in which teaching and learning, traditionally covered in formal lecture sessions, is 'flipped' out of the classroom setting and delivered in other environments and with different methods (Bergmann & Sams, 2012). Bergmann and Sams also identified that the advantages seen were varied, such as increased lecturer/student interaction as well as helping busy and struggling students to learn. The use of online and digital technology in this blended and flipped learning environment, the focus of this article, has been shown to improve the ability to engage with students via an integration of both face to face and technically supported learning environments (Graham, 2012; Kumar et al., 2021). Examples of this are simulations, virtual reality, or even computer games. However, when considering the use of technology to support learning, particularly within simulations, there is a distinction between creating a learning environment to support and achieve learning objectives and creating one purely to entertain the students (Wang, 2009, 2019).

One method is to provide students with pre-recorded sessions of the instructional and theoretical elements of the learning before they attend class. During the class, the lecturer will focus on activities that develop critical thinking skills, communication, collaborative approaches, and creativity (Zain & Sailin, 2020). This was the method developed by Bergman and Sams (2012), which they found to be effective with the creation of pre-recorded lectures for students to view prior to attending a classroom where the concepts of this pre-learning could be explored and developed further. The class-based sessions can either be facilitated by the lecturer, who themselves will have to use these skills in the development of the sessions, or the students who are engaged in the learning process. If this also develops into students exploring and teaching each other, then the learning can become a powerful method highly effective for a wide range of learning outcomes and for students of varying levels of academic skill (Biggs, 2003). Indeed, Biggs cites McKeachie et al. (1986) when he states that "There is no single best method of teaching – but the second best is students teaching other students" (Biggs 2023 p. 112). This remains as relevant today as it was back then.

However, it has been recognised that another one of the elements of whether blended and flipped learning is a success or not can be linked to the 'educational context' of what is being provided (Bredow et al., 2021, p. 910). Integrating this 'educational context' within the activities therefore appears to be a key element to this approach being a success or not. One approach is to use and implement the 'scaffolding' theory. Scaffolding consists of constructing a learning environment and programme of teaching that contains three main elements being 'contingency', 'fading', and 'transfer of responsibility' (Van de Pol et al., 2010, p. 272).

'Contingency' is the lecturer's ability to take learning outcomes and adapt the associated teaching to support the needs of students with the aim of improving their current levels of competence in that subject. The second element of 'fading' is where the lecturer will begin to take a step back from the levels of input that they are providing in a gradual withdrawal linked to the students' levels of development and increasing knowledge. The third element, 'transfer of responsibility', transfers the responsibility and control for the learning to the students (Van de Pol et al., 2010, p. 275).

Zackariasson (2019) identified that the 'fading' element necessitates the identification of students' abilities in order to withdraw support accordingly. Less able students may need continuing support, particularly if the activity is linked to a specific degree project or summative assignment (Zackariasson, 2019).

It is this approach that the authors were keen to integrate into their teaching, blending together elements from two very different subjects to enhance the student experience and allowing them control over their learning, albeit with support and assistance if required.

Simulated-based education in higher education

Simulation-Based Education (SBE) is a method of teaching that is defined by the International Nursing Association for Clinical Simulation and Learning (INACSL) as, "a broad array of structured activities that represent actual or potential situations in education and practice. These activities allow participants to develop or enhance their knowledge, skills and attitudes, or to analyse and respond to realistic situations in a simulated environment" (INACSL, 2016, Sc. 45).

Simulation is not confined to a singular modality but rather embraces various innovative approaches, such as mannikins, simulated patients, virtual reality, augmented reality, and screen-based simulations. Such modalities are used to provide learning that prepares the student for practice (Nestel & Gough, 2017). According to Jeffries (2022), fidelity is one important aspect of SBE, including psychological, conceptual, and environmental fidelity. 'Fidelity' refers to the degree to which the simulation mimics real-world practices. Environmental fidelity includes the equipment and setting, conceptual fidelity considers how the scenario fits together, and psychological fidelity assesses if the simulation evokes the same psychological responses as real-world practices. By attending to fidelity, students become emotionally, psychologically, and physically prepared for practice (Jefferies, 2022).

SBE uses active learning as a pedagogical approach (Jefferies, 2022; Jones & Bursens, 2015) and requires students to be active participants, rather than passive recipients, to learning (Snyder, 2003). It builds on constructivist principles, where learners co-construct knowledge and skills through collaborative practices between their environment and those within it (Piaget, 1976). In line with constructivism, SBE uses student interaction to develop their practice, encouraging rich discussions that allow peers to learn from one another (Jefferies, 2022). The process supports both personal and professional growth as the students gain insights into themselves as well as real-world practices (Jones & Bursens, 2015). SBE can also offer wide ranging opportunities for students to implement practical, complex skills and use them to support various types of scaffolding to develop effective learning opportunities and environments (Chernikova et al., 2020).

Simulation technology can be used in a variety of settings, within HE, including subjects such as medicine, nursing, teacher training, STEM subjects and engineering, as outlined by Chernikova et al. (2020). Their study focused on the blending of simulated technology with a previous study looking at scaffolding, particularly within the medical and teacher training fields. They found that SBE can provide "one of the most effective ways we know of designing learning environments in higher education" (Chernikova et al.,

2020, p. 526). In their scoping review, Ballouk et al. (2022) looked at the integration and effectiveness of blended learning environments using simulation technology in developing medical students into independent learners. They concluded that the use of simulated technology enhanced learning and academic performance, particularly when it is integrated with blended learning environments and appropriate guidance. The authors consider that this approach to scaffolding could provide that guidance.

Pedagogical approaches to criminology and nursing in higher education

Criminology

Criminology has been defined many times, but one of the most enduring definitions is one attributed to Professor Edwin Sutherland, who stated that it is the in-depth study of the sociology of law making, the sociology of crime and criminal behaviour, and the sociology of punishment and correction (Sutherland et al., 1992). In other words, it is a social science based on a variety of concepts and principles linked to the theoretical development of explanations for, and a deeper understanding of, crime and its causes (Schram et al., 2023).

When it comes to the teaching of this subject, and indeed many others, many Higher Educational Institutions have taken an employability ready approach to teaching practices. However, others have maintained a more traditional approach, stating that criminology also needs to remain focussed on critical pedagogy approaches and thinking to inform the teaching (Barton et al., 2010) thus allowing students to become critical thinkers rather than passive recipients of information. Howes (2017) states that it is this critical pedagogy that allows the development of social justice focused thinking skills from students studying criminology and other social sciences which then leads to empowering them to be active participants in their own education. She further states that previous research had indicated that traditional methods of testing students, such as essays, though effective in developing writing skills, may not be the most effective way to assess critical thinking (Howes, 2017). In her study she identified three areas that students responded to, which are 'becoming aware' where students allow a shift in their thinking from one view to another, 'using evidence' where students support their thinking with evidence and an acceptance of the need for ambiguity, and lastly 'exploring power structures' which allows students to move to deeper layers of thinking (Howes, 2017, p. 898). She concluded that effective teaching of criminology and the use of critical thinking development needs to include the fostering of deeper learning in classroom-based activities. This appears to link to the pedagogical approach endorsed by blended learning.

In his critique of criminological teaching, Thurgood (2020) asks how the teaching and course content can prepare students for the 'real-world' and their impact upon it (p. 19), whilst also developing their critical thinking skills as a central element of 'transformative learning' (p. 25). This links to Barton et al.'s (2010) view, discussed earlier, regarding the 'employability ready' element of their teaching approach. In regard to the enhancement of blended learning approaches, the focus of our writing, he also promotes the use of real-world examples of crime and criminal behaviour being introduced into lectures and in class teaching. Barton et al. (2010) also endorse the integration of online learning techniques to engage students not only in the learning but with their peers, therefore facilitating a "wider array of ideas and attitudes" within them (p. 30). He concludes that there is a need for transformative pedagogies within criminological teaching if it is to develop students and graduates who are able to impact their future professions and contributions to society. Our aim has been to develop an approach to interdisciplinary teaching and the adaptation of technologies and teaching methods from the two different disciplines of criminology and nursing to potentially cover the outcomes outlined.

Nursing

In 2015, a didactic pedagogical approach, where students were passive recipients of knowledge, was identified as the most commonly used method in undergraduate nursing programmes. In contrast, student-centred learning, such as simulated-based learning techniques, was less frequently adopted (Pagnucci et al., 2015). De Gagne et al. (2021) explored students' perceptions of preferred pedagogy in nursing education and found that they valued a close teacher-student relationship as well as student-centred learning. The COVID-19 pandemic propelled the use of SBE as the Nursing Midwifery Council (NMC) permitted programmes to substitute clinical practice hours with simulation on request, due to a national placement crisis at the time. The success of the initiative has resulted in its continued use (Foster, 2024).

Each simulation assesses student knowledge to ascertain current understanding, and the associated level of scaffolding needed for the student to achieve the learning. SBE is a key part of the undergraduate nursing programme at the university discussed in this article. The students undertake 600 hours of SBE over the three years of the programme, used to create a bridge between the theory taught in the university and clinical practice (Salje, 2024; Salje & Moyo, 2023; Salje & Moyo, 2024). This part of the programme was developed in collaboration with students, module leads, and practice partners to identify areas that they felt could be enhanced by SBE. One key area identified included creating increased parity between student experiences. To be specific, one cannot guarantee experiences in placement areas, such as a cardiac arrest or a seizure. However, these can be simulated, resulting in all students qualifying having had the experience, thus better preparing them for clinical practice. In addition, students often have experiences in clinical practice that they do not understand or find distressing. In such cases, these experiences are replicated in a safe SBE environment so that necessary learning can occur.

Equipment used in SBE varies, depending on the event being simulated. For instance, high fidelity mannikins that can speak, have breath sounds, cardiac sounds and can present changes in heart rate and respiratory rate are often used for physiological deteriorations. Meanwhile, human factors-based simulations use simulated patients, often played by the facilitator (Nestel & Gough, 2017). To enhance the learning of the simulation, a novel, technically supported, learning environment tool has been embraced by the university's nursing programmes to enhance student engagement as well as help develop both clinical and academic competence.

Anatomage tables are digital devices that allow users to interact with virtual cadavers. It is a high-resolution 3D visualisation and virtual dissection tool. Spanning 2.2 x 0.7 meters, the digital cadavers stored in the table can be life size or made bigger or smaller as needed. Being digital images of real cadavers, it is anatomically accurate and includes all the anomalies of human bodies, such as hernias and missing teeth. Being digital, exploration extends beyond that of real cadavers, as the bodies can be dissected and put back together with the press of a button. Also, being digital, dissection can remove layers one by one, revealing how structures anatomically sit together. For more information on the use of the Anatomage Table, please see Anatomage (2025).

The Anatomage table is used throughout the SBE to support learning, such as identifying where different organs can be found when discussing pain or how to isolate lung sounds. It is also used for general exploration of the human body, allowing the students to discover how each of the cadavers died. The rich visual images within Anatomage tables engage students to discover body systems, prompting high student satisfaction and enthusiasm for their learning related to anatomical studies as well as an increase in mean

scores in exams related to musculoskeletal anatomy when compared to a control group who had not used it (Anatomage, 2025, Baratz et al., 2019).

Methodological and developmental approach

Our approach was exploratory, in the format of a scoping case study that integrated blended learning innovations across criminology and nursing disciplines. No formal measurements were employed. Instead, the authors had three primary aims:

1. To create an engaging learning environment that is directly linked to the overall teaching and learning outcomes in the selected module and to the assignment(s) related to it.
2. To utilise the simulated technology to create a technically supported learning environment to enhance learning in a subject for which it was not designed.
3. To highlight, develop, and include the three elements of 'contingency', 'fading', and 'transfer' while ensuring 'educational context' is present throughout.

The module chosen was a criminology based subject titled "Crime Scene Investigation" that is taught to a range of students on a BSc (Hons) Criminal Investigation with Psychology Degree and a BSc (Hons) Criminology with Psychology Degree course. The triad of contingency, fading and transfer are already applied within various elements of the teaching strategy throughout this module.

The module has an interactive summative assignment in place that is flipped-learning-based. In week three of the module, students are taught about the five key roles of specialist staff at a scene of a serious crime (contingency). The students are included in the process as they put themselves into groups of five or four and select their own roles from those pre-taught to them (fading). In week four, they participate in a murder scene that was developed in conjunction with the Head of Forensics of Hampshire Police, who himself was a highly experienced Crime Scene Manager. The students receive a briefing about the scenario they will enter in their pre-assigned roles. They then spend 45 minutes in the scene, which mimics a room in a flat that contains a simulated dead female body with a number of injuries present (five knife wounds and one head wound) and various other set items within it that may or may not be evidential. The students take photographs, make notes, take measurements and sketches, and conduct other activities such as the identification of potential items of evidence that may help solve the murder. This therefore enables them to collate the evidence using their learning from the previous three weeks by putting it into practice (transfer).

The summative assignment, handed in on Week 12, is a 3000-word report to a Senior Investigating Officer based on the actual murder scene that they were physically in during week four, as well as using statements and other evidence given to them in three stages over weeks five to nine. The students can also use their notes and photographs from week four in the report. This module, and the assignment, though difficult and challenging for second year (Level Five) students, have both been very positively received by them which is evidenced by the responses supplied in the end of module surveys that are conducted and supplied to the Module Lead (one of the authors). In addition, the independent External Examiner for this module stated in her formal report that "The assessment itself has been really well put together. Sterling effort to create an authentic assessment" (Lee, 2023). We set ourselves the challenge of taking this blended learning approach even further and looked at new technology such as Augmented Reality, Virtual Reality, and Simulated Reality. As previously mentioned, the lectures on the nursing degree at our university have access to many simulated environments and technology, and one of these is the Anatomage table which contains digitised

cadavers of real human bodies, and it was this that was chosen. The tables contain five digitised human bodies, and one of these is a 26-year-old woman (see Figure 1).

Anatomage, Inc.(2025)

Figure 1 Image of the Anatomage table and the digitised cadaver used.

In regard to ethical considerations the authors identified that none were applicable. The students involved were not present as part of a study or as subjects of research but as undergraduate students being taught an enhanced additional lesson as part of their studies on the module. All students were informed prior to the start of the session about what they would be seeing whilst using the Anatomage table.

Exploratory findings and reflections

As an exploratory scoping exercise, the following findings and reflections of this project are discussed from two perspectives: firstly, the results with the two authors who facilitated the session and its development, and secondly the responses and initial results with the students.

One of the initial results of the development of this learning environment was not one that related to the students but to one of the authors. This was the identification of the need for him to be trained in the use of the Anatomage table in order to be able to continue to develop the learning and the supporting materials to maximise the effect with the students. As well as building on the combined knowledge and skill

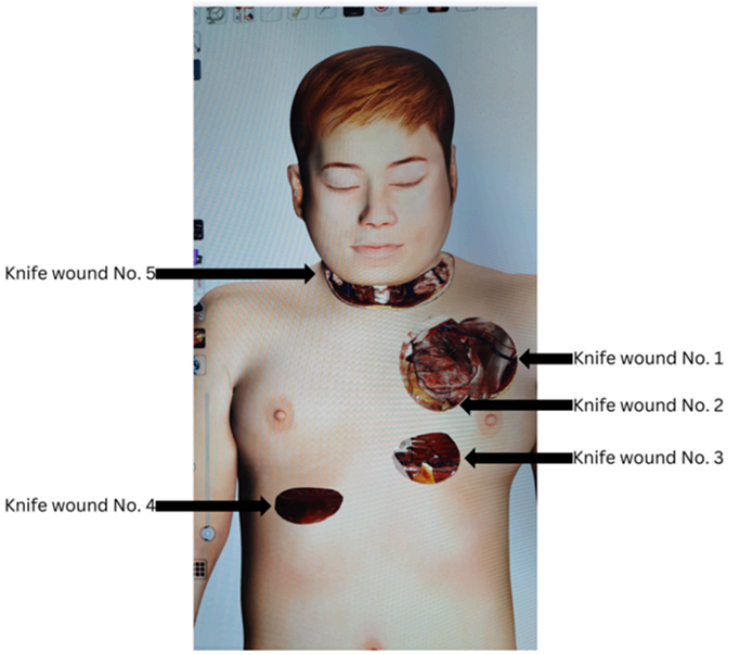
set of the authors, it enabled an early redevelopment and adjustment of the planned session (see Discussion).

Secondly, there was a review of the scenario of the physical simulated crime scene to increase the reality of it further and to match the real-world scenario to the digital elements of the Anatomage table as closely as possible, thus allowing a high level of flexibility and fidelity during development. The scenario used was already based on a deceased female, but further adjustments were considered in order to more accurately match the details of the dead person in the scenario with the digital body within the table itself. For example, the briefing and all the supporting statements and evidential reports that the students use for their 3000-word report were reviewed and amended to ensure that the deceased female from the crime scene was described as 26 years old, the age of the deceased female within the table, as well as having her height adjusted to match.

The next stage was to explore the body within the Anatomage table in the regions of the five knife wounds and the head wound that had been inflicted on the woman at the crime scene. By exploring the pathology of the virtual simulated body in this way, it allowed for an assessment of deeper organ damage and real-world outcomes of the injuries.

Firstly, the length and width of the blade used in the real-world crime scene to inflict the injuries were taken. The wounds were numbered one to six for clarity and consistency in the development of the session's structure. Then, using the Anatomage table, the anatomical structural layers were removed from the cadaver at the points the knife had entered, according to the scenario's Pathology Report, and the location of the simulated dead female within the crime scene scenario. These were taken down through the anatomical layers of the body to the limit of the length of the real knife blade.

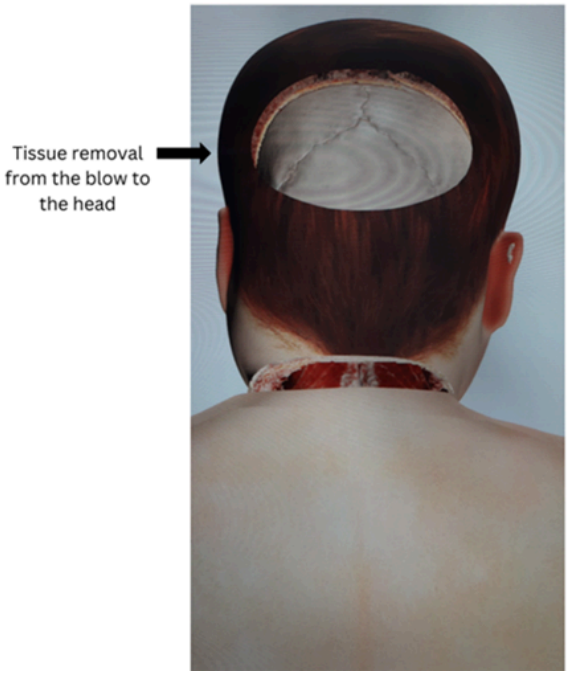
The first and second knife wounds on the body were clearly showing penetration of and into the upper left lung of the digital body. This would lead to injuries such as a pneumothorax, which is the collapse of the lung due to penetration of the chest wall and air entering the pleural space (see Figure 2). The third knife wound penetrated through the ribs, through the left ventricle of the heart, and then into the tricuspid valve situated between the right atrium and right ventricle. This would have been a fatal injury. The fourth wound punctured the liver, which would have caused internal bleeding. The final knife wound, slicing the neck, showed severing of the trachea and one of the jugular veins (see Figure 2).



Anatomage, Inc.(2025)

Figure 2 Knife wounds revealing underlying anatomical structures on the digitised cadaver.

The final wound, number six, is a blunt force trauma inflicted on the back of the body's head, caused by a wine bottle found in the crime scene scenario. The Anatomage table allows for the turning and moving of the bodies held within it. By turning the cadaver within the table onto her front, it allowed for the final injury at the back of the head to also be explored through the layers of tissues down to the skull itself (see Figure 3).



Anatomage, Inc.(2025)

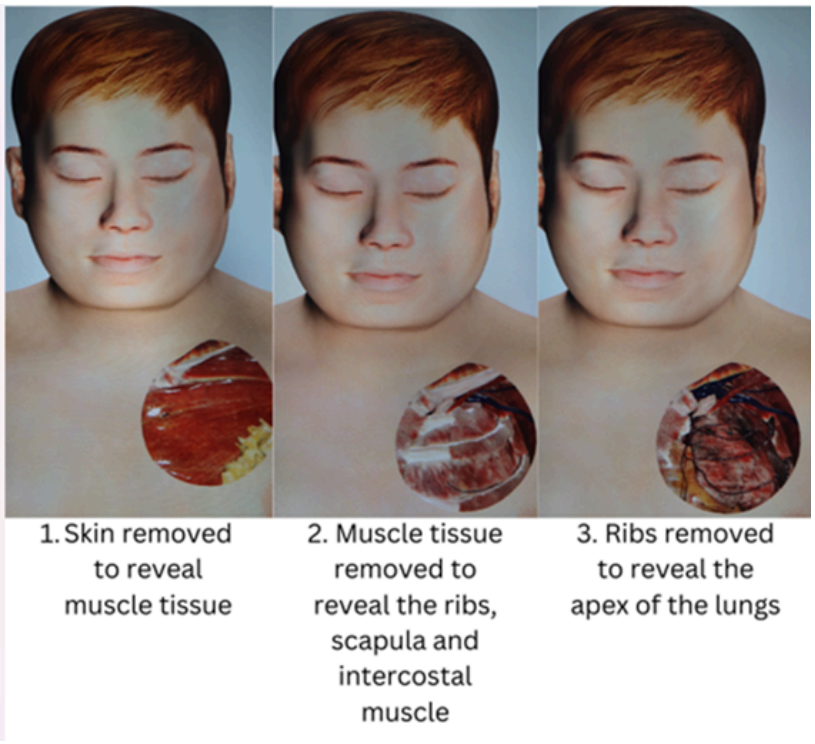
Figure 3 Tissue layers removed from the back of the head of the digitised cadaver from the blow from the bottle.

Having completed this exercise, a further review of the various elements of evidence provided to the students for their written reports was undertaken. Most notably, all statements from the forensic experts used within it. These included reports and evidence from Pathology, Toxicology, and DNA. These were amended and revised to match the findings from the explorations within the Anatomage table to add further realism and enhance the students' link between the real-world and the simulated one.

The delivery of the sessions to the students included three groups of approximately 20 students per session. The authors had considered the three elements of 'contingency', 'fading', and 'transfer of responsibility' in the delivery of the teaching and learning process, as the need for effective scaffolding to be in place in these sessions was deemed essential for success.

Firstly, the students were provided with an edited version of the full pathologist's report containing the details of the injuries, as well as a photograph of the dead body used in the crime scene scenario with the six wounds clearly labelled, one to six. The wounds were presented in the same sequential order used in the development of the lesson. To scaffold the learning even further, the second author demonstrated the capabilities of the Anatomage table in general and also asked the students to consider the positioning of various anatomical structures within the human body, which she then demonstrated to them.

Adhering to active learning principles and introducing an element of 'fading' and a 'transfer of responsibility' to encourage active engagement, the students were then asked to direct the second author to the location of the stab wounds on the virtual body in the Anatomage table. Once identified, the wounds were further explored in detail, again in sequential order, and the second author then proceeded to remove the anatomical structures layer by layer. This process revealed sequential layers of tissue of the cadaver, demonstrating which organs had been cut by the knife (see figure 4 for an example).



Anatomage, Inc.(2025)

Figure 4 Sequential layers of tissue removed showing the different anatomical structures affected by the knife wound on the digitised cadaver No. 1.

The first author encouraged engagement in regard to the effects this had and how this may affect their 'investigation' into the death. This discussion aimed to support the ultimate submission of the students' reports for the summative assignment to encourage an element of 'educational context' to remain throughout this unique experience.

Once this main part of the session had been completed, a unique opportunity for the students was presented. The university has two Anatomage tables, and both were present in the teaching room. In a final 'transfer of responsibility' the students were directed to the tables in two groups and allowed to use the tables for themselves to explore not only the human body used but other simulations contained within it. Each author was allocated to one of the tables to facilitate this exercise and to show the students where the various digitally simulated buttons and folders were to allow this to happen without doing it for them.

Discussion

Simulated technology has been changing pedagogical approaches in HE as learning moves away from the more traditional approaches of formal lectures to being more hands-on and engaging whilst creating a safe environment where mistakes can happen because it is not in the real world. It has recently been stated that though simulated technology has had an impact in developing complex skills in HE, there is no single approach or solution to ensuring that SBE is effective or inclusive of the varied needs of learners (Chernikova et al., 2023). The authors hope that with this example, having core pedagogical processes underpinning its development, structure, and delivery, they can show that the development of simulated learning sessions can be inclusive. In this case, having a real-world simulation at the start of the process to

augment the taught sessions and then moving into the digital simulation towards the latter end of it, allowed for the introduction of suitable scaffolding around the students, leading them through the taught elements (contingency), then the self-directed ones (fading), and into them being hands-on with the technology (transfer). The aim of this approach was to provide support for the varied learning preferences of the students. It also aims to reinforce the views of Chernikova et al. (2023) that for simulated learning to be effective, it must be bespoke to not only the aims of the teachers but, more importantly, the skills and abilities of the students to which it is delivered. The Anatomage table provided enhanced realism as it allowed the criminology students to interact with real digitalised cadavers linked to their learning, their assessment, and also their experiences on the module in which this session was delivered. Removing layers of tissue one-by-one where the stab wounds had occurred enabled the students to explore potential internal injuries accurately, with our professional opinion being that they now had a better understanding of anatomical positioning. In addition, by relating it directly to the real-world simulated environment of the room where the dead body had been added levels of realism and educational context.

The process appeared to take the students by surprise, as they reported not being aware of skin covering muscle, which in turn covers bone, as well as the location of the lungs and the heart. The visual representation brought realism to the crime that they were engaged in exploring, thereby supporting psychological fidelity. Being the same age, the cadaver is further attributed to psychological, environmental, and conceptual fidelity.

Another important aspect of this case highlights the transferability of technology and simulation-based resources across different fields. The Anatomage table is primarily used in the medical and healthcare field for anatomical and anthropological studies as well as medical diagnosis, for example (Kazoka & Pilmane, 2024; Kldiashvili et al., 2024). In this case, the criminology students increased their ability to interpret forensic evidence by exploring the injuries in the case. Therefore, it identifies an overlap between the medical and criminology fields, questioning if further collaborations and shared resources would be possible? The nursing teaching discipline has many simulated environments and tools, both real-world and online, and these are to be explored for potential use in the future with varied subjects and inter-disciplinary specialties within criminology, and beyond at our university.

Lessons learned from this interdisciplinary collaboration underscore the value and challenges of blending criminology and nursing pedagogies. For instance, it became quickly apparent that the anatomy focus of nursing required a different perspective for criminology, who were interested in the forensic interpretation of anatomical structures. This insight shifted the focus to understanding the impact of the damage from the knife, rather than pure anatomical positioning. This highlights the need to involve those with first-hand experiences in a discipline for effective scalability to other disciplines.

The Anatomage table works well because real cadavers are single use and limited. In a real-world scenario, this would severely limit the ability to create a consistent blended learning pedagogy for this module, as it would be entirely dependent, not only on the availability of a suitable cadaver but also the willingness of the pathologist to allow access by the students, as well as the potential impacts for students seeing a real human body being dissected. In contrast, the Anatomage table allows users to infinitely repeat dissections. Similarly, real-life crime scenes and murder victims may not be the most effective place for large groups of students to develop their ability to interpret evidence, while the simulated environment allowed them to develop their understanding at their own pace.

The Anatomage table developers have also shown interest in this approach to the use of their technology and have now developed, and provided the authors with, a fully simulated 3D model of a knife that can be

inserted onto the Anatomage table programming. It is fully adjustable in all planes to allow maximum flexibility in matching the dimensions of the real knife used in the crime scene scenario. The knife can be placed in the body in real time, in various planes, to demonstrate the layers of the body that are penetrated, along with organs, therefore allowing even more layers of integration between the real-world and the simulated one to enhance the learning. This update has only recently been made, and the authors are exploring how this can be used with appropriate educational context, which, as outlined at the start of this article, plays a significant role in the success, or otherwise, of the blended learning approach (Bredow et al., 2021).

Looking ahead, future research aims to build on this scoping exercise through the use of empirical evidence. For instance, research will compare student module feedback pre- and post-intervention, as well as student grades. Focus groups will seek insights into the strengths and limitations of the intervention, as well as its transferability to other settings. These future studies aim to provide robust evidence to guide adoption of the initiative to other universities and disciplines.

Conclusion

In summary, an interdisciplinary approach integrated elements of a criminology and nursing programme. Using a blended learning approach, the module combined online educational materials with face-to-face collaborations to optimise the students' learning journey. One part of the face-to-face activities included equipment commonly used in SBE, namely, an Anatomage table. One of the cadavers uploaded on the Anatomage table was used to allow the undergraduate criminology students to explore wounds that they had observed within a crime scene, developing their knowledge and skills to interpret forensic evidence. To increase authenticity, the victim's details had been adapted to match those of the cadaver used.

However, being a scoping exercise, no formal data were collected, impacting on the ability to formally evaluate the approach. In addition, the generalisability of the study may be limited as the approach relies on the use of an Anatomage table, which may not be readily available in all HEIs. In addition, the Anatomage table has the capability to have a knife that can enter the body, which would provide a real depiction of organs damaged by the wound. This addition will be used in future sessions.

The use of the Anatomage table for this purpose highlighted potential for diversifying its use. As technology advances, so do the possibilities in pedagogical approaches. This case presents one example of how technology enhanced student development can be achieved through a blended and interprofessional approach. Future studies will guide other universities and disciplines to adopt the initiative through a robust evidence base.

Biographies

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