

Leveraging Role-Play and Podcasting: Innovative Student-Centred Pedagogies in Construction Education

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Abstract

This paper presents the result of an assessment of the use of innovative student-centred approaches to teaching and assessing ethics and professionalism in construction education. This was done to improve students' understanding of diverse ethical dilemmas and professionalism issues they might face while working within the construction industry. Through observations, review of documentary evidence and feedback evaluation, the study revealed that role-play can help improve students' understanding of ethics as they are immersed in diverse construction scenarios. It offers students critical thinking, a better understanding of ethical issues, improved communication skills and collaboration with peers. On the other hand, using student-generated podcasts (SGP) as an assessment tool in construction modules can be highly beneficial to students' performance when compared to other assessment tools. SGP offers improved visual and audio presentation skills, critical thinking, problem-solving, and technological skills that construction students require to survive within the construction industry in the 21st century. The value of the study lies in the absence of similar studies exploring the use of role-play and SGP as student-centred pedagogical approaches to teaching construction students. The study offers direction for curriculum design and evaluation of expected learning outcomes within construction programmes to improve student's learning experiences.

Keywords

Active Learning, Built Environment, Experiential Learning, Podcasting, Role-Play, Student-Centred Learning

1. Introduction

The built environment, which is the human-made buildings and infrastructure that supports living, working, and recreational activities (Seyedrezaei *et al.*, 2023), is driven by individuals with significant knowledge of the concept of construction. These individuals go through carefully defined academic programmes to ensure they can deliver their services ethically and professionally. Ethics and professionalism are essential aspects of professional practice taught to construction professionals because ethics guides the conduct of these professionals and assists in making the right decisions in problematic situations (Cartlidge, 2011). The importance placed on ethics is evident in the strict regulations on professional ethics across diverse professional bodies within the construction industry (Chartered Institute of Building, 2018; Royal Institute of Chartered Surveyors, 2021). Therefore, teaching ethics to construction students in a manner that ensures clear understanding is quintessential.

In traditional lecture-based teaching, students are mostly passive and information consumers (Rajathi *et al.*, 2017). As such, there has been a clamour for more active learning that allows students to participate actively (McLoughlin and Lee, 2008). While no one teaching and learning approach is absolute, exploring diverse methods to ensure effective and efficient learning of construction students to produce graduates who are critical thinkers and problem solvers is crucial. Mohamed (2015) noted several approaches adopted to enhance learning. These are creativity, cooperative learning, group learning, learning through teaching, case study-based learning and problem-solving in groups. These approaches point towards a more student-centred way of learning. Unlike the traditional didactic teaching method, where students passively receive information from their tutors, student-centred pedagogy emphasises prioritising students in the learning process (Bremner *et al.*, 2022). Atwal (2019) described it as a pedagogical method that gives students control over the content and process of learning. Schweisfurth (2019) noted that student-centred pedagogy related to its specific methods, including active-based, inquiry-based and problem-based learning, has gained popularity within many countries as an example of 'best practice' pedagogy. Also, Bremner *et al.* (2021) noted that the different aspects of student-centred learning include active participation, adapting to needs,

autonomy, relevant skills, power sharing and formative assessment. All of these are important for teaching and learning within construction, where students require hands-on learning activities (Yunus, 2000). M-Gibes (2023) highlighted common student-centred strategies, including presentations, case studies, workshops, experiments, group discussions, role play and gamification. However, while several studies have explored using some of these student-centred learning across diverse fields, evidence of the adoption of role-play as student-centred learning, which allows students to try out various scenarios in construction education, is non-existent. This is despite studies emphasising the benefits of role-playing to student experiential learning (Brigley, 2004; Grose-Fifer, 2017).

Furthermore, post-COVID-19 and its associated lockdown, the education system globally still feels the pandemic's impact, particularly in teaching and learning (Papadopoulos and Schreiber, 2023). The drastic changes brought about by the pandemic within the education system are still evident, with these changes becoming the 'new normal'. With blended learning becoming prevalent and diverse means of teaching evolving, students' learning has continued to change. Considering the different ways students learn, technological advancement and the importance of inclusivity and fairness, it became necessary to diversify how these students are assessed. Traditional assessments of students' knowledge within the construction have been through examinations, in-class tests, and report writings (Jollands, 2018; Purzer *et al.*, 2016). However, a major shortcoming of written reports in assessing ethics and professionalism modules is that students can sometimes be constrained in expressing their views regarding the ethical issues they are assessing through writing. As such, using student-generated podcasts (SGP) to assess students' knowledge of ethics and professionalism within the construction can prove beneficial. Hopkins (2012) noted earlier that podcasts in higher education institutions (HEIs) have immense benefits for teaching and learning. It was further noted that the process of SGP allows momentous knowledge creation while ensuring enhanced intellectual engagement with the topic being discussed.

Based on the aforementioned, this study explored innovative student-centred learning and assessment approaches within construction education. The objectives were to ascertain the impact of adopting role-play in teaching ethics and professionalism on students' understanding of ethics and to ascertain student performance when SGP is used as an assessment tool. The study's propositions offer a platform for a wider debate on the need to diversify the delivery and assessment methods in construction programmes, particularly in relation to theoretical topics like ethics and professionalism. It offers a basis for revisiting expected learning outcomes and curriculum design while determining how best to achieve these learning outcomes through a student-centred approach to teaching and learning.

2. Ethics and Professionalism in Construction

Ethics is the science of moral principles or codes. Robinson *et al.* (2007) described ethics as a philosophical view of right or wrong in human activities and what principles should govern these activities. This can also be viewed from the perspective of moral beliefs and practices, as noted by Mansfield (2008). Longstaff (1999) earlier submitted that a professional's ethical environment comprises choices, decisions and practical application of shared core values and principles. As such, ethics can provide a moral compass to navigate through difficult professional environments (Cartlidge, 2011). The Society of Chartered Surveyors (2006) described ethics as a set of principles that extends beyond the formal code of conduct that guides professionals in resolving issues that might impact their professional interest, client or the community. As such, good ethical behaviour is germane to the professionalism of construction professionals. While diverse professions within the construction have specific code of conduct that governs their members, the general expectations cut across integrity, honesty, trustworthiness, respect, fairness, equality, objectivity, competence, care, confidentiality, and acting in the public's interest (Chartered Institute of Building, 2018; Olatunji *et al.*, 2016; Royal Institute of Chartered Surveyors, 2021). The importance of instilling good ethical behaviour and standards within construction students cannot be overemphasised. This is because construction has been known for its common unethical practices (Ameyaw *et al.*, 2017; Paul *et al.*, 2021). Adopting teaching ethics and professionalism methods that allow students to actively participate and understand this topic is essential. Moreover, being able to carefully evaluate students' understanding of this topic through efficient assessment approaches is essential.

3. Role-play in Teaching Ethics and Professionalism in Construction Education

Student-centred teaching has become a popular approach towards improving students' learning. Several student-centred teaching activities, such as presentations, case studies, workshops, experiments, and gamification, among others (M-Gibes, 2023), are evident within teaching in construction programmes in HEIs (Aliu *et al.*, 2024). While many of these approaches have proven useful over time, the uniqueness of the concept of ethics and professionalism within construction education means that other approaches to learning need to be explored to improve students' understanding. Role-play is one such student-centred activity that can assist students in understanding ethical

dilemmas by assuming different roles in a given scenario. Russell and Shepherd (2010) described role-play as a type of experiential learning wherein students act out assigned roles either individually or in groups. Glover (2014) further described role-play as an approach that allows students to explore realistic situations through interaction with other students in a carefully planned and monitored way to develop their experience and try diverse strategies in a supported environment. According to Brigley (2004), while there is no wrong or right way to teach ethics within any given profession, using role-play can prove helpful. Students are allowed to play out an ethical dilemma by assuming diverse roles, and at the end of the role-play, a critical evaluation of the scenario is conducted through class discussion. Grose-Fifer (2017) explored the use of role-play to enhance critical thinking about ethics in psychology and concluded that role-play helped students to understand the study from multiple viewpoints. It was further observed that this pedagogical approach to learning can improve collaboration and communication skills among students while promoting critical thinking.

Within construction education, ethical dilemmas are crucial in teaching students about possible ethical situations that might occur during practice within the industry. It is essential to overcome these ethical dilemmas and act ethically according to the set standards to improve public confidence within the profession. Teaching these ethical issues through the traditional didactic approach might not impact students' understanding and critical thinking as they tend to see the problem from the lecturer's perspective. Moving towards a student-centred approach can prove useful as the role-play allows students to be given a typical ethics scenario and assigned roles within the scenario to play out in class to ascertain the possible line of action should these issues happen in the future. As noted in studies from other fields that have adopted this approach, the students stand the chance of better understanding of ethical issues, critical thinking of moral actions to take, effective communication skills and collaboration (Grose-Fifer, 2017; Nestel and Tierney, 2007; Poling and Hupp, 2009).

4. Student-Generated Podcast as an Assessment Tool in Construction Education

The continuous advancement in technology has a crucial role in students' learning. These technologies can also be employed to make assessment of students' understanding of subjects more enjoyable. This is because past studies have emphasised that assessment is an aspect where students tend to be dissatisfied in their academic journey (Price *et al.*, 2011). Similarly, Wakefield *et al.* (2023) have noted that many students tend to show dissatisfaction with the mode of assessments, while many employers show dissatisfaction with graduates' communication skills. Having an assessment process that allows effective communication and exploration of real-world problems can help in addressing both issues. Student-generated podcasts (SGPs) as a means of assessment offer a suitable solution for students to enjoy assessment and improve the communication skills required by organisations (Nie *et al.*, 2008). The term 'Podcast', an amalgam of 'iPod' and 'broadcast', is a media file that can be easily downloaded from a device connected to the internet. While the podcast is not new in education, the extent to which it can be used and the benefits thereof are yet to be largely explored (Palenque, 2016).

SGP is a student-centred approach rooted in a constructivist theory of learning wherein students can construct their knowledge by actively interacting with a digital environment to research and present a given topic (Bishop and Verleger, 2013; Gnaur and Huttel, 2016). Ribchester *et al.* (2007) suggested that podcasts can be used to give effective feedback to students. However, podcasts generated by students can also serve as a useful means of assessment of students' knowledge and understanding of specific subjects. In the view of McLoughlin and Lee (2008), there is a need to adopt pedagogical approaches that allow students to be active rather than passive consumers of content while ensuring that learning is participatory social and supports students' personal life goals and needs. SGP offers this opportunity, particularly for construction students who will be working within the construction industry, which involves high contact with diverse people and requires the right communication skills to navigate day-to-day life in the industry. Moreover, Lee *et al.* (2008) have noted that SGP creates an avenue for students to express themselves creatively.

The immense pedagogical benefits of SGP have led to studies exploring its usage as an assessment tool across diverse disciplines. Powell and Robson (2014) evaluated the perspective of postgraduate business students on the use of SGP as a tool for assessment. The study concluded that students benefit from SGP as a means of assessment as it allows creativity and ingenuity. Wakefield *et al.* (2023) explored SGP in place of essay writing assessment among biological science students and noticed that students preferred podcast assignments. They perceived the podcast to be more enjoyable and authentic as it allows them to be creative while building their confidence in communication. In a view to increase intrinsic and extrinsic motivation among students using self-determination theory, Perry (2024) explored the use of SGP to examine third-year university students studying English Language. The study confirmed the suitability of SGP as an assessment tool and further showed that SGP can increase students' motivation and self-efficacy and encourage oral communication.

Ethics and professionalism have always been theoretical topics within construction education and mainly involved exploring ethical dilemmas in case studies. At the end of teaching, students' understanding is mostly assessed through reports, examinations and in-class tests with likely scenarios for students to critically evaluate. One of the major shortcomings of these written assessment methods is the absence of criticality and avenues for students to explain in detail their perspectives of the issue they are assessing. Therefore, SGP, which encourages constructive thinking (Gnaur and Huttel, 2016), offers immense opportunities to promote critical thinking in evaluating these ethical dilemmas while giving students the avenue to freely express their views of the issues they are assessing. In the same vein, using SGP increases students' interaction with available technological tools (Frydenber, 2006) while improving their visual and oral communication skills (Perry, 2024). This is important as past studies have averred that construction employers require graduates who are critical thinkers, communicate effectively, and work well among teams to achieve a common goal (Aliu *et al.*, 2021; White and Smith, 2022).

5. Research Method

The study adopted pragmatic reasoning in assessing advances in teaching and learning ethics and professionalism among construction students at De Montfort University, United Kingdom. Observations, assessment of documentary evidence, and feedback assessment were used to draw logical conclusions in the study. The study assessed the teaching and learning of ethics and professionalism of construction students in two phases. The first entailed observing the implementation of role-play in exploring good ethical practices among 21 first-year construction students in 2022/2023. Kovalcik (2023) noted earlier that role-play is an essential approach to teaching ethics to students. Thus, role-play was adopted within a group setting to promote student-centred teaching and peer participation. Observation of students' understanding of the topic and their feedback was conducted to ascertain the impact of this method of teaching ethics in the construction. The second phase included the evaluation of the first-year construction students' performance over two years (2022/2023 and 2023/2024) using two different forms of assessments (i.e., report writing and SGP). In the first year (i.e., 2022/2023), report writing weighting 100% was adopted, while in 2023/2024, report writing was augmented by SGP. Both approaches were weighted equally (50% each). The students were expected to showcase their knowledge of ethics and professionalism through a detailed report. They were also asked to select from a range of ethical and professional issues that affect the construction industry and give a detailed discussion of these issues, citing relevant scenarios using SGP. In the end, the performance of students in the first year, when the report alone was used, was compared against the performance in the following year, when the report and SGP were adopted. Also, using students' marks in 2023/2024, performance in the report writing was compared against the SGP to ascertain which assessment tool gave the better outcome. The class average, maximum, minimum and median marks were all calculated to draw logical conclusions.

Adopting reports and SGP in the second year had several pedagogical reasons based on past submissions (Pegrum *et al.*, 2015; Wakefield *et al.*, 2023). This includes (1) promoting student-centred learning and a profound learning experience for construction students; (2) the need to improve the communication skills of the construction students; (3) improving construction students' search skills; (4) improving e-learning among construction students; and (5) allowing diversification of assessment methods within the construction education.

In creating the podcast, students were expected to produce a detailed visual presentation to prompt their discussion. The choice of software to design the presentation and the recording platform of the SGP was based on the student's preference, with all recordings submitted as an MP4 file that can be easily downloaded and watched by the tutors. To ensure adequate student support, particularly for those who might not be conversant with recording tools, assistance was sought from the institution's library team, and two workshop sessions on how to develop an interactive visual presentation and record a podcast were given to the students. The SGP was marked following the set criteria with emphasis on the flow of the presentation and its content in relation to the ethics topic selected by the students.

6. Findings and Discussion

6.1 Role-play in teaching ethics and professionalism in construction education

Ethics and professionalism were taught to 21 first-year construction students using a seminar method wherein students worked in small groups to encourage peer-to-peer learning. This peer participation can help promote critical thinking and understanding of the topic (Tullis and Goldstone, 2020). Students in small groups of five or six learners were given a typical construction project scenario containing issues of ethical dilemmas that required actions that might be morally wrong or right. Students assumed roles covering the stakeholders expected in any construction project. This includes the client, construction professionals, end-users/community members, government representatives and financial institutions, among others. They played out the given scenario while making the necessary decision they deemed ethical. In the end, they assigned a weight of within ± 5 to their decision based on the level of impact of such

a decision on the different affected parties. The decisions taken are further discussed with other members of the class and are carefully compared with the Chartered Institute of Building and the Royal Institute of Chartered Surveyors' rules of conduct to ensure the standards are understood and followed. Figure 1 shows the role-play process adopted.

It was observed that the use of this approach to solving ethical dilemmas offered immense benefits to the teaching of ethics and professionalism within construction education. This approach:

- i. Encouraged student participation in group settings.
- ii. Instilled the concept of teamwork, which is essential in the delivery of construction projects.
- iii. Promote student-centred teaching.
- iv. Improved understanding and retention of the code of conduct of the different professional bodies.
- v. Built friendships among students as many were new to the university environment and had yet to bond with others. Working in a small group and role-playing with other students allowed them to get to know their classmates and create some form of friendship needed to navigate the university environment.

At the end of the role play, students' feedback evaluation was recorded through a discussion of their experience in the role play. A thematic assessment of this feedback was conducted, and the most common impacts were noted. These are:

- i. Role-play afforded students the ability to critically evaluate ethical issues ($f = 16$)
- ii. Students learnt of the possible issues that might occur when they start practising in the construction industry ($f = 16$)
- iii. Students learnt the importance of ethics in their profession ($f = 15$)
- iv. Students were able to view ethical issues from different construction participant's perspective ($f = 12$)
- v. Students enjoyed collaborating and interacting with others in a group setting ($f = 9$)
- vi. Role-play allowed students to build on their ability to communicate ($f = 5$)

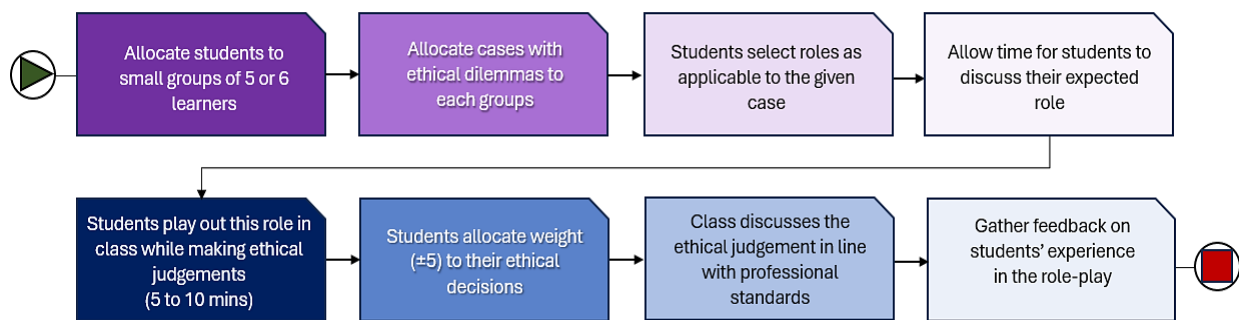


Figure 1. Conducting role-play in the ethics and professionalism module

6.2 Using student-generated podcasts to assess construction students' understanding of ethics and professionalism

Traditionally, the knowledge of ethics and professionalism among construction students is assessed either through examinations, in-class tests, or written reports that delineate their understanding of certain ethical issues. Considering the different ways students learn, technological advancement and the importance of inclusivity and fairness, improving how these construction students are assessed became necessary. In 2022/2023, report weighting 100% was adopted in assessing students' knowledge. Students were given a range of ethical issues and were expected to write a detailed report (circa 5000 words) on how best to address these ethical issues. The report was electronically generated and marked according to a defined marking rubric, shared with the students at the beginning of the season to guide their writing. This assessment system was further broken down the following year into report writing and SGP. Both approaches were weighted 50% each to allow the students to express their views in written form and through audio-visual presentation. The students were expected to showcase their knowledge of ethics and professionalism through a detailed report (circa 2500 words). They were also asked to select from a range of ethical and professional issues that affect the construction and give a detailed discussion, citing relevant scenarios and giving their perspective on these issues using SGP.

Figure 2 compares the student's performance between 2022/2023, where the report was adopted, and 2023/2024, where the report and SGP were employed. From the result, in 2022/2023, 16 out of 21 students had an above average of 50%, with the overall class average sitting at 59 and a class median of 62. The maximum mark was 73, and a minimum of 40. However, in 2023/2024, with 26 students assessed through report writing and SGP, 22 students had

an above average of 50%, with the class average at 62.7 and a class median of 68. The maximum mark of 92 was also recorded, significantly improving from the preceding year, while the minimum mark dropped to 28.

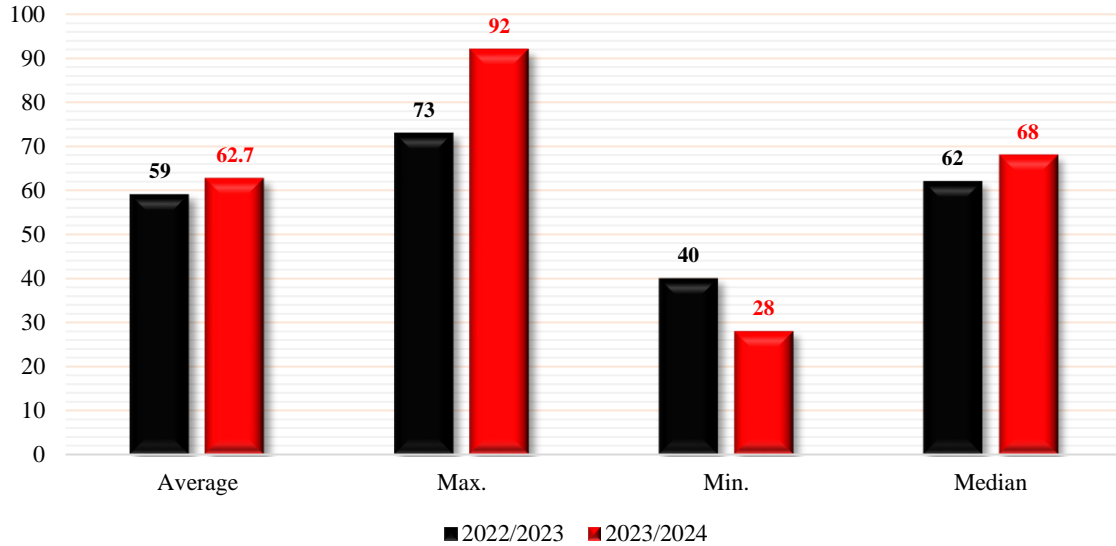


Figure 2. Comparison of student performance between two years

Further evaluation to understand the impact of the introduced SGP assessment in 2023/2024 on students' understanding of ethics and professionalism was conducted, and the result is presented in Figure 3. The result revealed a significant increase in the class average for SGP (80) compared to using the report (61.1). Moreover, the class median moved from 63.8 in a report to 83.8 in SGP, while a maximum score of 97.5% was recorded for SGP as against 82.5% recorded in the report. These results show that the students performed better when allowed to express their views on selected ethics and professionalism topics using the audio-visual means of assessment. This finding is consistent with the submission of Hopkins (2012), who noted that students' achievement in the podcast creation assignment was significantly better than those who used other approaches.

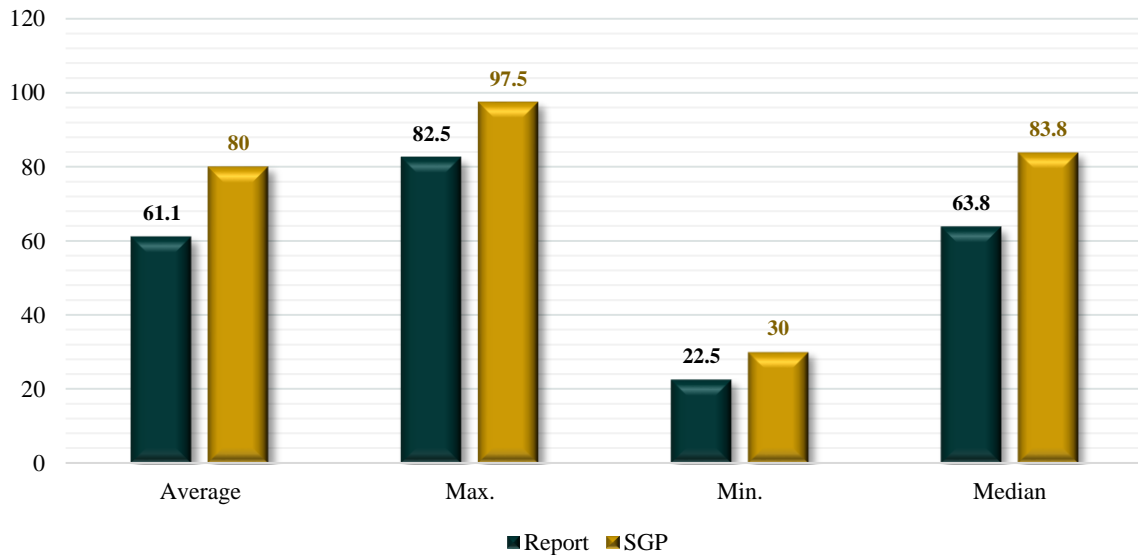


Figure 3. Comparison between report and SGP as assessment tools

6.3 Discussion and implication of findings

The study found that the use of role-play holds immense benefits for teaching and learning ethics and professionalism in construction. For tutors, the approach allowed a student-centred teaching method that promotes students' participation and active learning, which is essential for the way students in construction learn (Yunus, 2000). Furthermore, it offers tutors the opportunity to enshrine the importance of teamwork, which is a key requirement of construction projects, while teaching the different ethical standards expected from a practising professional. Furthermore, role-play will allow social cohesion within the classroom and give students some sense of trust in their classmates. For the student, the study found that improved critical thinking, better understanding of ethical issues, understanding of ethical issues from multiple viewpoints, improved communication, and collaboration are all benefits of using role-play. These findings are consistent with past submissions that have noted that role-play can further improve students' communication skills, critical thinking and ingenuity (Grose-Fifer, 2017; Nestel and Tierney, 2007; Poling and Hupp, 2009). An emergent implication for teaching and learning in construction education is that the traditional lecture-based approach to teaching ethics and professionalism can be improved upon. Using other approaches like role-play that have been tested and adjudged effective in other fields of study can also prove useful in promoting much-needed student-centred learning in construction subjects.

The study's findings further revealed the importance of having diversified assessment methods, as Wakefield *et al.* (2023) noted earlier. Using the combination of report writing and SGP provided better performance than using only report writing. Moreover, comparing students' performance in the report they have written against their developed SGP revealed that most students performed better in the SGP. This improved performance can be attributed to the fact that the SGP allowed the students to pass across their views of the selected topic in a more detailed and creative manner than they would have been able to in the case of report writing. This is consistent with Lee *et al.* (2008) observation that SGP gives students the opportunity to express themselves creatively. Moreover, using SGP offers these construction students the opportunity to improve their visual and audio presentation skills and use technology in learning. Since considerable interaction with technology is achieved through the search for required materials for the selected topic, using technology to develop presentations and record their podcast, students gain technological skills while demonstrating their knowledge of the selected ethics topic. This further confirms past submissions that SGP increases students' interaction with available technological tools as well as their communication skills (Frydenber, 2006; Perry, 2024). These findings imply that there is a need to move away from the traditional methods of assessments (reports, exams and in-class tests) in construction programmes. Assessments of otherwise theoretical topics like ethics and professionalism can be made more enjoyable through innovative assessment methods like SGP (Wakefield *et al.*, 2023). By adopting this approach, construction programmes can produce more graduates with the required generic skills of critical thinking, problem-solving, effective communication and good teamwork that are required to survive within the construction industry (Aliu *et al.*, 2023).

7. Conclusion

A student-centred approach to learning in construction education is important for sustained teaching and learning. This study, through observations and assessment of documentary evidence, assessed advances in teaching and assessment of ethics and professionalism in construction education. The study concludes that students' understanding of ethics and ethical dilemmas can be improved through role-play. It was noticed that role-play is student-centred learning, which offers critical thinking, a better understanding of ethical issues, evaluation of ethical issues from multiple viewpoints, improved communication skills and collaboration with peers. Furthermore, role-play allows lecturers to promote active learning among students, instil the importance of teamwork, and promote social cohesion and trust within the classroom. In terms of assessing students' understanding of ethics and professionalism, the study concludes that using diverse assessment methods will offer better outcomes than using a single assessment approach. It was further noted that innovative assessment methods like SGP are more enjoyable and beneficial in student performance than report writing. This assessment method is also student-centred and allows students to improve their visual and audio presentation skills, critical thinking, problem-solving, and technological skills, which are crucial for their survival as practising professionals within the construction industry.

The findings offer practical contributions to the existing discourse of learning among construction students. By adopting role-play in exploring ethical dilemmas and using SGP in assessing students' understanding of ethics and professionalism, HEIs can produce graduates who are better equipped with the knowledge of ethics and critical thinkers and problem solvers who can communicate effectively using audio and visual presentations. Moreover, these institutions can produce graduates who can work in teams to achieve a common goal. Likewise, the findings offer a platform for a wider debate on diversifying the delivery and assessment methods in construction programmes, mostly for theoretical topics like ethics and professionalism. It emphasises the need to revisit expected learning outcomes and curriculum design while determining how best to achieve these outcomes through a student-centred approach to

teaching and learning. Theoretically, the study promotes the concept of role-play and podcasting in teaching and learning within construction education. These pedagogical approaches have received less attention within the construction's teaching and learning discourse, especially in relation to ethics and professionalism. Therefore, the study can serve as an excellent platform for future works seeking to explore these learning and assessment methods within the construction.

The findings of this study are, however, limited by some factors. For instance, the performance of students when SGP was introduced was only compared against the use of report writing. The result might prove different if this comparison is done against other assessment methods like examination or in-class tests. Future studies can, therefore, explore this comparison to evaluate the possible impact of SGP on student performance. Furthermore, this study was conducted in one institution in the United Kingdom, so the findings cannot be generalised for the entire country. Further studies can be conducted in other institutions offering construction programmes within and outside the country to have a broader view of the topic. Lastly, role-play was explored with a small group of students. It is difficult to ascertain the possible outcome if a larger group was taught using the same approach. As such, further study using a large group of students can be carried out to determine the impact of role-play in a large group of students and ascertain the challenges therein.

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