Original Research Paper

Design and Development of SCRIBE (Systematic Collection of Reflections and Individual experiences in Bioethics Education): A Novel ePortfolio for Bioethics Education

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ABSTRACT

The escalating complexity of ethical dilemmas in healthcare underscores the critical need for innovative educational tools that transcend traditional didactic approaches. SCRIBE (Systematic Collection of Reflections and Individual experiences in Bioethics Education) emerges as a pivotal solution, addressing this gap by facilitating an ePortfolio-based formative assessment approach. This platform is designed to enrich bioethics education by enabling students who are enrolled in The International Graduate Course on Humanistic and Socialistic Medicine for Healthcare Providers by UNESCO chair in Bioethics to document, reflect upon, and evaluate their learning experiences and ethical reasoning in real time. The need for such a tool is driven by the growing recognition that understanding and navigating bioethical issues require more than theoretical knowledge; it demands continuous reflection, practical application, and adaptive learning. SCRIBE's development reflects a strategic response to this educational imperative, promising to enhance students' engagement, critical thinking, and ethical decision-making skills in bioethics.

Keywords: Bioethics, ePortfolio Development, SCRIBE, Formative Assessment, Reflective Learning, Ethical Competence, Personalized Learning Paths, Professional Growth

Introduction

Bioethics education is integral to preparing healthcare professionals capable of navigating the complex ethical landscapes they will encounter in practice [1]. It blends ethical theories with practical applications, aiming to equip students with the skills needed for ethical decision-making

in healthcare [2-3]. The primary challenge lies in the limitation of conventional assessments, such as exams and essays, to fully capture the depth of students' understanding and their ability to engage in ethical reasoning and decision-making [4-5]. There's a growing recognition of the need for innovative assessment strategies that can more accurately reflect students' competencies in bioethics, focusing on application, critical thinking, and reflective practice [6].

ePortfolios are used to support personalized learning paths, encourage reflective practice, and facilitate continuous feedback from educators, enhancing the learning process in bioethics education [7]. By allowing students to create a comprehensive record of their learning journey, ePortfolios can enhance self-awareness, ethical sensitivity, and professional development, preparing them for the ethical challenges in healthcare [8-9]. Specifically designed for medical, nursing and other health professions' students enrolled in the International Graduate Course on Humanistic and Socialistic Medicine for Healthcare Providers by the UNESCO chair in Bioethics, SCRIBE (Systematic Collection of Reflections and Individual experiences in Bioethics Education) serves as a pivotal tool. It enables students to document, reflect upon, and evaluate their learning experiences and ethical reasoning in real-time, facilitating a deeper engagement with the course's humanistic and socialistic principles.

Need for ePortfolio in Bioethics Education

The incorporation of ePortfolios in bioethics education responds to the evolving landscape of healthcare and education, where traditional assessment methods fall short of capturing the depth and breadth of students' learning and ethical reasoning. ePortfolios offer a dynamic platform for students to document, reflect upon, and showcase their learning journey, facilitating a deeper engagement with bioethical concepts. This approach aligns with the pedagogical shift towards competency-based education, emphasizing critical thinking, ethical reflection, and lifelong learning. By enabling personalized learning paths, ePortfolios cater to the diverse needs and interests of students, fostering a more inclusive and adaptable educational environment. The need for ePortfolios in bioethics education is driven by the recognition that ethical competence is not just about knowledge acquisition but also about the ability to navigate complex moral landscapes, make informed decisions, and engage in continuous professional and personal development.

Methods

1.1. **Design and Development of SCRIBE (Systematic Collection of Reflections and Individual experiences in Bioethics Education)** – A novel ePortfolio for Bioethics Education: The SCRIBE ePortfolio is a cutting-edge platform designed to revolutionize bioethics education by emphasizing reflective learning, personal and professional development, and continuous assessment [10]. At the core of SCRIBE's methodology is its robust architecture that supports a wide array of features tailored to meet the unique needs of bioethics education.

1.2. **Reflective Journals:** SCRIBE encourages students to engage in reflective practice by maintaining journals where they can articulate their thoughts, experiences, and learning in relation to bioethical principles and dilemmas. This feature fosters a habit of critical thinking and ethical reasoning, enabling students to make connections between theoretical knowledge and practical experiences.

1.3. **Academic and Clinical Tracking:** The platform facilitates comprehensive tracking of students' academic coursework and clinical experiences, including internships and fieldwork related to bioethics. This feature ensures that students can document and reflect upon their encounters with ethical issues in real-world healthcare settings, enhancing their ability to apply bioethical frameworks in practice.

1.4. **Research Portfolio:** SCRIBE serves as a repository for students to showcase their bioethics research projects, publications, and presentations. This feature not only highlights students' contributions to the field but also encourages a culture of scholarship and inquiry, essential components of bioethics education.

1.5. **Professional Development Log:** Recognizing the importance of lifelong learning, SCRIBE includes a log for conferences, workshops, and seminars attended by students. This aspect of the ePortfolio underscores the value of continuous professional development and the expansion of knowledge through engagement with the broader bioethics community.

1.6. **Interactive Feedback:** A distinctive feature of SCRIBE is its interactive feedback mechanism, which allows educators to provide timely, constructive feedback on students' reflections, research, and clinical experiences. This two-way communication channel supports personalized learning and mentorship, crucial for student growth and development in bioethics.

1.7. **Customization and Privacy:** Understanding the personal nature of reflective learning, SCRIBE offers high levels of customization and robust privacy settings. Students can tailor their ePortfolio appearance and control who has access to their work, ensuring a secure and personalized learning environment.

A summary of features included in the SCRIBE ePortfolio is represented in Table 1

Table 1: Features of SCRIBE (Systematic Collection of Reflections and Individual experiences in Bioethics Education): A novel ePortfolio for Bioethics Education

Feature	Details Included	What Will It Assess
About Me	Personal information, brief bio, vision, and goals	Personal development and background
Academics	Courses enrolled, certificates, mode of study	Academic achievements and learning progress
Personal Reflection	Reflections on courses, "Be the Change" impact reflections	Self-reflection, learning outcomes
Projects	Research, publications, interdisciplinary collaboration details	Research skills, teamwork, and collaboration
Activity	Conference participation, competitions and awards, workshops and training details	Professional development and engagement
Clinical Experiences	Ethical dilemmas encountered, applied bioethics principles	Practical ethical reasoning and decision-making
Voluntary Participation	Organization involvement, role, learning outcomes	Community engagement and personal growth
Ethics Through Art	Artistic expression of bioethics topics	Creative expression and ethical understanding

Analytics	Visual representation of activity frequency	Engagement and activity overview
Feedback	Discussion forums, comments	Community interaction and feedback

Validation of the SCRIBE ePortfolio

The validation and pilot testing phase for the ePortfolio system will be meticulously conducted with medical and nursing students from year 1 to year 4, who have completed The International Graduate Course on Humanistic and Socialistic Medicine for Healthcare Providers. This diverse cohort will provide rich, multidimensional feedback, reflecting a broad spectrum of user experiences and needs across different stages of medical and nursing education. In the validation of the SCRIBE ePortfolio, a case-control study approach will be adopted, focusing on comparing students who have used the ePortfolio with those who have not, within the context of The International Graduate Course on Humanistic and Socialistic Medicine for Healthcare Providers. This design will facilitate a clear understanding of the ePortfolio's impact on learning outcomes, reflective practices, and professional development. Additionally, a mixed methods approach will be used to evaluate the ePortfolio, combining quantitative data (such as usage statistics and completion rates) with qualitative feedback (including student reflections and faculty assessments) to provide a comprehensive view of its effectiveness and areas for improvement. This strategy ensures a robust evaluation framework that addresses both the functional and experiential aspects of the ePortfolio system.

Anticipated Outcomes

The anticipated outcome of implementing and validating the SCRIBE ePortfolio system in bioethics education, especially among medical and nursing students from year 1 to year 4, is multifaceted. Firstly, it aims to significantly enhance students' reflective practices, allowing them to critically evaluate their learning experiences, ethical dilemmas, and professional development activities. This reflective capacity is expected to deepen their understanding of bioethical principles and how these principles apply in real-world healthcare settings. Secondly, the system is designed to promote a culture of continuous learning and professional growth, encouraging students to engage with the broader bioethics community through conferences, workshops, and research activities. By facilitating a personalized learning environment with robust feedback mechanisms, SCRIBE will enable educators to tailor their teaching and assessment strategies more effectively to meet individual students' needs. Furthermore, the ePortfolio's emphasis on privacy and customization ensures that students can safely and confidently document their educational journey. Ultimately, SCRIBE is expected to produce healthcare professionals who are not only academically proficient but also ethically conscious, socially responsible, and equipped with the critical thinking skills necessary to navigate the complex moral landscapes of modern healthcare. This approach aligns closely with the objectives of humanistic and socialistic medicine, promising to cultivate a new generation of caregivers who are deeply committed to the ethical dimensions of patient care and healthcare delivery.

Conclusions

SCRIBE (Systematic Collection of Reflections and Individual experiences in Bioethics Education): A novel ePortfolio for Bioethics Education represents a transformative approach to bioethics education, addressing the critical need for innovative assessment methods that support reflective

learning and professional growth. Its comprehensive features offer a holistic platform for students to document their educational journey, engage in critical reflection, and showcase their achievements. Anticipated outcomes suggest that SCRIBE will not only enhance students' understanding and application of bioethical principles but also foster a culture of continuous learning and professional development. As bioethics continues to play a crucial role in healthcare and research, SCRIBE stands as a testament to the importance of equipping future professionals with the tools necessary for ethical decision-making and leadership. In conclusion, SCRIBE's implementation is poised to set a new standard for bioethics education, paving the way for a more reflective, engaged, and ethically competent generation of healthcare professionals.

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