Role-playing Green Information System Analysis by Secretarial Students for Sustainable Education: 21st Century Digital Skills

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Abstract. Green information systems play an important role for sustainable education, especially in providing support to the government towards environmental conservation because it minimizes the use of paper. Serious efforts are needed from academics to support sustainable education with online role-playing learning in secretarial courses. Practices that are carried out can have an impact on paperless. The role-playing learning model by bringing up seven office personnel such as: leaders, secretaries, junior secretaries, incoming mail agendas, outgoing mail agendas, archivists and expeditors that were previously carried out manually by using a lot of paper needs to be transformed with a green information system that is organized online with paperless. The green information system analysis provides a comprehensive guide to the role-playing learning model supported by applications that have an impact on sustainable education with attention to environmental sustainability in a paperless form. This research also investigates the 21st century digital skills of utilizing green information systems. The findings provide useful insights into best practices, the implementation of practices organized with a role-playing learning model that utilizes green information systems to support sustainable education, especially paperless as a form of concern for environmental sustainability.

Keywords: Green Information Systems, Sustainable Education, Role-Playing Learning, Digital Skills, Paperless

1 Introduction

Digital transformation towards sustainability in higher education is crucial for the 21st century. Information systems and services in higher education and research sectors generate significant greenhouse gas emissions that affect the environment [1]. Consequently, there is an urgent need to develop green information systems (green IS) that are designed to have minimal environmental impact throughout their lifecycle. Secre-

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tarial students in higher education play a critical role in supporting sustainable education through their day-to-day office operations. Transforming the traditional role-playing learning model in secretarial courses to utilize green information systems can have a significant impact on reducing paper usage and promoting environmental sustainability [1].

Role-playing learning models in secretarial courses often involve simulated office scenarios with various personnel such as leaders, secretaries, junior secretaries, incoming mail agendas, outgoing mail agendas, archivists and expeditors. These scenarios have historically been paper-intensive, with documents being printed, filed, and stored physically[2]. However, by leveraging green information systems, these role-playing activities can be transformed into a more sustainable, paperless process, reducing the environmental impact while still providing valuable learning experiences for students[1].

This research paper aims to explore the potential of utilizing green information systems in the context of role-playing learning for secretarial students to support sustainable education in the 21st century[3]. The study investigates the specific digital skills required for effectively implementing and utilizing green information systems in this learning environment[4].

Role-playing learning models that involve secretarial students can be leveraged to promote green information systems and sustainable practices [1]. Secretarial students can take on various roles such as leaders, secretaries, mail handlers, and archivists, and use green information systems to manage office tasks in a paperless manner. This not only develops their 21st century digital skills but also contributes to environmental sustainability efforts. Engaging pedagogies that involve high levels of thinking and collaboration between students can further enhance the learning experience and promote pro-environmental consciousness and behaviors [5].

Research is needed to investigate how role-playing learning models incorporating green information systems can be implemented to support sustainable education, especially in the area of paperless operations[6]. This study seeks to address this gap by providing a comprehensive guide to the role-playing learning model supported by green information systems, as well as an analysis of the 21st century digital skills required for effective implementation.

According to recent research, technologies such as virtual reality, gamification, and digital approaches can enhance teaching and learning activities to foster pro-environmental consciousness and behavior [5]. Engaging pedagogies that involve high levels of thinking and collaboration also have a positive impact on this process. Furthermore, higher education institutions are exploring smart and sustainable campus approaches to manage their resources more efficiently, including energy, water, waste, and emissions.

In this context, this paper explores the role of green information system analysis by secretarial students for sustainable education, focusing on the development of 21st century digital skills.

2 Literature Review

2.1 Role-playing Green Information Systems Analysis

Current research highlights the significant environmental impact of information systems and services in the higher education and research sectors, with these systems generating massive greenhouse gas emissions [1]. The urgency to develop green information systems that minimize environmental impact throughout their lifecycle is well-established.

Transforming the traditional role-playing learning model in secretarial courses to utilize green information systems can have a significant impact on reducing paper usage and promoting environmental sustainability[1]. Secretarial students can take on various roles such as leaders, secretaries, mail handlers, and archivists, and use green information systems to manage office tasks in a paperless manner.[1]This not only develops their 21st century digital skills but also contributes to environmental sustainability efforts.[5]

Recent studies have found that engaging pedagogies involving high levels of thinking and collaboration between students can positively impact the development of pro-environmental consciousness and behaviors. Furthermore, higher education institutions are exploring smart and sustainable campus approaches to manage their resources more efficiently, including energy, water, waste, and emissions.[5]

Secretarial students in higher education play a critical role in supporting sustainable education through their day-to-day office operations. By incorporating green information systems into role-playing learning models, secretarial students can develop the necessary digital skills to effectively implement and utilize these systems, contributing to the overall goal of sustainable education in the 21st century[5]. The literature review provides a comprehensive understanding of the role of green information systems in supporting sustainable education, with a focus on the involvement of secretarial students.

Firstly, the review highlights the urgent need for developing green information systems to address the significant greenhouse gas emissions generated by information systems and services in the higher education and research sectors [1]. This aligns with the broader push for digital transformation towards sustainability in higher education, which involves the adoption of technologies like virtual reality, gamification, and digital approaches to enhance teaching, learning, and campus operations[5].

Secondly, the review emphasizes the critical role of secretarial students in supporting sustainable education through their day-to-day office operations. Role-playing learning models that involve secretarial students can be leveraged to promote green information systems and sustainable practices, as they can take on various roles and use green information systems to manage office tasks in a paperless manner[3].

Furthermore, the review discusses the importance of engaging pedagogies that involve high levels of thinking and collaboration, as they have a positive impact on fostering pro-environmental consciousness and behavior among students.

Finally, the review acknowledges the emerging trend of smart and sustainable campus approaches, where higher education institutions are actively managing their resources, including energy, water, waste, and emissions, in an effort to create suitable places for learning, health, and well-being[7].

Overall, the literature review provides a strong foundation for understanding the significance of green information system analysis by secretarial students for sustainable education, and the development of 21st century digital skills in this context. The effective implementation of green information systems in the context of sustainable education requires the development of a range of 21st century digital skills among secretarial students.

3 Method

This study employs a descriptive qualitative approach to systematically, factually, and accurately collect, analyze, and interpret data to gain a comprehensive understanding of the phenomena surrounding the utility of secretarial education. The subjects of this study were the lecturer in charge, the laboratory assistant and the students of the VI semester of 2019/2020 with the number of PAP A totaling 65 students and PAP B totaling 60 students. The number of students who take office practice courses in the Office Administration Education Study Program is 125 students. This research paper aims to explore the potential utilization of environmentally friendly information systems in the context of role-play learning for secretarial students to support sustainable education in the 21st century. This research investigates the specific digital skills required to effectively implement and utilize green information systems in this learning environment.

4 Results and Analysis

Analysis indicates that the secretarial course is a learning simulation that emulates office administration within an institutional setting. Incorporating green information systems within this simulation can enhance the development of 21st century digital skills among students. The key digital skills required include: Ability to effectively use digital tools and technologies to access, manage, and critically evaluate information in a green computing context.

This learning experience provides students with information about the responsibilities and workflows of various office personnel, as well as the fundamental skills required to manage office practices in an organizational context. Through this simulation, students engage in a sequential process of assuming different office roles, enabling them to acquire a comprehensive understanding of the duties and responsibilities of diverse office personnel.

By incorporating green information systems into the learning simulation, students can develop digital skills such as document management, communication, collaboration, and problem-solving within a sustainable framework. These skills are crucial for the effective implementation and utilization of green information systems in an office environment, thereby contributing to the broader goal of sustainable education.

An important aspect of this learning model is the opportunity for students to engage in role-playing activities that mimic real-world office scenarios. This allows them to actively experience and develop the necessary digital skills to manage office operations in a green and sustainable manner.

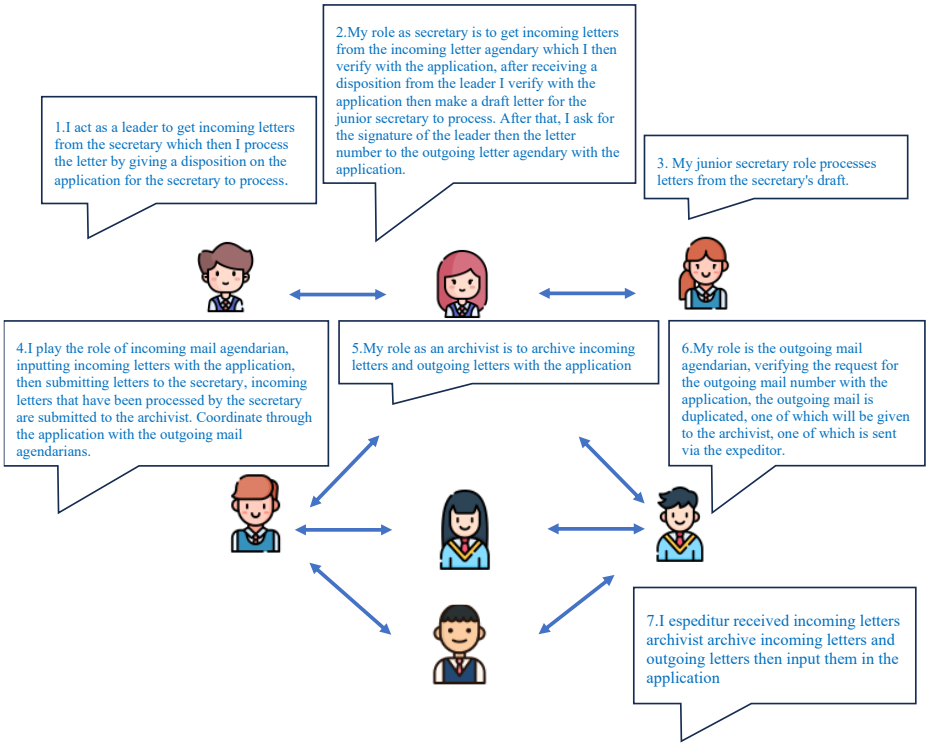

Figure 1. prototype of system usage in role-playing learning model

As facilitators, instructors provide role-playing scenarios to each student representing a different office position, including team leader, secretary, junior secretary, incoming mail coordinator, outgoing mail coordinator, task executor, and records archivist. For each office role, the instructor prepares the content by compiling the assignments given to the students. Each student is required to compose a set of fifty letters, comprising twenty-five incoming communications and twenty-five outgoing communications, with unique themes for each letter.

Incoming letters consist of five offer letters, five complaint letters, five delivery letters, five quotation letters, and five order letters, and outgoing letters consist of five offer letters, five complaint letters, five delivery letters, five quotation letters, and five order letters. Based on the assignments collected from 125 students consisting of sixty-five (65) PAP A students and sixty (60) PAP B students in the class of 2019/2020, six thousand two hundred and fifty (6,250) assignment sheets will be collected from all students.

The lecturer manually prepared thousands of assignment sheets for students in a random manner, aiming to ensure that the same students did not process the same assignments and that students would handle a diverse range of tasks. However, this manual approach proved to be ineffective and inefficient, with the potential for human errors. Using this manual system required significant time and effort that could not be handled by one or two lecturers alone. The lecturer had to rely on the assistance of three lab assistants, who spent the first week preparing materials. Additionally, two lecturers had to work overtime during the first three weeks to prepare the necessary lecture materials.

During the first three weeks of the course, the instructor provided theoretical explanations regarding the workflow and responsibilities of various office roles. Furthermore, in the fourth week, the instructor presented a theoretical simulation describing the stages that each office employee must carry out, dividing students into groups of seven. It is anticipated that from the fifth to the eleventh week, students will have simulated the duties of office employees, including the roles of office leaders, processors, executors, directors, agenda setters, expediters, and archivists. Specifically, in the seventh week, the instructor directs students to perform the simulations in succession until all office staffing tasks have been completed by the students. This is expected to enable students to understand the flow of tasks, staff roles, and gain an overview of the skills and abilities required for each office position. In the final four weeks, from weeks 12 to 16, students will repeat the simulation from the beginning, which will serve as the final assessment for the secretarial course.

5 Conclusion

The paper emphasizes the necessity for developing an incoming and outgoing mail management system tailored to the needs of office practice. This would necessitate teaching students to master the utilization of such a system. Furthermore, the system's development could assist lecturers in preparing their teaching materials. The proposed system should include the following components: 1) a teaching material system for processing incoming and outgoing letters by students, 2) an incoming and outgoing letter agenda handling system, 3) an incoming and outgoing letter numbering system, and 4) an incoming and outgoing letter archive management system. Incorporating an information system in secretarial courses would motivate students to stay current with evolving science and technology, which is a strategic step in preparing educators who are technologically proficient. The paper recommends conducting further research to develop a prototype design for an integrated incoming and outgoing mail management

information system tailored to the needs of office practice. It is also suggested that the prototypes be tested for expertise, revised, and evaluated until a feasible IT-based learning system is obtained for application in office courses.

6 References

1. Chowdhury G. Building environmentally sustainable information services: A green IS research agenda.
2. Connolly TF, Kleiner BH. The Paperless Office of the Future.
3. Hernandez AA. An Empirical Investigation on the Awareness and Practices of Higher Education Students in Green Information Technology.
4. Worthington T. A Green computing professional education course online: Designing and delivering a course in ICT sustainability using Internet and eBooks.
5. Trevisan LV, Eustachio JHP, Galleli B, Filho WL, Pedrozo ÉÁ. Digital transformation towards sustainability in higher education: state-of-the-art and future research insights.
6. Sprick WJ. Try it, you'll like it—business simulation, that is.
7. Menon S, Suresh M. Synergizing education, research, campus operations, and community engagements towards sustainability in higher education: a literature review.