



International Teaching Aid
Competition 2023

Reconnoitering Innovative Ideas in Postnormal Times

iTAC

2023

iTAC 2023
INTERNATIONAL TEACHING AID COMPETITION
E-PROCEEDINGS

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PREFACE

iTAC or International Teaching Aid Competition 2023 was a venue for academicians, researchers, industries, junior and young inventors to showcase their innovative ideas not only in the teaching and learning sphere but also in other numerous disciplines of study. This competition was organised by the Special Interest Group, Public Interest Centre of Excellence (SIG PICE) UiTM Kedah Branch, Malaysia. Its main aim was to promote the production of innovative ideas among academicians, students and also the public at large.

In accordance with the theme "Reconnoitering Innovative Ideas in Post-normal Times", the development of novel ideas from the perspectives of interdisciplinary innovations is more compelling today, especially in the post-covid 19 times. Post-pandemic initiatives are the most relevant in the current world to adapt to new ways of doing things and all these surely require networking and collaboration. Rising to the occasion, iTAC 2023 has managed to attract more than 267 participations for all categories. The staggering number of submissions has proven the relevance of this competition to the academic world and beyond in urging the culture of innovating ideas.

iTAC 2023 committee would like to thank all creative participants for showcasing their innovative ideas with us. As expected in any competition, there will be those who win and those who lose. Congratulations to all the award recipients (Diamond, Gold, Silver and Bronze) for their winning entries. Those who did not make the cut this year can always improve and join us again later.

It is hoped that iTAC 2023 has been a worthy platform for all participating innovators who have shown ingenious efforts in their products and ideas. This compilation of extended abstracts published as iTAC 2023 E-Proceedings contains insights into what current researchers, both experienced and novice, find important and relevant in the post-normal times.

Best regards,

iTAC 2023 Committee
Special Interest Group, Public Interest Centre of Excellence (SIG PICE)
UiTM Kedah Branch
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R.I.A - RADIOACTIVE ISOTOPES AND AUTORADIOGRAPHY

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ABSTRACT

Teaching aids play a crucial role in enhancing the learning by providing visual and interactive tools to facilitate understanding. In this context, the innovation of R.I.A (Radioactive Isotopes and Autoradiography) as a teaching aid offers a unique and effective approach to teaching complex scientific concepts related to radioactivity and its application. R.I.A incorporates the use of radioactive isotopes and autoradiography techniques to visualize the distribution of radioactivity in biological samples. By introducing this innovative teaching aid, educators can engage students in a hands-on learning experience, enabling them to comprehend the principles of radioisotopes and their role in various fields such as medicine, biology, and agricultural sciences. The use of R.I.A provides several benefits in the teaching process as it contains videos, quizzes, and puzzles to enhance students' understanding of this topic. R.I.A allows students to explore the applications of radioisotopes in diagnostic imaging, radiation therapy, and scientific research, thereby promoting critical thinking and problem-solving skills. Moreover, R.I.A offers a safe and controlled environment for students to study radioactivity. The incorporation of modern radiation safety protocols ensures that students can interact with

radioactive materials responsibly, while also instilling a sense of respect and caution regarding the potential hazards associated with radioisotopes. In conclusion, the innovation of R.I.A as a teaching aid provides a valuable tool for educators to teach complex scientific concepts related to radioactivity. By combining hands-on experimentation with visual representation, R.I.A facilitates a deeper understanding of the principles and applications of radioisotopes, empowering students with the knowledge and skills necessary for future scientific endeavors.

Keywords: Autoradiography, Biotechnology, Radioactive, Teaching aid, Supportive educational environment

INTRODUCTION

R.I.A (Radioactive Isotopes and Autoradiography) is an innovative teaching aid that enhances learning by providing visual and interactive tools. It uses radioactive isotopes and autoradiography to teach complex scientific concepts related to radioactivity. R.I.A engages students in hands-on learning, promotes critical thinking, and explores applications in various fields. It ensures student safety and instills responsible handling of radioisotopes. R.I.A is a valuable tool for educators to teach radioactivity effectively.

The R.I.A. flip book covers various topics related to radioactive isotopes and autoradiography, including the properties of isotopes, radioactive decay, half-life, radioisotope labeling techniques, and the principles behind autoradiography. Each topic is presented in a concise and accessible manner, utilizing clear language and a logical progression to facilitate easy comprehension. The R.I.A. flip book covers various topics related to radioactive isotopes, including the structure and composition of atoms, nuclear decay, types of radioactive isotopes, and their applications in medicine, industry, and environmental science. Each topic is presented in a clear and concise manner, utilizing language appropriate for the intended educational level, and offering a logical progression to facilitate easy comprehension.

OVERVIEW OF R.I.A.



Figure 1. Summary content of R.I.A. flip book

The purpose and objectives of R.I.A. is to create an educational atmosphere that encourages active participation and fosters increased engagement. Other than that, R.I.A. is able to generate a heightened level of interest and engagement in the study of science subjects. This interactive handbook can also gather and streamline information in a manner that makes learning the subject easier and enjoyable.

DESIGN AND FEATURES OF R.I.A.

The interactive flip book, R.I.A. (Radioactive Isotopes and Autoradiography), is an innovative teaching tool that combines engaging visuals, concise explanations, and interactive elements to foster a deeper understanding of these complex scientific concepts. The R.I.A. flip book incorporates a series of carefully crafted pages that systematically guide students through the fundamental principles and applications of radioactive isotopes and autoradiography. The content is presented in a visually appealing manner, with vivid illustrations, diagrams, and

photographs, ensuring that students remain actively engaged throughout the learning process.

The unique interactive features of the flip book encourage students to participate actively and reinforce their comprehension of the subject matter. By including sections for note-taking, concept-mapping, and self-assessment quizzes, R.I.A. promotes active learning and allows students to review and consolidate their knowledge at their own pace. Additionally, the inclusion of hands-on activities and experiments further enhances the practical understanding of the concepts discussed.

INTEGRATION INTO SCIENCE EDUCATION

The use of technology as a learning medium is one of the innovative steps to improve the quality of education (Maynastiti et al., 2020). This computer-based learning such as interactive flipbooks emerged as a new paradigm in modern education (Kapenieks, 2013). The advancement of computer-based technology produces many variations in assessment tests that have an impact on student satisfaction in learning (Pen, 2008).

R.I.A incorporates the use of radioactive isotopes and autoradiography techniques to visualize the distribution of radioactivity in biological samples. By introducing this innovative teaching aid, educators can engage students in a hands-on learning experience, enabling them to comprehend the principles of radioisotopes and their role in various fields such as medicine, biology, and agricultural sciences. R.I.A allows students to explore the applications of radioisotopes in diagnostic imaging, radiation therapy, and scientific research, thereby promoting critical thinking and problem-solving skills. Moreover, R.I.A offers a safe and controlled environment for students to study radioactivity. The incorporation of modern radiation safety protocols ensures that students can interact with radioactive materials responsibly, while also instilling a sense of respect and caution regarding the potential hazards associated with radioisotopes.

This interactive handbook offers several important advantages. Since this handbook is an open access book. It can be readily accessed without the need for passwords or login credentials, and it is compatible with various devices including mobile phones, laptops and tablets. R.I.A. offers flexibility as it can be utilized at any location and time. It can be downloaded for convenient access regardless of your whereabouts. It is available in different formats, including flipbooks, video and PDF versions, catering to diverse preferences. This teaching aid innovation is also abundant with visually appealing infographics and accessible links to interactive YouTube videos, as well as captivating quizzes, word searches and puzzles to enhance engagement for students, educators and anyone.

EVALUATION AND IMPACT

To prove that this R.I.A. is helping students and learners to understand more on the radioactive isotopes and autoradiography topic, a preliminary evaluation and feedback from educators and students has been obtained.

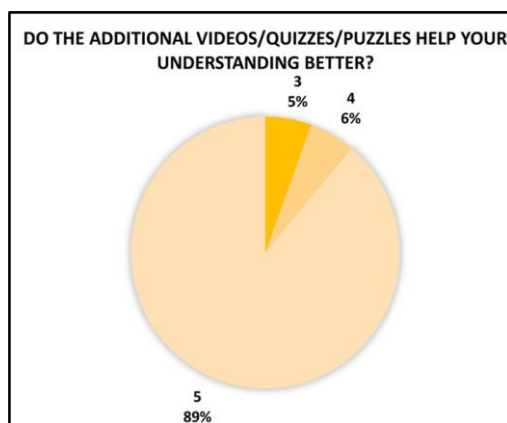


Figure 2. Pie chart showing how useful are the videos, puzzles, and quizzes to understand the topic better

Figure 2 showed that this R.I.A. flip books had successfully been beneficial to the learning of students by 89% with the addition of YouTube videos, puzzles and quizzes given to them. This assessment showed that it helped to increase enthusiasm, understanding, and knowledge retention while giving a long-term impact on student learning outcomes and scientific literacy. Preliminary evaluations and feedback from educators and students have shown promising results, with participants expressing increased enthusiasm and comprehension of the subject matter. The Flip Book media based on contextual learning is also suitable for the use in learning physics and Mathematics (Maynastiti et al., 2020). Previous finding shows that multimedia development which uses technology such as flipbook can help to improve student's geometry basic skill. It is because the printed book cannot balance with flipbook's ability in integrating sound, graph, picture, animation, and movie presentation. Technology integration in education has demonstrated that using computers in the classroom benefits students learning in mathematics (Isiksal & Aşkar, 2005; Olkun, Altun, & Smith, 2005).

CONCLUSION

In conclusion, the R.I.A. interactive flip book is a transformative teaching aid that engages students in the captivating world of radioactive isotopes and autoradiography. By presenting complex concepts in an interactive and visually stimulating manner, R.I.A. fosters deeper understanding and facilitates active learning. With its innovative approach and comprehensive

content, R.I.A. has the potential to become a valuable resource for educators seeking to inspire and educate the next generation of scientists. By combining hands-on experimentation with visual representation, R.I.A facilitates a deeper understanding of the principles and applications of radioisotopes, empowering students with the knowledge and skills necessary for future scientific endeavors.

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REFERENCES

- Dewi Maynastiti, Vina Serevina & Iwan Sugihartono. (2020). The development of flip book contextual teaching and learning-based to enhance students' physics problem solving skill. *Journal of Physics: Conference Series*, 1481.
- Isiksal, M., & Askar, P. (2005). The effect of spreadsheet and dynamic geometry software on the achievement and self-efficacy of 7th-grade students. *Educational Research*, 47(3). 333-350.
- Janis Kapenieks. (2013). User-friendly e-learning Environment for Educational Action Research. *Procedia Computer Science*, (26). 121-142.
- Olkun, S., Altun, A., & Smith, G. (2005). Computers and 2D geometric learning of Turkish fourth and fifth graders. *British Journal of Educational Technology*, 36(2). 317-326.
- Pei-Chen Sun, Ray J. Tsai, Glenn Finger, Yueh-Yang Chen & Dowming Yeh. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50 (4). 1183-1202.



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