



PIONEERING EDUCATIONAL PERSPECTIVES

Series 2025



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Preface

Pioneering Educational Perspectives: Series 2025 is a collection of thought-provoking insights and research contributions exploring contemporary educational trends and practices. This eBook presents a diverse range of perspectives on innovative teaching methodologies, digital learning strategies, and transformative approaches in education. Designed to serve as a resource for educators, researchers, and practitioners, it aims to inspire meaningful discussions and advancements in the field. Through carefully curated chapters, this publication offers fresh ideas and practical solutions to enhance learning experiences in an ever-evolving educational landscape.

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Lenz DiSCo

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ABSTRACT

This innovation aims to introduce a new Teaching Aid (ABM) that is easy to use, namely the Lenz DiSCo application, to enhance students' understanding of determining the direction of induced current and assist them in accurately answering the SP025 exam questions. Based on the researcher's observations, students struggle to understand Lenz's Law and determine the direction of induced current for solenoids and coils due to a lack of a clear image of induced current. Therefore, the researcher developed an application called Lenz DiSCo using Apple's Keynote software to provide students with a clear visualization of determining the direction of induced current according to Lenz's Law. The target group for this study consisted of 61 students from the Life Sciences and Physical Sciences programs at Kelantan Matriculation College (KMKt). Data was collected through observations and quantitatively via questionnaires. In conclusion, the implemented innovation shows that the developed Lenz DiSCo application facilitates students' understanding of Lenz's Law, enabling them to determine the direction of induced current accurately. Thus, this innovation is expected to assist physics lecturers in enhancing the teaching and learning process for the topic of Lenz's Law so that students can understand it more easily and subsequently determine the direction of induced current for solenoids and coils accurately.

KEYWORDS: Induced current, Lenz's Law, Lenz DiSCo

PROBLEM AND OBJECTIVE

Lenz's Law is a topic that is quite challenging to convey to students. Lecturers need to provide engaging analogies and draw on the whiteboard to give a clear picture to students, which takes up a lot of teaching time. However, some students still struggle to grasp Lenz's Law because they cannot visualize the movement of magnets clearly to determine the direction of the current. As matriculation college lecturers, we found that students often make mistakes when determining the direction of induced current. This is because some students do not have a clear image of the movement of magnets relative to the solenoid to determine the direction of induced current. To improve students' understanding more easily, we developed an application to provide visualization for students to determine the direction of induced current based on Lenz's Law. The primary objective of this innovation is to introduce a new Teaching Aid (ABM) that is user-friendly for both students and lecturers. Additionally, its aim is to enhance students' understanding in determining the direction of induced current and help them accurately answer exam questions.

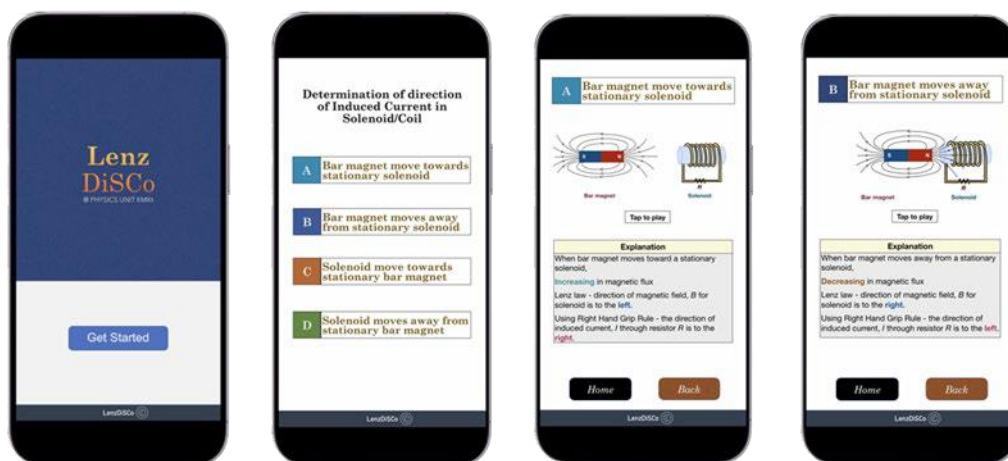
DESIGN DESCRIPTION

The interface design of the Lenz DiSCo application aims to enhance students' understanding of determining the direction of induced current using easily accessible tools. The application

features a minimalistic and straightforward interface design. The use of simple and attractive colours and icons facilitates navigation. Furthermore, this application interface provides quick access to the main menu and easy searching for necessary information.

VISUALS

The diagram below shows part of the interface design of the Lenz DiSCo application.



NOVELTY AND UNIQUENESS

Lenz DiSCo is an application that can be used online and offline. Additionally, it features a user-friendly interface. Lecturers and students can access it using various devices and operating systems (iOS and Android).

BENEFITS TO MANKIND

Lenz DiSCo has successfully attracted students' interest in the topic of Electromagnetic Induction. The Lenz DiSCo application can also save students time in quickly and accurately checking the direction of induced current (I). It includes animations of the movement of magnets or coils/solenoids and indicators of the direction of induced current, making it easier for students to see clearly without needing to visualize it. Moreover, Lenz DiSCo is popular among students because it does not require data and can be used offline. It can also serve as an alternative teaching aid for lecturers during teaching sessions.

COMMERCIAL POTENTIAL

Lenz DiSCo offers an exciting partnership opportunity for all educational institutions. Its use can be expanded to schools and higher education institutions to enhance students' understanding of Lenz's Law and determining the direction of induced current. Online learning provides a more flexible and accessible learning option, catering to current student needs. Lenz DiSCo offers exciting partnership for educational institutions and organizations. By collaborating with schools and universities, Lenz DiSCo can be integrated into curriculums, enhancing the learning outcomes of students worldwide.

CONCLUSION

Additionally, suggestions for improving Lenz DiSCo include making it a more user-friendly application with copyright protection. Furthermore, adding voiceovers and 3D images could enhance the Lenz DiSCo presentation. In the future, this application could be improved by incorporating subtopics like Self Induction and Mutual Induction, which also involve determining the direction of induced current. Overall, the Lenz DiSCo application has a

positive impact on attracting student interest in the topic of Electromagnetic Induction. A majority of students also agree that using the Lenz DiSCo application is enjoyable, time-saving, and helps them determine the direction of induced current (I) more easily and accurately.

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