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Developing an ESP digital platform based on students' learning styles: A research study in ESP course design at a university English education study program

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Abstract

This research study aims to develop an ESP (English for Specific Purposes) Digital Platform tailored to students' diverse learning styles. Applying Borg and Gall's (1983) R&D approach, the research seeks to address the varying preferences of visual, kinesthetic, and auditory learners within the context of ESP Course Design. The study population consists of 50 students enrolled in ESP Course Design across six classes. Through a structured sampling method, students from each class were selected to represent the diverse demographics of the population. Utilising a mixed-methods approach, the research employed surveys and interviews to gather data on students' learning preferences and experiences. The findings revealed that 54% of students prefer visual learning methods, 24% favour kinesthetic approaches, and 22% exhibit a preference for auditory learning modalities. Building upon these findings, the research aims to design and implement an ESP Digital Platform that caters to the identified learning styles. The platform will incorporate interactive visualisations, hands-on activities, audio lectures, and other multimedia resources to engage students and enhance their learning experience. By incorporating adaptive learning techniques and assessment tools, the platform aims to customise content delivery and evaluate students' understanding across different learning styles. Additionally, it will prioritise accessibility and usability to ensure effortless navigation and interaction for all users. In summary, this study improves ESP education by providing actual proof of how students like to learn through a digital tool that suits their different needs and useful ideas to those who are willing to make this teaching better in ESP classes.

Keywords: Digital platform; ESP course design; learning styles; research and development

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INTRODUCTION

Students' learning styles are crucial in that they enable them to optimise their individual potential during the learning process. Learners can be classified into several learning styles, such as visual, auditory, kinaesthetic, and reading/writing, based on their individual preferences for how they receive and apply information. In order to establish a more inclusive and effective learning environment, educators must acknowledge and accommodate these learning styles. By utilising a variety of teaching techniques, instructors can improve student engagement, comprehension, and retention of content by having a thorough understanding of learning styles. Furthermore, encouraging students to study in different ways can help to lower stress and boredom while also boosting academic achievement and student motivation.

In the education field, learning styles are a widely known and accepted concept that suggests students have different ways of accepting and understanding information. The range of preferences can encompass visual, aural, kinaesthetic, and reading/writing styles (Darnis, 2020). Teachers can improve student engagement, comprehension, and retention of material by customising teaching tactics to align with these preferences (Payaprom & Payaprom, 2020). Studies have demonstrated that the teaching methods employed by teachers can have a substantial influence on the level of student

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involvement and the consequences of their learning. Various pedagogical approaches, such as rigorous and logical, innovative and exploratory, caring and sharing, and hilarious and active, have the potential to impact students' cognitive capacities, practical skills, motivation, and emotional engagement (He, 2024). Ensuring that teaching approaches are in sync with students' learning styles is essential for establishing productive learning environments (Shakiila & Fathurohman, 2022).

Difficulties pertaining to students' learning styles frequently occur when the instructional techniques employed in the classroom do not align with students' specific learning inclinations. Consequently, individuals who possess certain learning preferences may encounter challenges in keeping pace with instructional materials, resulting in feelings of frustration, diminished motivation, and subpar academic achievement. Students who have a preference for visual learning may not fully benefit from an education that is primarily verbal, whereas students who prefer kinaesthetic learning may feel restricted by teaching techniques that lack engagement and practical application. The discrepancy between instructional approaches and individual learning preferences can worsen the issue of educational disparity, wherein certain pupils are disadvantaged due to their unfulfilled learning requirements. Furthermore, a deficiency in comprehension of learning styles can also impact students' reactions to assignments and tests, ultimately influencing their academic and emotional growth.

Studies suggest that students' learning preferences might change over time, shifting from one dominating style to another, particularly in conventional educational environments (Koohestani & Baghcheghi, 2020). The malleability of learning styles implies that they are not immutable innate characteristics but rather can be altered by the circumstances, surroundings, instructional approaches, and content being taught (Koohestani & Baghcheghi, 2020). Hence, it is imperative for educators to be cognizant of these possible alterations and modify their teaching methods accordingly in order to assist pupils effectively (Koohestani & Baghcheghi, 2020). Research has investigated the influence of learning styles on academic achievement, revealing a correlation between students' favoured learning styles and their success in different educational environments (Ramirez, 2022). Through the acknowledgement and adaptation of various learning styles, educators can create a comprehensive curriculum that meets the requirements of all learners, fostering academic achievement and correcting discrepancies in learning results (Akintayo, 2024). Moreover, having knowledge of students' learning styles might impact the design of assignments and assessments, thereby moulding students' academic and emotional growth (Dey, 2024).

The complexities surrounding students' learning styles in educational environments are vital and essential for achieving good teaching and learning results. An important obstacle is the educators' limited awareness and understanding of the importance of acknowledging and adapting to the various learning styles of pupils (Payaprom & Payaprom, 2020). If teachers are unaware of the many learning styles of pupils, they may rely on traditional teaching approaches that may not meet the needs of all learners. An instructional technique that largely relies on lectures may overlook pupils who have a superior understanding of subjects through hands-on experiences or visual aids (Payaprom & Payaprom, 2020). In addition, the existence of strict and unyielding curricula worsens the problem by restricting the opportunities to utilise a range of teaching approaches (Jusoh, 2024). The absence of adaptability might lead to pupils with distinct learning preferences feeling excluded or overlooked within the educational system. These kids may feel that their chosen learning techniques are not recognised or recognised, which can result in a decrease in motivation and self-confidence (Jusoh, 2024).

To effectively address challenges linked to students' learning styles, a highly successful approach would be to establish an ESP (English for Specific Purposes) digital platform that is specifically designed to cater to different learning styles. These digital platforms offer a wide range of content, encompassing visual, aural, kinaesthetic, and textual elements, allowing students to study based on their individual inclinations. For instance, students who possess visual learning preferences can utilise movies and infographics, whereas auditory learners can engage with podcasts or audio recordings. The platform can provide interactive activities, such as simulations and practical exercises, to cater to kinaesthetic learners. Furthermore, the platform can be enhanced with adaptive assessment tools that can evaluate students' advancement according to their individual learning preferences and offer

tailored feedback. An ESP digital platform tailored to many learning styles not only enhances student engagement and motivation but also guarantees equitable opportunities for every student to excel in English learning according to their individual requirements. Additionally, it can aid educators in effectively overseeing diverse classes and facilitating a more comprehensive and efficient learning environment.

The distinctiveness and originality of creating an ESP (English for Specific Purposes) digital platform customised to students' learning styles are in the method that combines educational technology with a comprehensive comprehension of the variety of learning styles. Adapting teaching tactics to align with the prevailing learning styles can greatly enhance the educational experience for pupils (Mpwanya & Dockrat, 2020). Research has demonstrated that tailoring instructional approaches to accommodate various learning styles results in improved learning outcomes and enhanced learning performance (Mpwanya & Dockrat, 2020). By tailoring teaching methods to match individuals' unique learning styles, educators can optimise the delivery of educational material and enhance students' understanding (Bagchegi et al., 2021). An understanding of students' learning styles offers useful insights for instructional planning, guaranteeing that teaching methods align with the diverse requirements of learners (Eng & Daniel, 2021).

Creating a digital platform that is specifically tailored to satisfy the requirements of ESP (English for Specific Purposes) and can be customised for different learning styles is a novel initiative that has not been thoroughly investigated. The platform offers several content formats, including video, audio, interactive simulations, and text. Additionally, it utilises adaptive assessment to deliver tailored feedback based on individual students' learning preferences. This innovation has the potential to enhance the efficacy of ESP learning by guaranteeing that each student may learn in their preferred manner while simultaneously equipping educators with the means to successfully manage varied classes. This research provides a noteworthy and novel contribution to the field of educational technology and language teaching, specifically in the realm of personalised learning.

The objective of this research study is to provide a specialised digital platform for English language learning that is customised to accommodate the various learning styles of students. Utilising Borg and Gall's R&D methodology, this research aims to cater to the diverse preferences of visual, kinaesthetic, and auditory learners in the field of ESP Course Design.

Learning experience

Students' experiences in both formal and informal schooling include every interaction and procedure they go through. This experience is made up of several elements, including the subjects covered, the lecturers' methods of instruction, the classroom setting, and the interactions between the students and the lecturers. A multitude of factors influence how well kids learn and how far they may go in their schooling. The literature has underlined the importance of forming meaningful connections with teachers and pupils (Venaruzzo et al., 2022). These connections are crucial for influencing how students learn as well as providing avenues for collaboration, support, and information exchange. Sriwigati and Musharyanti (2022) state that research has shown that peer learning strategies are particularly beneficial for improving student learning outcomes. Peer interactions facilitate cooperative learning, which enhances students' understanding of the subject matter and fosters a feeling of community in educational settings.

Additionally, it has been shown that interactions between students and professors have an impact on students' learning perspectives and academic achievement (Winterton et al., 2020). Positive interactions with instructors can lead to better learning outcomes and more engaging educational experiences. Peer mentorship is also recognised as a helpful tool for enhancing student learning (Goodrich, 2021). When students participate in peer mentoring relationships, they can benefit from modelling and imitation, which deepens their understanding of the subject matter. All things considered, the learning environment, technology use, peer and teacher connections, and the learning environment all contribute to the complex and varied learning experience that kids have. By fostering meaningful relationships between students and teachers, creating the best possible learning settings, making responsible use of technology, and promoting collaborative learning opportunities,

educational institutions can enhance students' educational experiences and support their academic success.

Learning style

Learning style pertains to the distinct manner in which individuals assimilate, analyse, and retain information. This idea incorporates the various methodologies employed to comprehend information, including visual, aural, and kinesthetic modalities. For instance, individuals who possess a visual learning style have more proficiency in using visual aids such as pictures, graphs, or diagrams. On the other hand, auditory learners excel by engaging in discussions, attending lectures, or actively listening to information. Conversely, kinesthetic learners have a preference for acquiring knowledge through engaging in hands-on and physical activities. Comprehending and implementing suitable learning styles can enhance learning effectiveness, as these techniques are customised to an individual's innate mode of absorbing and assimilating information.

Studies have demonstrated that individual preferences for learning styles significantly impact academic performance. Research has shown that customising educational methods to align with students' individual learning styles can have a favourable influence on their academic achievement (Zain et al., 2019). A recent study conducted by Fahim et al. (2021) utilised the VARK questionnaire to examine medical and dental students. The study emphasised the significance of identifying preferred learning styles in order to enhance educational outcomes. By understanding the preferred ways that students use to learn, understand, remember, and retrieve information, educators can customise their teaching approaches to better meet the specific needs of each student (Fahim et al., 2021). Moreover, the influence of learning styles on academic achievement has been a topic of fascination in diverse educational environments. Studies have shown that traditional teaching approaches have a substantial impact on the academic achievement of students with various learning styles (Sathiyapriya et al., 2021). By taking into account the various ways in which students perceive, process, store, and remember information, educators can adjust their teaching methods to suit these differences and improve learning results (Sathiyapriya et al., 2021).

English for Specific Purposes (ESP) digital platform

Education and training professionals encounter novel problems in addressing the varied learning requirements in the constantly changing digital age. An innovative solution that has arisen to tackle this difficulty is the learning style-based ESP (English for Specific Purposes) Digital Platform. The platform is specifically developed to provide a customised learning experience based on individual preferences for learning styles, therefore enhancing the efficacy and efficiency of learning. As can be seen in Table 1, the ESP Digital Platform incorporates several learning approaches, including visual, auditory, and kinesthetic, into a single adaptable platform based on learning styles. Through the use of digital technology, the platform enables users to select the most suitable learning technique for their individual style, thereby enhancing the absorption of the material. This technique not only enhances participants' involvement in the learning process but also guarantees that they can acquire knowledge in a manner that is most innate and convenient for them.

METHOD

Research Method

The Research and Development (R&D) method developed by Borg and Gall (1983) is a systematic approach to design, develop, and evaluate educational products. This method involves steps such as preliminary study, preparation, initial product development, initial trial, initial product revision, main product trial, main product revision, final product trial, final product revision, and dissemination. In their book, Borg & Gall (1983:775) proposed ten steps in conducting R&D. The ten steps are organised in the following order and adapted as displayed in Figure 1.

1. Research and Information Gathering
   Research begins with studying related literature, analysing needs, and preparing a preparatory framework.

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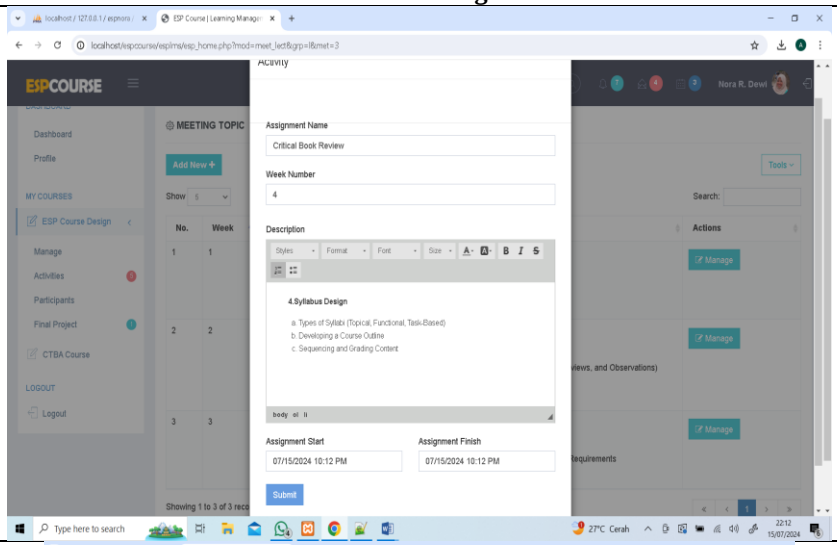
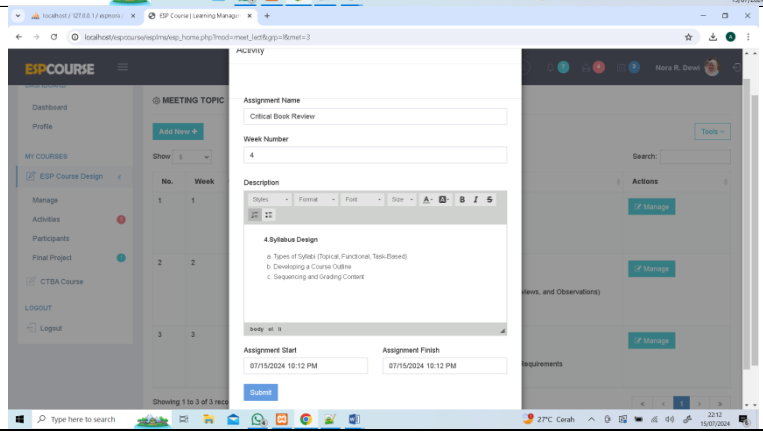
Table 1
Research and Design of English for Specific Purposes Digital Platform

No.	Feature Design	Description	Picture Design
1.	Learning Style	This feature consists of visual, kinesthetic, and auditory learning styles. Visual learning consists of infographics, diagrams, and concept maps. There are also interactive tutorials that make it easier for students to learn the subject matter. Kinesthetic learning contains hands-on activities or interactive simulations, project-based learning models, and educational games. Auditory learning consists of delivering material through podcasts, audio-recorded group discussions, and the use of text-to speech.	
2.	Learning Style Adaptation	An adaptive system that can identify students' dominant learning styles through surveys and ratings and automatic personalisation between users.	

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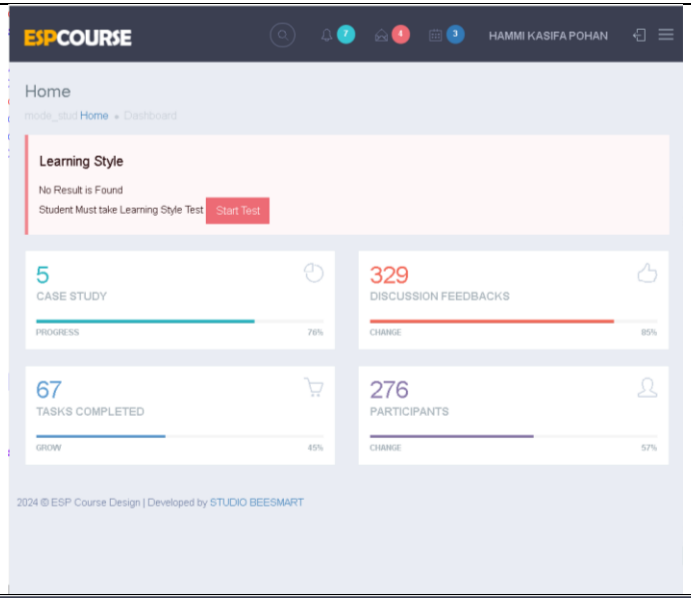
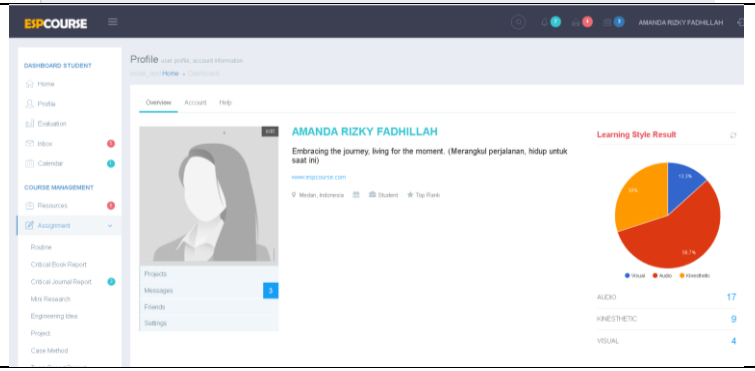
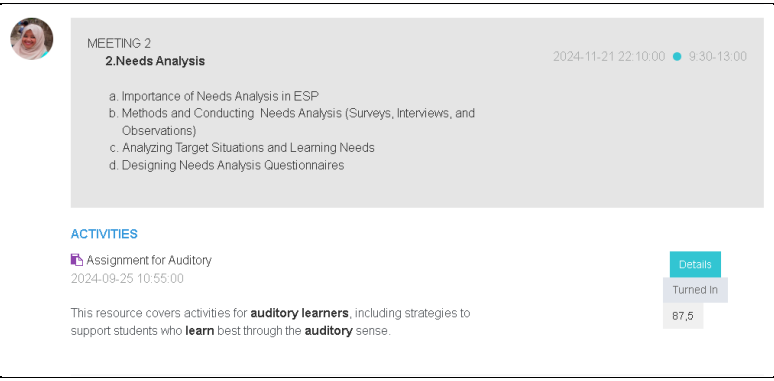
3.	Evaluation and measurement	Formative and summative assessments tailored to students' learning styles	
4.	Interactive and Collaborative Modules	Audio-visual based shared discussion forums and intertactual virtual classroom sessions with real-time collaboration	

5.	Accessibility and User-friendliness	Intuitive and responsive interface design, compatible with mobile and desktop. Simple navigation options to guide users	

2. Planning
   This involves formulating expertise and skills related to the research problem, formulating the objectives of each stage, and designing the research steps and feasibility studies required.

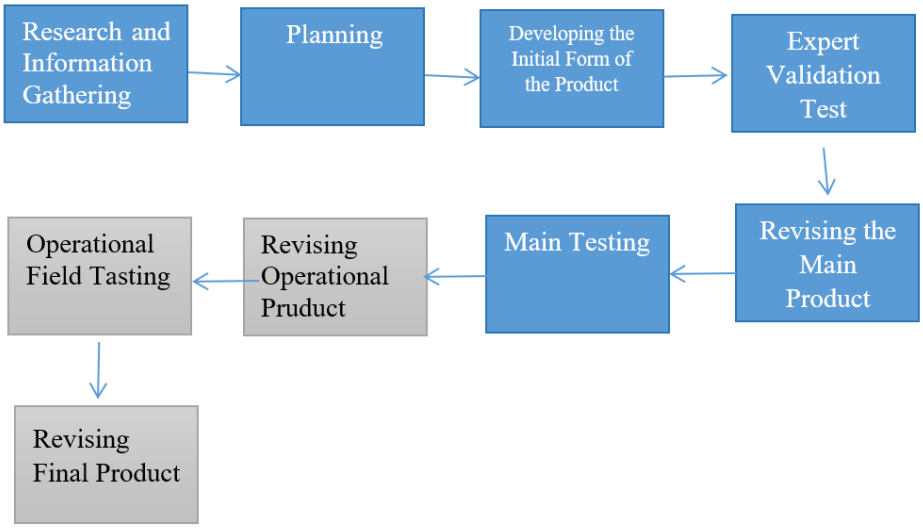
3. Developing the Initial Form of the Product
   In this step, the initial educational product, referred to by some as the 'pilot product,' is developed by preparing and evaluating supporting components, as well as guidelines and manuals.

4. Expert Validation Test
   The initial product is tested on a limited scale to a few selected parties (3-4) through interviews, questionnaires or observations to obtain and validate the product. interviews, questionnaires or observations to obtain and analyse data for the next step.

5. Revising the Main Product
   The initial product/test was revised using the data obtained in the fourth step. Revision may be done more than once depending on the results of the product trial. Revised ready for wider testing.

6. Main Testing
   This step is also called main testing where the revised educational product is tested on a wider scale to many parties (5-15). On a wider scale to many parties (5-15). Data is usually collected using qualitative methods. Qualitative. Some products need to be conducted in an experimental research design to get the right feedback/data for the next step. Appropriate feedback/data for the next step.

Figure 1
The Research and Development (R&D) Method Developed by Borg and Gall Modified by Author



Population and sample
This research uses purposive sampling of students. The study population consists of 50 students enrolled in ESP Course Design across six classes. Through a structured sampling method, students from each class were selected to represent the diverse demographics of the population. Utilising a mixed-methods approach, the research employed surveys and interviews to gather data on students' learning preferences and experiences.

Data collection techniques

The data collection technique uses a questionnaire for selected samples. The questionnaire consists of dimensions and indicators adapted to this research. There are 5 dimensions with 3 indicators each that represent this research. The assessment range is 0-100, and the scores are filled in by students who use the ESP digital platform. A literature review was carried out on books and journals related to the results of this research.

Data analysis

Data analysis using the Research and Development (R&D) method developed by Borg and Gall involves a systematic series of steps to develop, test, and refine educational products. This method comprises ten steps, including problem identification, literature review, initial product development, field testing, and product revision based on test results. Data collected through various testing phases are analysed qualitatively and quantitatively to evaluate the product's effectiveness, reliability, and usability. This process ensures that the final product is not only based on theory and research but has also been validated through practical testing involving real users. This data analysis provides a robust foundation for making informed decisions about product refinements, ensuring that the final outcome is an effective and applicable solution in educational contexts. However, researchers only use 6 steps such as research and information gathering, planning, developing the initial form of the product, expert validation test, revising the main product, and main testing.

RESULT

Research and information gathering

Research and Information Gathering for an ESP (English for Specific Purposes) digital platform is a crucial process that involves collecting and analysing data related to user needs and the latest trends in educational technology. The initial stage usually involves a literature study on learning styles, language learning methodologies, and users' specific needs in the context of ESP. This includes exploring various relevant pedagogical approaches, such as project-based learning, educational games, and multimedia tools that support visual, auditory, and kinesthetic learning styles. The research also includes analysing the needs of potential users, such as students or professionals, to understand their challenges in learning English for specific purposes and determine the most needed features.

After understanding the context and user needs, the next step was to gather technical information regarding the tools and technologies that could be integrated into the platform. This includes evaluating various digital platforms and frameworks, such as HTML5, CSS3, JavaScript, and backend systems like Node.js or Django. This information is essential for designing and implementing adaptive features that enable the personalisation of learning experiences according to individual learning styles. In addition, this research involves testing and evaluating existing solutions to identify strengths and weaknesses that may affect the design and functionality of ESP digital platforms. By thoroughly collecting and analysing this data, developers can create platforms that are more effective and responsive to user needs in the context of ESP.

Planning

Planning for an ESP (English for Specific Purposes) digital platform involves strategic and tactical planning to ensure successful development and implementation. This planning stage starts with setting the goals and objectives of the platform, such as increasing user engagement and learning effectiveness based on individual learning styles. It includes designing the key features to be included in the platform, such as customisable content, adaptive evaluation tools and interactive modules. The development team needs to create a clear development roadmap, including timelines for critical phases such as design, development, testing and launch. In addition, this planning includes the budget and necessary resources, such as technical labor, development tools, and software license fees.

Next, planning includes drafting a project management plan that includes risk mapping, workflow, and assignment of responsibilities. This involves identifying and mitigating potential risks

that could affect the project schedule or quality, such as technical issues or the need for feature changes. The plan also includes a strategy for continuous testing and evaluation, which ensures that the platform can be continuously improved based on user feedback and changing needs. With careful planning, the development of an ESP digital platform can run more smoothly, resulting in an end product that meets user expectations and enhances the English learning experience for specialised purposes.

Developing the initial form of the product

Developing the Initial Form of the Product for an ESP (English for Specific Purposes) digital platform involves creating an initial prototype that reflects the basic features and functionality of the planned platform. At this stage, the development team designs and builds an initial version of the platform that includes key elements such as the user interface, content modules, and evaluation tools. This prototype often serves as the minimum viable version of the product, allowing the team to test design concepts and basic functionality before proceeding to further development. During this phase, key features such as content tailored to learning styles, adaptive systems for personalisation, and interactive modules are implemented with a focus on validating core ideas.

In addition, this early development phase also includes functionality testing and gathering feedback from early users or stakeholders to identify the strengths and weaknesses of the prototype. This testing is often done through beta testing sessions or focus groups that provide insight into how users interact with the platform, as well as how effective the platform is in meeting their needs. Based on this feedback, developers can make adjustments and improvements to the prototype to ensure that the final product will better match user expectations and needs. This process is crucial to ensure that the developed ESP digital platform not only functions well but also provides a satisfying and effective user experience.

Expert validation test

The Expert validation test for an ESP digital platform is an evaluation stage where experts in related fields, such as language educators, ESP specialists, and software developers, assess and provide feedback on a prototype or early version of the platform. This process aims to ensure that the design, content, and functionality of the platform meet academic standards and specific user needs. As depucted in Table 1, different experts evaluate various aspects, such as the relevance of ESP content, the effectiveness of adaptive features, and the quality of the user interface. They also assess the extent to which the platform can support different learning styles and provide recommendations for improvement based on their expertise.

Revising the digital platform

Revising the Main Product for an ESP (English for Specific Purposes) digital platform is a critical process where the development team makes adjustments and improvements to the platform based on feedback from previous stages, such as the Expert Validation Test and user trials. This stage involves an in-depth analysis of the comments and recommendations received, as well as the identification of areas that require improvement or refinement. The team will update sub-optimal features, fix technical issues, and enhance the user interface to improve the learning experience. These revisions may include changes to content, adaptation of features based on learning styles, or improvements to the functionality of the adaptive system to ensure that the platform is more effective in meeting user needs.

In addition, revisions to the main product also involve retesting to ensure that the fixes made do not introduce new problems and that all features work properly once updated. This process often involves continuous iteration, where revisions are made repeatedly until the platform reaches the desired quality and performance standards. The ultimate goal of the revision is to produce a platform that is stable, intuitive, and effective in delivering English language learning for specific purposes tailored to various learning styles, thus providing an optimal user experience and meeting stakeholder expectations.

Table 1
Validation from Experts

	Linguists	Validity Score
1	Content Quality and Accuracy	89%
2	Language Use	92%
3	Communicative and Interactive	88%
Overall		90%
	Media Expert	**Validity Score**
1	Ease of use	95%
2	Visual and Interactive Design	91%
3	Media Suitability with Content	90%
4	Responsiveness and Accessibility	92%
Overall		91%
	Learning Design Expert	**Validity Score**
1	Learning Structure and Flow	92%
2	Appropriateness to Learning Style	86%
3	Use of Technology in Learning	90%
Overall		88%
	Expert Judgement	**Validity Score**
1	Language Expert	90%
2	Media Expert	91%
3	Learning Design Expert	88%
Overall		90%

Main testing

Main Testing for an ESP (English for Specific Purposes) digital platform is an important stage in the development cycle that involves a thorough evaluation of the entire system to ensure that all aspects of the platform are functioning properly and in accordance with the intended purpose. At this stage, various types of testing were performed, including functional testing to verify that key features operate according to specifications, performance testing to ensure that the platform can handle user loads without interruption, and security testing to protect user data and maintain system integrity (see Table 2). These tests are often conducted by involving real users in an environment similar to actual usage conditions to obtain accurate and relevant feedback.

Table 2
Digital Platform Testing

No	Dimensions	Indicator	Visual (n:27)	Kinesthetic (n:12)	Auditory (n:11)	Overall
1	Quality of Learning Content	Relevance of Material	95%	90%	85%	95%
2		Clarity and Understanding of Material	95%	90%	95%	90%
3		Interactivity and Engagement	90%	80%	90%	95%
4	Interface Design and Usage	Ease of Navigation	95%	90%	90%	90%
5		Visual and Aesthetic Design	95%	85%	95%	90%
6		Accessibility	95%	90%	85%	90%
7	Learning Style Adaptation	Content Personalisation	95%	90%	90%	90%
8		Learning Flexibility	95%	90%	90%	95%
9		Feedback and Ratings	90%	90%	90%	90%
10	Learning Satisfaction and Motivation	Learning Satisfaction	95%	85%	95%	90%
11		Motivation to learn	95%	90%	90%	95%
12		Overall Experience	95%	80%	90%	85%
13	Learning Effectiveness	Skills Improvement	95%	90%	95%	85%
14		Achievement of Learning Goals	95%	90%	90%	95%
15		Self-evaluation	90%	90%	95%	90%
Overall			94%	88%	91%	91%

DISCUSSION

The research findings demonstrate that the ESP Digital Platform has the potential to enhance students' learning styles in English lessons. The results reveal a clear preference for visual learning, with 54% of students exhibiting this style as their primary mode of engagement. Following visual learners, kinesthetic learners comprise 24% of the student population, indicating a significant group that benefits from hands-on, interactive experiences. Auditory learners make up the smallest group at 22%, suggesting that while still important, listening-based activities may be less prevalent in students' preferred learning methods. This distribution of learning styles underscores the importance of a diverse and adaptable approach to English language instruction, with a particular emphasis on visual aids and interactive elements to cater to most students' learning preferences.

The integration of digital platforms in English for Specific Purposes (ESP) education has garnered significant attention in recent research. One study by Adara (2022) emphasises the use of digital storytelling to enhance ESP students' motivation and autonomy, particularly during challenging times such as the Covid-19 pandemic. This approach aligns with the notion that ESP students often have specific goals related to mastering English for their respective disciplines, making tailored digital interventions crucial for their learning success. Additionally, Caroline (2023) highlights the potential of microlearning in ESP, showcasing how digital materials can facilitate self-paced learning and empower students in their educational journey. Furthermore, the shift towards digital integration in ESP teaching materials, as discussed in a systematic review by an unnamed author (2024), is seen to enhance learner engagement and autonomy, ultimately improving the relevance and interactivity of the learning experience. Romadhon (2024) also points out that digital media platforms allow for self-paced learning, enabling students to access materials conveniently and cater to their specific learning needs. These findings underscore the importance of leveraging digital tools to accommodate diverse learning styles, such as the visual, kinesthetic, and auditory preferences observed in students.

Moreover, Masitoh (2024) highlights how ESP lecturers combine various learning platforms to create enriched learning experiences for students, emphasising the role of digital platforms in enhancing educational outcomes. Similarly, Dmitrenko (2024) and Akilli et al. (2019) delve into the use of Information and Communication Technology (ICT) in ESP education, showcasing how digital English courses and online learning platforms can contribute to increased English proficiency and student motivation. These studies suggest that incorporating digital tools in ESP instruction can lead to improved learning outcomes and student engagement.

The results showed that students' learning experience using ESP Digital Platform improved their English education improvement. This is indicated by the existence of an average student learning experience on each indicator > 90%. This shows that the ESP Digital Platform has the ability to offer personalised learning experiences. The findings from this study highlight the pivotal role of digital devices in facilitating intentional and incidental learning, thereby strengthening students' coursework and expanding their access to the target language (Muharom et al., 2021). According to a survey conducted by Johnson (2021), 78% of students felt that the platform's adaptive learning technology helped them focus on their specific areas of weakness, leading to more efficient learning outcomes. The platform's algorithms track student performance and customise lessons to address individual learning gaps, ensuring that each student receives the support they need to improve their language skills.

Moreover, the results from the research conducted shed light on the positive impact of collaboration and teamwork in fostering meaningful learning experiences among ESP students (Burkšaitienė & Šliogerienė, 2019). The study participants emphasised the value of peer feedback in helping them understand how to enhance their learning in ESP, indicating that interactive and collaborative elements play a crucial role in optimising the learning process (Burkšaitienė & Šliogerienė, 2019). This collaborative approach aligns with the essence of personalised learning experiences, where students engage with peers and receive constructive feedback to improve their language skills effectively. Furthermore, the systematic review conducted by Romadhon (2024) emphasises the significance of understanding ESP students' perceptions of digital materials in English language learning to optimise their learning outcomes (Romadhon, 2024). By gauging students'

perspectives on digital media and its impact on their learning, educators and curriculum developers can tailor their approaches to better integrate digital resources into English for Business courses, thereby enhancing the overall learning experience (Romadhon, 2024).

In the realm of English for Specific Purposes (ESP), the integration of the ESP Digital Platform with innovative teaching strategies and collaborative learning environments has been identified as a pivotal factor in enhancing students' English education. By amalgamating personalised learning experiences, fostering collaboration, and effectively utilising digital resources, educators can create dynamic and engaging learning environments tailored to the diverse needs of ESP students, ultimately leading to improved language acquisition and academic success.

Research by Ekayati et al. (2022) emphasises the importance of a learning-centered approach and skill-centered course design as innovations in ESP course design for students in non-English study programs. This highlights the significance of tailoring educational strategies to meet the specific requirements of ESP learners, ensuring that the content and delivery methods are aligned with their needs and objectives. Additionally, Kartika (2023) underscores the essential components of collaboration, critical thinking, and information technology abilities in ESP online material design projects, further supporting the notion that collaborative learning environments and digital resources play a crucial role in enhancing ESP education.

Moreover, Vavilina (2020) discusses the utilisation of Bloom's Revised Taxonomy to develop digital literacies in the ESP classroom, emphasising the importance of integrating technology to enhance students' literacy skills. This underscores the value of incorporating digital tools and resources to augment traditional teaching methods and promote a more interactive and engaging learning experience for ESP students. Additionally, Ningsih (2023) evaluates the effectiveness of an AI-based online testing platform, Classtime.com, in teaching tenses in ESP, demonstrating the potential of digital platforms to enhance language learning outcomes.

Furthermore, Urlica et al. (2019) highlight the benefits of combining concept mapping with content-based learning in collaborative environments to enhance soft skills such as critical and creative thinking in ESP education. This underscores the significance of innovative teaching strategies that promote active engagement and meaningful learning experiences for ESP students. Additionally, Farmati (2023) discusses the advantages of blended learning in ESP instruction, emphasising the role of online tools in facilitating collaborative learning through group projects and joint presentations.

In conclusion, the amalgamation of the ESP Digital Platform with innovative teaching strategies and collaborative learning environments is instrumental in elevating students' English education improvement in ESP. By offering personalised learning experiences, fostering collaboration, and leveraging digital resources effectively, educators can create dynamic and engaging learning environments that cater to the diverse needs of ESP students, ultimately leading to enhanced language acquisition and academic success.

In conclusion, the amalgamation of the ESP Digital Platform with innovative teaching strategies and collaborative learning environments has proven to be instrumental in elevating students' improvement in English education. By offering personalised learning experiences, fostering collaboration, and leveraging digital resources effectively, educators can create dynamic and engaging learning environments that cater to the diverse needs of ESP students, ultimately leading to enhanced language acquisition and academic success.

CONCLUSION

The research findings demonstrate that the ESP Digital Platform significantly enhances students' learning styles in English lessons, with 54% of students preferring visual learning, 24% identifying as kinesthetic learners, and 22% as auditory learners. This distribution underscores the necessity for a diverse and adaptable approach to English language instruction, emphasising visual aids and interactive elements. The platform has shown a substantial impact on improving English education, with over 90% average satisfaction across various indicators, and 78% of students reported that its adaptive learning technology helped them focus on their weaknesses, leading to more efficient outcomes. The integration of digital platforms in ESP education has been found to enhance motivation

and autonomy, particularly through digital storytelling and microlearning approaches, improving learner engagement and enabling self-paced learning. The use of Information and Communication Technology (ICT) has increased English proficiency and motivation, with ESP lecturers combining various platforms to create enriched learning experiences. Collaborative elements, such as peer feedback, further enhance learning by fostering meaningful interactions. Future research should explore the impact of digital platforms on different learning styles in ESP education, optimise tailored digital interventions for visual, kinesthetic, and auditory learners, and examine the long-term effects on language acquisition and academic success. Educators and curriculum developers are encouraged to integrate digital resources into teaching strategies, considering students' perspectives to refine the ESP Digital Platform, ultimately supporting diverse learning styles and improving educational outcomes.

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